

INFORMATION SYSTEMS EDUCATION JOURNAL

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The **Information Systems Education Journal** (ISEDJ) is a double-blind peer-reviewed academic journal published by **EDSIG**, the Education Special Interest Group of AITP, the Association of Information Technology Professionals (Chicago, Illinois). Publishing frequency is six times per year. The first year of publication is 2003.

ISEDJ is published online (<http://isedj.org>) in connection with ISECON, the Information Systems Education Conference, which is also double-blind peer reviewed. Our sister publication, the Proceedings of ISECON (<http://isecon.org>) features all papers, panels, workshops, and presentations from the conference.

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Improving the LMS Selection Process: Instructor Concerns, Usage and Perceived Value of Online Course Delivery Tools

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Abstract

Selecting or upgrading a university's Learning Management System involves complex decisions concerning curriculum delivery, students, financial commitments, technology and support services, and faculty. The purpose of this paper is to study faculty concerns, usage and perceptions of the instructional value of online course management tools. During a LMS selection process, a faculty survey was prepared and disseminated to all full-time, part-time and adjunct faculty of a university. This survey was designed and customized for a) faculty who have never taught an online course, b) faculty who were novice in using online courses, and c) faculty who had some expertise in designing online courses. Data concerning faculty discipline, level of teaching experience, academic rank, and preferences for learning management systems was also captured. An analysis of data collected, preliminary conclusions, and recommendations are presented.

Keywords: Blackboard, Learning Management Systems, Selection of a LMS, Online Course Delivery, Course Management Tools.

1. INTRODUCTION

During the last decade the use of online learning management systems has increased in terms of

academic instructional delivery, diversity of disciplines, education levels, technology, availability of online teaching and course management tools. Selecting or upgrading a

university's Learning Management System involves complex decisions concerning curriculum delivery (structure and content considerations), students delivery, mode, social networking), financial commitments (volume, add-ons, cost sharing), technology (in house, cloud, open source, RIE), support services, and faculty.

JoomlaLMS (2010) provides a detailed outline to compare learning management system tools and system features. The JoomlaLMS (2010) pedagogical comparison outline includes general categories such as general system features, user management, general course features, course materials, quizzes, communication tools, reporting and eCommerice. More technical system comparisons included fee type, source code availability, licensing model, installation type, business model, eLearning compliance standards, programming language, platform, content creation alternatives, and system integration. Juliaitani's Blog (2010) presented a detailed comparison of Angel 7.3, BlackBoard Learn 9.x, and Moodle 1.9. This valuation used the following criteria browser support, usability, mobile support, communication tools, distinguishing features, learning depositories, content organization and navigation, Web 2.0 (Ajax, drag-and-drop, etc.), reports, services, support and integration features.

While evaluation criteria such as cited by Joomla LMS (2010) and Juliaitani's Blog (2010) does have merit, both ignore one important factor: the faculty. Many institutions involve faculty with the LMS selection process. LMS vendors present the newest features of their product lines. In 2011, social networking tools, Virtual Learning Environments (VLE), and mobile access were the "hottest items." In his book "The Theory and Practice of Online Learning," Anderson (2008) presents numerous online instructional design strategies, or "learning paths," that takes advantage of asynchronous and synchronous communication, dynamic and updated content, virtual classrooms, adaptive content releases, chat, blogs, and other Web 2.0 tools.

The virtues of online instruction and the newest LMS tools may be just "dandy," but if the faculty do not use these online tools – should we care? Guidry & Lorenz (2010) found that: 1) Faculty in all disciplines rarely use blogs, collaborative editing tools, and games and simulations, and 2) Students and faculty have different expectations and use technologies in different contexts, which

can create tension and misunderstandings between the two groups. The virtues of online instruction and the newest LMS tools may be just "dandy," but if the faculty do not use these online tools – should we care? To what degree should faculty 's online pedagogical, ownership, remuneration concerns be considered during the LMS selection process? Perhaps the LMS selection process should consider faculty concerns, use and perceived value of LMS systems and tools before selecting or upgrading an existing LMS system.

2. BACKGROUND AND METHODOLOGY

This study involves a university with an enrollment of approximately 5,500 undergraduate, graduate and doctoral students. A selection of undergraduate and graduate programs includes business, English, information systems, education, nursing, engineering, and media arts. Doctoral programs are offered in communication and information systems, education and nursing. An online course delivery system was introduced into the academic curriculum approximately thirteen years before this study was conducted. The eCollege Learning Management System was used for the first eight years, and Blackboard was used for the later five years.

Separate faculty and administrative committees were formed to study the selection of the next generation of LMS platform. The members of the faculty committee were representative of most academic disciplines and had varied backgrounds in the use of learning management systems. The role of the faculty committee was first to consider the advantages and shortcomings of the existing learning management system. Then a review was conducted to compare the features and online tools of four LMS platforms: Blackboard, DesireToLearn, eCollege, and Edvance360.

During a six-month review, the members of the faculty committee participated in vendor presentations with LMS administrative committee members. Hands-on trials were available for all four platforms. The faculty LMS selection committee ranked each of the four learning management systems, and the results were submitted to the administration. A technical administrative committee was responsible compared each technological infrastructure with applicable costs and benefits.

