Evaluation of MyGateway Use FS 2002
Executive Summary

The following report details findings from a survey that collected data on student assessments of MyGateway in classes from Fall Semester 2002. 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. This semester we measured daily instructor access of 12 key content and administrative areas. Measurement was taken on September 18, 2002. The scores ranged from a high of 381 to a low of 1. The mean number of day accesses was 46 (median 32). 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. We especially focused on the degree of use of MyGateway by classes to help us better understand how students in classes that use it more compare to those in classes that use it less.

Highlights from the survey follow:

- Almost 70% of the students indicated they own a Pentium class or Macintosh personal computer, while an additional 15 percent reported owning “other” computers.

- Sixty-five percent (65%) of students access MyGateway primarily off campus.

- Thirty-seven percent (37%) 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:
  o actively participate in the course (Question 12)
  o work on assignments with other students (Question 13)

- Students in classes with high use of MyGateway were more likely (p < .05) to:
  o review lecture notes for clarification (Question 9)
  o discuss ideas with other students (Question 11)
  o actively participate in the course (Question 12)
  o work on assignments with other students (Question 13)
  o complete assignments on time (Question 14)
  o access other online materials related to course content (Question 15)
  o spend more time studying for the course (Question 16)

- 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 32)
  o take another course at UMSL (Question 36)
  o complete their degree at UMSL (Question 37)
  o agree that they were more able to seek clarification (Question 8)
  o receive instructor comments on assignments quickly (Question 10)
  o communicate with their instructor (Question 17)
  o think more about course topics (Question 21)
  o understand concepts and ideas in the course (Question 28)

- 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.
• Benefits to students in high use courses paralleled those listed by students in low use courses. The top four were identical: “access to course materials” was the most-frequently mentioned benefit, followed by “communication ease,” “easy access and convenience,” and “faster feedback.”

• The most frequent response to a question about problems experienced was “No Problem” (averaged 38% for the two groups). Problems noted by students in low use courses included “MyGateway down or network access slow;” “lack of understanding as to what, where, and how to use MyGateway;” “downloading and printing various documents,” and “multiple logins required”. There was greater reference to the problem of “campus computer labs being busy or closed” at the times students wanted to use a computer by both high and low groups.

Like many institutions of higher learning, the University of Missouri-St. Louis faces significant challenges involving technology integration. MyGateway was introduced as UM-St. Louis’ course management system two and a-half years ago. Faculty and students continue to make significant strides incorporating MyGateway into the learning process. It seems clear from our findings that the more students use MyGateway, the more they appreciate its benefits. Therefore, the key to successful integration of MyGateway into the learning process lies with the faculty. A key issue is to encourage further discussion of faculty incentives among administrators. Expanding the number of faculty users might require incentives for full-time faculty and additional support services for part-time faculty.

Analysis of the data have indicated several levels of responsibility for increasing the efficiency of the course management system and for ensuring greater student satisfaction and success as they are involved in blended course models at UM-St. Louis. Orientation materials and technical support guidelines are available to both faculty and students; additional topics were identified for development by the MyGateway support team. It is recommended that faculty assume responsibility for orienting their students to MyGateway.

Implications and recommendations drawn from the data will guide technology planning and support provided by Information Technology Services and UM-St. Louis academic administration. They include several important instructional strategies (i.e., greater use of MyGateway features and syllabus development to include online expectations), for faculty implementation. Future faculty support and training will focus on those things that will help improve our students’ learning outcomes and satisfaction.

The MyGateway evaluation team included Cheryl Bielema, Larry Irons, Robert Keel, and Supaporn Triyakul.

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.

The full report follows.
Comprehensive Evaluation of MyGateway Use by Faculty and Students

Report of FS 2002

Purpose

The purpose of evaluating the ongoing efforts in technology-enhanced credit courses, making use of the course web management tool, MyGateway, is to document the experiences of two key stakeholders: enrolled students and teaching faculty. Secondly, the areas of questioning and subsequent analyses will focus on identification of essential support strategies for faculty using technology and the improvement of learning experiences for our 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 2002, and,
- Indicators of optimal teaching and learning interactions between and among faculty and students.

Key evaluation questions determined by the process owners (Information Technology Services and Center for Teaching Excellence) are:

1. Who are the students (enrollment in degree programs; hours completed; computing and access capabilities);
2. How did faculty and students use the electronic learning environment;
3. Will future course selection and degree completion be influenced by MyGateway use in the current semester;
4. What did participants learn from their experiences; and,
5. What do students recommend as improvements for technology-enhanced courses?

Methodology

A stratified random sample (10 percent of "active" courses within MyGateway) was selected according to levels of faculty use of the course management tool MyGateway [total courses=694]. The number of courses randomly selected=70; those participating=61. This semester we measured daily instructor access of 12 key content and administrative areas. Measurement was taken on September 18, 2002. The scores ranged from a high of 381 to a low of 1. The mean number of day accesses was 46 (median 32). 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 5-December 9, 2002.

Completed surveys by undergraduate and graduate students numbered 1003 (62.3% response rate) [approximate enrollment in sample=1856, approximate enrollment in participating courses=1609]. Low use courses numbered 31; high use courses numbered 30. Students in 13 of the participating courses were offered the online survey (only), as the instructors preferred that method or they were teaching “distance learning” courses. Nine 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 when contacted.

Students responding in high use courses numbered 570, while 433 students in low use courses responded. Of the total number of respondents, 93 completed online surveys. The response rate was substantially lower for the online surveys than for face-to-face surveying.

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
Academic Goals regarding Expected Grades and Degree Completion

Profile of Students Responding (Low Use/High Use)

The students in this stratified random sample are at various levels of academic endeavor. This majority of this student group is undergraduate, while those involved in graduate study represents about a quarter of the sample.

Table 1. Highest Degree Earned

<table>
<thead>
<tr>
<th>Degree Earned</th>
<th>%WS02 (Low)</th>
<th>% WS02 (High)</th>
<th>%FS02 (Low)</th>
<th>%FS02 (High)</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Degree</td>
<td>51.6</td>
<td>48.5</td>
<td>54.1</td>
<td>46.0</td>
</tr>
<tr>
<td>AA/AAS</td>
<td>16.0</td>
<td>24.7</td>
<td>21.0</td>
<td>19.5</td>
</tr>
<tr>
<td>BA/BS</td>
<td>23.4</td>
<td>18.3</td>
<td>18.4</td>
<td>23.5</td>
</tr>
<tr>
<td>MS/MA/PhD/EdD</td>
<td>5.4</td>
<td>4.0</td>
<td>4.5</td>
<td>4.2</td>
</tr>
</tbody>
</table>

An additional question asked students about the number of credits earned at the time of the survey. Hours were sub-divided by 15 semester-hour segments. Thirty-four percent (34.5) appeared to be in their first semester at UMSL, indicating 0-15 credits; 17.3 percent had earned 16-30 credits; 13.8 percent, 31-45 credits, while 8.3 percent checked 46-60 semester hours. Those accumulating 60+ credits comprised 26 percent of the respondents.

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 2002, an increasing percentage of the respondents have reported owning a new computer (e.g., Pentium). Over 65% in fall 2002 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 was 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>PERCENT, WS01</th>
<th>PERCENT, FS01</th>
<th>PERCENT, WS02</th>
<th>PERCENT, FS02</th>
</tr>
</thead>
<tbody>
<tr>
<td>PC, Pentium or newer</td>
<td>60.5</td>
<td>62.2</td>
<td>61.6</td>
<td>65</td>
</tr>
<tr>
<td>PC, 486 or older</td>
<td>4.4</td>
<td>2.4</td>
<td>3.9</td>
<td>4</td>
</tr>
<tr>
<td>Macintosh</td>
<td>4.4</td>
<td>2.7</td>
<td>3.4</td>
<td>4</td>
</tr>
<tr>
<td>Other</td>
<td>11.8</td>
<td>12.7</td>
<td>10.8</td>
<td>15</td>
</tr>
<tr>
<td>Don't Know</td>
<td>9.4</td>
<td>5.4</td>
<td>10.5</td>
<td>--</td>
</tr>
<tr>
<td>No personal computer</td>
<td>9.5</td>
<td>14.4</td>
<td>9.8</td>
<td>12</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.

Table 3. Primary Access Location

<table>
<thead>
<tr>
<th>INTERNET ACCESS LOCATION</th>
<th>PERCENT, WS02 (LOW)</th>
<th>PERCENT, WS02 (HIGH)</th>
<th>PERCENT, FS02 (LOW)</th>
<th>PERCENT, FS02 (HIGH)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Off campus, via modem</td>
<td>29.2</td>
<td>31.3</td>
<td>27.1</td>
<td>33.3</td>
</tr>
<tr>
<td>Student or dept. computer labs</td>
<td>12.4</td>
<td>12.9</td>
<td>10.1</td>
<td>15.6</td>
</tr>
<tr>
<td>Student Housing</td>
<td>4.2</td>
<td>3.5</td>
<td>2.4</td>
<td>3.2</td>
</tr>
<tr>
<td>Work LAN</td>
<td>3.3</td>
<td>2.7</td>
<td>3.5</td>
<td>3.5</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. One third of this student sample has broadband capabilities (33.7%).

Table 4. Type of Internet Connection to UMSL Servers

<table>
<thead>
<tr>
<th>INTERNET CONNECTION</th>
<th>PERCENT, LOW USE</th>
<th>PERCENT, HIGH USE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dial-up Modem</td>
<td>27.2</td>
<td>35.4</td>
</tr>
<tr>
<td>DSL</td>
<td>9.5</td>
<td>11.3</td>
</tr>
<tr>
<td>Cable Modem</td>
<td>4.8</td>
<td>8.1</td>
</tr>
<tr>
<td>Other (Work LAN)</td>
<td>2.0</td>
<td>1.7</td>
</tr>
</tbody>
</table>
Satisfaction with individual Internet access speed was questioned. Slightly more than 77% 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>PERCENT, LOW USE</th>
<th>PERCENT, HIGH USE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Satisfied to Very Satisfied</td>
<td>32.4</td>
<td>44.8</td>
</tr>
<tr>
<td>Dissatisfied to Very Dissatisfied</td>
<td>10.8</td>
<td>11.7</td>
</tr>
</tbody>
</table>

Learning With and Without MyGateway

We examined the relationship of access location and use to student perceptions of MyGateway by:

1) distinguishing students who primarily use it on campus from those who primarily use it off campus

2) distinguishing low use from high use classes.

We used an independent samples t-test to analyze each of these independent variables (access location and use) in relation to specific items from the MyGateway survey for Winter Semester 2002 (see Appendix A). In particular, our focus is on each independent variable in relation to items that address Learning Activity (questions 9, 11 – 16), Student Satisfaction (questions 33, 35, 36, 37, 38), Student/Teacher Communication (questions 8, 10, 17, 32), and Perceived Learning Outcome (questions 21, 28).

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 might 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>Q9</td>
<td>-1.49</td>
<td>917</td>
<td>.134</td>
<td>-.21</td>
<td>.14</td>
</tr>
<tr>
<td>Q10</td>
<td>-5.37</td>
<td>933</td>
<td>.591</td>
<td>-6.70</td>
<td>.13</td>
</tr>
<tr>
<td>Q11</td>
<td>-1.77</td>
<td>927</td>
<td>.078</td>
<td>-.25</td>
<td>.14</td>
</tr>
<tr>
<td>Q12</td>
<td>-1.9</td>
<td>928</td>
<td>.056</td>
<td>-.25</td>
<td>.13</td>
</tr>
<tr>
<td>Q13</td>
<td>-2.27</td>
<td>917</td>
<td>.024</td>
<td>-.31</td>
<td>.14</td>
</tr>
<tr>
<td>Q14</td>
<td>-1.87</td>
<td>926</td>
<td>.062</td>
<td>-.25</td>
<td>.13</td>
</tr>
<tr>
<td>Q15</td>
<td>-.62</td>
<td>933</td>
<td>.538</td>
<td>-7.65</td>
<td>.12</td>
</tr>
<tr>
<td>Q31</td>
<td>2.64</td>
<td>942</td>
<td>.008</td>
<td>.38</td>
<td>.15</td>
</tr>
<tr>
<td>Q32</td>
<td>-4.5</td>
<td>940</td>
<td>.655</td>
<td>-5.66</td>
<td>.13</td>
</tr>
<tr>
<td>Q33</td>
<td>.22</td>
<td>940</td>
<td>.820</td>
<td>2.96</td>
<td>.13</td>
</tr>
<tr>
<td>Q34</td>
<td>-2.48</td>
<td>946</td>
<td>.013</td>
<td>-.33</td>
<td>.13</td>
</tr>
<tr>
<td>Q35</td>
<td>-1.47</td>
<td>954</td>
<td>.141</td>
<td>-.17</td>
<td>.12</td>
</tr>
<tr>
<td>Q36</td>
<td>-1.77</td>
<td>939</td>
<td>.077</td>
<td>-.25</td>
<td>.14</td>
</tr>
<tr>
<td>Q37</td>
<td>-2.26</td>
<td>918</td>
<td>.024</td>
<td>-.32</td>
<td>.14</td>
</tr>
</tbody>
</table>

Table 6: Access Location Items (independent samples t-test)

Questions 12, 13, 31, 34, and 37 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 12 (“Because of using MyGateway I was more likely to actively participate in the course”). The same pattern held for question 13 (“Because of using MyGateway I was more likely to work on assignments with other students”) as well. Thus, students accessing MyGateway from off campus were less likely to agree with questions 12 and 13. Students accessing MyGateway from off campus were more likely to agree with question 31 (“I prefer communicating with my instructor via [personal] email, outside MyGateway”). Students accessing MyGateway from off campus were more likely to disagree with question 34 (“It takes more effort to complete a course that uses online resources like MyGateway”). Students accessing MyGateway from off campus were more likely to disagree with question 37 (“I am more likely to complete my degree at UMSL because of the advantages of using MyGateway in my courses”).

We expected the flexibility and increased interactivity afforded off-campus students through online course management systems would enhance their satisfaction with, and interaction in class activity. The current findings do not support this assumption. With this discrepancy between the current and previous findings in mind, we plan to look more specifically at this issue in the next survey.

Degree 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>Q9</td>
<td>-6.046</td>
<td>919</td>
<td>.000</td>
<td>-.77</td>
<td>.13</td>
</tr>
<tr>
<td>Q11</td>
<td>-2.282</td>
<td>929</td>
<td>.023</td>
<td>-.30</td>
<td>.13</td>
</tr>
<tr>
<td>Q12</td>
<td>-5.140</td>
<td>930</td>
<td>.000</td>
<td>-.61</td>
<td>.12</td>
</tr>
<tr>
<td>Q13</td>
<td>-2.126</td>
<td>919</td>
<td>.034</td>
<td>-.27</td>
<td>.13</td>
</tr>
<tr>
<td>Q14</td>
<td>-6.066</td>
<td>928</td>
<td>.000</td>
<td>-.75</td>
<td>.12</td>
</tr>
<tr>
<td>Q15</td>
<td>-5.192</td>
<td>935</td>
<td>.000</td>
<td>-.60</td>
<td>.11</td>
</tr>
<tr>
<td>Q16</td>
<td>-4.025</td>
<td>931</td>
<td>.000</td>
<td>-.50</td>
<td>.12</td>
</tr>
</tbody>
</table>

Table 7: 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 review lecture notes for clarification (Question 9), discuss ideas with other students (Question 11), actively participate in the course (Question 12), work on assignments with other students (Question 13), complete assignments on time (Question 14), access other online materials related to course content (Question 15), and spend more time studying for the course (Question 16).

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>Q32</td>
<td>-6.68</td>
<td>942</td>
<td>.000</td>
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<td>.12</td>
</tr>
<tr>
<td>Q33</td>
<td>.987</td>
<td>942</td>
<td>.324</td>
<td>.12</td>
<td>.12</td>
</tr>
<tr>
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<td>948</td>
<td>.262</td>
<td>-.14</td>
<td>.13</td>
</tr>
<tr>
<td>Q35</td>
<td>-1.49</td>
<td>956</td>
<td>.137</td>
<td>-.16</td>
<td>.11</td>
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<tr>
<td>Q36</td>
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<td>.001</td>
<td>-.46</td>
<td>.13</td>
</tr>
<tr>
<td>Q37</td>
<td>-3.14</td>
<td>920</td>
<td>.002</td>
<td>-.41</td>
<td>.13</td>
</tr>
</tbody>
</table>

Table 8: Satisfaction Items (independent samples t-test)

Three items (questions 32, 36, 37) 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 35 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 is distinguished from previous results for this question in that responses were predicted by use level in prior surveys. Whereas, the variable “use” has no statistical bearing on response patterns since mean scores (low use Mean = 2.43, high use = 2.59) for both groups fall on the positive end of the scale.

Students in high use courses were more likely to agree with question 32 (“I am very satisfied with this course because it used MyGateway”). This finding confirms previous responses to the question. For questions 36 and 37 however, new patterns emerged from the survey responses. Student in high use courses were more likely to agree with question 36 (“I am more likely to take another course at UMSL because it uses MyGateway) and with question 37 (“I am more likely to complete my degree at UMSL because of the advantages of using MyGateway in my courses”).
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>
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<td>.001</td>
<td>-.37</td>
<td>.11</td>
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<tr>
<td>Q10</td>
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<td>.000</td>
<td>-.52</td>
<td>.12</td>
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<tr>
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<td>.028</td>
<td>-.27</td>
<td>.12</td>
</tr>
<tr>
<td>Q31</td>
<td>.28</td>
<td>944</td>
<td>.780</td>
<td>3.80</td>
<td>.14</td>
</tr>
</tbody>
</table>

Table 9: Student/Teacher Communication Items (independent samples t-test)

Three 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 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 seek clarification (Question 8), receive instructor comments on assignments quickly (Question 10), and communicate with their instructor (Question 17).

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>Q21</td>
<td>-4.613</td>
<td>876</td>
<td>.000</td>
<td>-.65</td>
<td>.14</td>
</tr>
<tr>
<td>Q28</td>
<td>-5.824</td>
<td>922</td>
<td>.000</td>
<td>-.73</td>
<td>.13</td>
</tr>
</tbody>
</table>

Table 10: Perceived Learning Outcome by Use (independent samples t-test)

Two items in the survey are designed to measure student perceptions of learning outcomes. Questions (21, 28) 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 21 (“I was more likely to think more about course topics because of the online discussions”) and question 28 (“I was better able to understand the ideas and concepts taught in this course”).

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. Thus, the data from the current MyGateway survey lend support the contention that 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.

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?” In an attempt to isolate similarities and differences in the types of problems encountered by these two groups of students, the volunteer comments were sorted in an iterative
fashion, starting first with the research team separately determining themes for one of the groups. In subsequent discussions, new and more descriptive categories were named. The evaluators then regrouped comments to fit the new categories. “Outliers,” those comments not fitting the final group of categories, were also noted.

For comparison of the two groups of students, responses are compiled in the following charts and graphs along with discussion of the similarities and differences.

Four hundred respondents in the low use courses answered the open-ended questions seeking further descriptions of their personal experiences with MyGateway. Over 500 respondents from the high use courses described their experiences. This represented 90 percent of the total respondents.

Table 10. Benefits to Students in Low Use Courses

<table>
<thead>
<tr>
<th>Benefit</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Access to class materials</td>
<td>176</td>
</tr>
<tr>
<td>Communication ease</td>
<td>77</td>
</tr>
<tr>
<td>Self-paced work</td>
<td>3</td>
</tr>
<tr>
<td>Ease of access convenience</td>
<td>56</td>
</tr>
<tr>
<td>Faster feedback</td>
<td>46</td>
</tr>
<tr>
<td>Increase computer skills</td>
<td>4</td>
</tr>
<tr>
<td>MG helps me study</td>
<td>4</td>
</tr>
<tr>
<td>No benefit/disadvantage</td>
<td>8</td>
</tr>
</tbody>
</table>

Table 11. Benefits to Students in High Use Courses
Problems in Using My Gateway

The highest response to this question was “No Problem” (High Use n=205; Low Use n=181). Problems noted by students in low use courses included MyGateway down or network access slow; lack of understanding as to what, where, and how to use MyGateway; downloading and printing various documents, multiple logins required. There was greater reference to the problem of campus computer labs being busy or closed at the times students wanted to use a computer.

Table 12. Problems of Students in Low Use Courses

Different problems were mentioned by students in high use classes, in addition to experiencing the same problems already listed by students in low use classes. These included student email system being down, or busy. Taking online quizzes was mentioned exclusively by those in the high use group. The multiple logins necessary to switch between MyGateway and Studentmail was more often mentioned as a problem by students the high use group.
Table 13. Problems of Students in High Use Courses

<table>
<thead>
<tr>
<th>Problem</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>No problem</td>
<td>205</td>
</tr>
<tr>
<td>Network down / MG busy</td>
<td>22</td>
</tr>
<tr>
<td>Basic learning curve about MG</td>
<td>33</td>
</tr>
<tr>
<td>Student mail problem</td>
<td>18</td>
</tr>
<tr>
<td>Inconvenient access to computers</td>
<td>12</td>
</tr>
<tr>
<td>Instructor inconsistent in posting docs</td>
<td>6</td>
</tr>
<tr>
<td>Online quizzes problem</td>
<td>2</td>
</tr>
<tr>
<td>Lack of MG use</td>
<td>7</td>
</tr>
<tr>
<td>Cut down face-to-face communication</td>
<td>2</td>
</tr>
</tbody>
</table>

**Recommendations**

Analysis of the data have indicated several levels of responsibility for increasing the efficiency of the course management system and for ensuring greater student satisfaction and success as they are involved in blended course models at UM-St. Louis. Orientation materials and technical support guidelines are available to both faculty and students; additional topics are identified below for development by the MyGateway support team.

It is recommended that faculty assume responsibility for orienting their students to MyGateway by addressing the following questions in their syllabi or while introducing the course: (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 computing and access requirements and where to get accurate advice quickly (when problems happen) are important to students’ success. Training in how to print out notes from PowerPoint presentations rather than individual slides was indicated by several students’ problem statements. Preparing additional help documents and involving instructors in distributing a basic introduction to MyGateway or pointing their students to it on web seem advisable.

Multiple log-ins required from MyGateway to student email still remains a source of frustration and misunderstanding for many of our students. Written explanations regarding some of the most common issues and benefits of using Studentmail rather than their ISP or free email system would provide students a heads-up and might allay perceptions of this being a problem.

**Addressing Technical Difficulties**

The current data revealed that students are expected to print a variety of documents for use in the course and are experiencing slow or aborted access to the My Gateway course sites. A list of Frequently-Asked-Questions might include these items to help facilitate individual troubleshooting. Several trouble areas were identified:
• Printing problem – when document appears within the MyGateway frame, rather than launched in a separate window, students were unsuccessful

• Email deletion process is done in two steps

• Finding StudentMail – sent email through MyGateway, but didn’t realize StudentMail was separate application

• MyGateway orientation – when first introduced, point students to Student Help web pages. Make sure documents are written in brief, bulleted form (students dislike reading through a long document to find answers)

• ID and password not working – referral to help documents in Student Help web pages. Describe reasons behind keeping ID same throughout university attendance

• Accessing MyGateway from off-campus – seems to be slower access or more frequent disconnects via UMSL connections and ISPs this semester. Add advice regarding reasons and what to do when message is “page unavailable.”

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 student sample.

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 both the expectations for and extent of students’ online participation as well as the existing resources available to help them. If grades will be routinely posted on the course site, students would like to know that. A syllabus template might be developed and posted for faculty use, in collaboration with the Center for Teaching and Learning.

More consistent organization of course materials in folders and specific locations 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.

Overall Impact of Online Materials and Learning Activities

Faculty and students are making significant strides incorporating MyGateway into the learning process. Nevertheless, many challenges remain. Increasing faculty acceptance of online course management is one of the challenges noted in this study. It seems clear from our findings that the more students use MyGateway, the more they appreciate its benefits. Therefore, the key to successful integration of MyGateway into the learning process lies with the faculty.

A related need is to encourage further discussion of faculty incentives among administrators. Expanding the number of faculty users might require incentives for regular, full-time faculty and additional support services for part-time faculty.

These data can be informative for evaluation of technology tools, such as MyGateway, but the data may also be used as a source of data for future scholarly activities by our faculty. A case in point: using the data to design unique online instructional strategies for classroom research or to develop grant proposals for enhancing teaching and learning with technology.
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 Supaporn Triyakul.

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 2002 MyGateway Course Survey
MyGateway FS2002 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. If you use UMSL's dial-up, what percentage of the time do you find it busy? (mark only one)
   A. 0-10%
B. 11-25%
C. 26-50%
D. 51-75%
E. 76-100%

6. What is your area code?
   E. 314
   F. 636
   G. 618
   H. Other

7. 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 8-21, 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:

8. Seek clarification when I did not understand something.
   Strongly Agree A B C D E F G Strongly Disagree

9. Review lecture notes to gain clarification.
   Strongly Agree A B C D E F G Strongly Disagree

10. Receive instructor comments on assignments quickly.
    Strongly Agree A B C D E F G Strongly Disagree

11. Discuss ideas from this course with other students.
    Strongly Agree A B C D E F G Strongly
<table>
<thead>
<tr>
<th>Agreement</th>
<th>Disagreement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actively participate in the course.</td>
<td></td>
</tr>
<tr>
<td>Work on assignments with other students.</td>
<td></td>
</tr>
<tr>
<td>Complete assignments on time.</td>
<td></td>
</tr>
<tr>
<td>Access other online materials related to the content of this course.</td>
<td></td>
</tr>
<tr>
<td>Spend more time studying for the course.</td>
<td></td>
</tr>
<tr>
<td>Communicate with my instructor.</td>
<td></td>
</tr>
<tr>
<td>Receive feedback on quizzes and exams quickly.</td>
<td></td>
</tr>
<tr>
<td>Refer to course syllabus material.</td>
<td></td>
</tr>
<tr>
<td>Learn course content because the instructor used online quizzes.</td>
<td></td>
</tr>
</tbody>
</table>
19

Agree          Disagree

21. Think more about course topics because of the online discussions.

   Strongly A B C D E F G Strongly
   Agree          Disagree

**Because the instructor required the computer and MyGateway:**

22. I spent too much time learning to use MyGateway.

   Strongly A B C D E F G Strongly
   Agree          Disagree

23. I spent too much time trying to gain access to a computer.

   Strongly A B C D E F G Strongly
   Agree          Disagree

24. I was often distracted by activities that did not involve the use of computers.

   Strongly A B C D E F G Strongly
   Agree          Disagree

25. I spent too much time trying to log on to UMSL’s computer network.

   Strongly A B C D E F G Strongly
   Agree          Disagree

26. I was at a disadvantage because I did not possess enough computer skills.

   Strongly A B C D E F G Strongly
   Agree          Disagree

27. I increased my computer skills.

   Strongly A B C D E F G Strongly
   Agree          Disagree

28. I was better able to understand the ideas and concepts taught in this course.

   Strongly A B C D E F G Strongly
   Agree          Disagree

**In general:**
29. The instructor encouraged us to use MyGateway in this course.

   Strongly Agree  A  B  C  D  E  F  G  Strongly Disagree

30. Using MyGateway contributed to my learning.

   Strongly Agree  A  B  C  D  E  F  G  Strongly Disagree

31. I prefer communicating with my instructor via [personal] email, outside MyGateway.

   Strongly Agree  A  B  C  D  E  F  G  Strongly Disagree

32. I am very satisfied with this course because it used MyGateway.

   Strongly Agree  A  B  C  D  E  F  G  Strongly Disagree

33. I prefer using general web resources, outside MyGateway, when studying for a course.

   Strongly Agree  A  B  C  D  E  F  G  Strongly Disagree

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

   Strongly Agree  A  B  C  D  E  F  G  Strongly Disagree

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

   Strongly Agree  A  B  C  D  E  F  G  Strongly Disagree

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

   Strongly Agree  A  B  C  D  E  F  G  Strongly Disagree

37. 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 38, 39 and 40 with as much detail as you wish to provide. Use additional paper if needed.

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

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

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

Your Academic Goals

41. What grade do you expect to receive in this course?
   A. A
   B. B
   C. C
   D. D
   E. F

42. Do you plan to earn a degree from UMSL?
   A. Yes
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

44. What is the highest degree you expect to earn from UMSL?
   A. Certificate
   B. B.A./B.S.
   C. MA/MS
   D. Ph.D./Ed.D.
   E. Other
   F. I don't expect to earn a degree

45. If you have previously earned degree(s), what is the highest degree you have earned?
   A. Certificate
   B. A.A.
   C. A.A.S.
   D. B.A./B.S.
   E. M.A./M.S.
   F. Ph.D./Ed.D.

46. College or University Awarding Degree in Q. 45

Thank you for your responses!
Robert Keel and Dr. Cheryl Bielema
MYGATEWAY Support
Information Technology Services
Appendix A
University of Missouri, St. Louis
My Gateway FS 2002 Course Survey
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   - I. At Work
   - J. Other

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   - E. 486 or older PC
   - F. Pentium or newer PC
   - G. Mac
   - H. Other

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   - A. Dial-up modem
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   F. 0-10%
   G. 11-25%
   H. 26-50%
   I. 51-75%
   J. 76-100%

6. What is your area code?
   E. 314
   F. 636
   G. 618
   H. Other

7. 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 8-21, 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:

19. Seek clarification when I did not understand something.

   Strongly Agree  A  B  C  D  E  F  G  Strongly Disagree

20. Review lecture notes to gain clarification.

   Strongly Agree  A  B  C  D  E  F  G  Strongly Disagree

21. Receive instructor comments on assignments quickly.

   Strongly Agree  A  B  C  D  E  F  G  Strongly Disagree

22. Discuss ideas from this course with other students.
23. Actively participate in the course.

24. Work on assignments with other students.

25. Complete assignments on time.

26. Access other online materials related to the content of this course.

27. Spend more time studying for the course.

28. Communicate with my instructor.

29. Receive feedback on quizzes and exams quickly.

19. Refer to course syllabus material.

28. Learn course content because the instructor used online quizzes.
29. Think more about course topics because of the online discussions.

Strongly A B C D E F G Strongly Agree

Because the instructor required the computer and MyGateway:

30. I spent too much time learning to use MyGateway.

Strongly A B C D E F G Strongly Agree

31. I spent too much time trying to gain access to a computer.

Strongly A B C D E F G Strongly Agree

32. I was often distracted by activities that did not involve the use of computers.

Strongly A B C D E F G Strongly Agree

33. I spent too much time trying to log on to UMSL’s computer network.

Strongly A B C D E F G Strongly Agree

34. I was at a disadvantage because I did not possess enough computer skills.

Strongly A B C D E F G Strongly Agree

35. I increased my computer skills.

Strongly A B C D E F G Strongly Agree

28. I was better able to understand the ideas and concepts taught in this course.

Strongly A B C D E F G Strongly Agree
In general:

29. The instructor encouraged us to use MyGateway in this course.

   Strongly Agree  A  B  C  D  E  F  G  Strongly Disagree

30. Using MyGateway contributed to my learning.

   Strongly Agree  A  B  C  D  E  F  G  Strongly Disagree

31. I prefer communicating with my instructor via [personal] email, outside MyGateway.

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32. I am very satisfied with this course because it used MyGateway.

   Strongly Agree  A  B  C  D  E  F  G  Strongly Disagree

33. I prefer using general web resources, outside MyGateway, when studying for a course.

   Strongly Agree  A  B  C  D  E  F  G  Strongly Disagree

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

   Strongly Agree  A  B  C  D  E  F  G  Strongly Disagree

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

   Strongly Agree  A  B  C  D  E  F  G  Strongly Disagree

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

   Strongly Agree  A  B  C  D  E  F  G  Strongly Disagree
37. 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 38, 39 and 40 with as much detail as you wish to provide. Use additional paper if needed.

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

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

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

Your Academic Goals

41. What grade do you expect to receive in this course?
   A. A
   B. B
   C. C
   D. D
   E. F
42. 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

44. What is the highest degree you expect to earn from UMSL?
   A. Certificate   D. Ph.D./Ed.D.
   B. B.A./B.S.     E. Other
   C. MA/MS   F. I don't expect to earn a degree

45. If you have previously earned degree(s), what is the highest degree you
   have earned?
   A. Certificate   D. B.A./B.S.
   B. A.A.        E. M.A./M.S.
   C. A.A.S.     F. Ph.D./Ed.D.

46. College or University Awarding Degree in Q. 45

Thank you for your responses!
Robert Keel and Dr. Cheryl Bielema
MYGATEWAY Support
Information Technology Services