Faculty participants in the LMS selection process were impressed with the evolution of learning management system online technologies and pedagogical tools, e.g., collaboration, social networking technologies, rich internet environment, virtual classrooms, etc. However, some members of the faculty committee were concerned with the limited focus of the faculty LMS selection review. There was also a concern that the administrative committee could not adequately compare pedagogical benefits of various LMS tools to the cost of the platform. It was decided that a more comprehensive study should be conducted.

A faculty survey was prepared using the Vovici web based survey tool. This survey instrument was designed to collect data concerning faculty's use and perception of the pedagogical value of various online instructional content, course management, collaboration, and assessment tools. The survey was targeted to faculty members across different academic disciplines, academic teaching levels, and experience levels in on-line course development. The presentation of the survey was also controlled for those faculty members who had no online course development/delivery experience.

The survey design included sections to capture data concerning demographics, technology experience, online course development experience, pedagogical concerns of online instructional delivery, previous experience and preferences of specific learning management systems. The survey instrument was pilot-tested and reviewed by several online course development professionals.

The primary research questions were faculty concerns of online course management systems, faculty usage and perceived value of on-line course tools. All part-time, adjunct, and full-time faculty members were sent an email that included an introduction to the research project and a link to the survey on the Vovici website. The survey response data was captured and stored in the Vovici site for later analysis.

3. FINDINGS, ANALYSIS, AND DISCUSSION

Teaching Experience and Academic Rank
The participants consisted of 116 faculty members. The response rate was approximately 44% of the faculty. 70% of the respondents reported that have either used or developed

online courses; 30% reported no use. For those faculty members who did not use online course delivery, 40% of the faculty members had over 20 years of teaching experience, and 54% had an academic rank of associate or full professor. See Tables 1 and 2.

Academic Discipline and Use of Online Delivery

Table 3 summarizes the general online course use and academic discipline. Type of use was summarized by the following categories: a) no use of online course, b) use of online courses provided by others, c) modification of online courses provided by others, d) basic, and e) advanced online course development. A few respondents selected multiple categories. 30% of the respondents did not use online delivery methods. Business, English, Math, Science and Engineering faculty accounted for 76% of the non-users. Reasons for non-use of online tools were not studied. 43% of all faculty users considered themselves basic online course developers, and 21% considered themselves as advanced online course developers. The discipline labeled "Other Disciplines" included: Library, Organizational Studies, Arts, and Leadership Studies.

Concerns for Online Course Delivery

Faculty concerns for online delivery systems may be a consideration for not using online courses. These online course delivery concerns may indicate why disciplines vary in the use of online courses. Respondents could have selected multiple concerns. Table 4 summarizes the differences between online course delivery concerns for users and non-users. Tables 5 and 6 summarize the differences between online course delivery concerns by discipline. The highest three concerns for all respondents and for the majority of disciplines were 1) Academic Quality Control, 2) Instructor Feedback and Interaction, and 3) Concerns of Employer and Other Perceptions.

English, Mathematics and Science, and Nursing had additional concerns for Inadequate Financial Incentives and Instructional Support. CS/IS, Mathematics, Science and Engineering respondents had additional concerns for appropriate course content and structure. Other concerns directly entered by the responders included technical problems with course delivery

platform, copyright and ownership, grading of essays, and lack of instructor evaluation.

Previous Use and Preferences of Learning Management Systems

65% of the faculty had experience using the Blackboard learning management system. This previous experience may explain why 68% of the faculty preferred Blackboard. eCollege had been previously used by 36% of the faculty, but was only preferred by 15% of the respondents. See Table 7.

Use and Perceived Value of Online Tools

The survey organized online tool questions into three groups: a) Instruction Content Tools, b) Assessment Tools, and c) Course Management Tools. Though some online tools may be classified in more than one group, an individual online tool was only assigned to only one group. Participants with online course experience were asked to report their use of online course tools using one of five categories: "Never Used" was valued as 0, "1% -25%" as 1, "26%-60%" as 2, "61%-99%" as 3 and "Always" as 4.

Participants with online course experience were asked to report their perceived value of online course tools using one of five categories: "Unsure" was valued as 0, "No Current or Future Value" as 1, "Some Current Value" as 2, "Significant Current Value" as 3 and "Possible Future Value" as 4. These categories were not designed to collect ordinal data. However, these provide a continuum of values. For example, a faculty member may not have used a specific online tool, but considered an online tool to have some future pedagogical value. On the other hand, a faculty member, who had not used a specific online tool, may be unsure of its pedagogical value because of lack of use.

Table 8 summarized data for Online Instruction Content Tools. The mean was used to rank the most frequently and least frequently used online instruction content tools. The five most frequently used online instruction content tools were 1) online course syllabus and course objectives, 2) downloads of assignments, projects, and other instructional documents, 3) online course calendars, 4) URL links to content to support course, and 5) PowerPoint presentations developed by the instructor. The four least frequently used online instruction content tools were 1) import course content,

quizzes, tests, packages or cartridges from publishers or other courses, 2) graphics, images, audio or video developed by the instructor, 3) PowerPoint presentations developed by others, and 4) graphics, etc., developed by others.

Table 9 summarized data for usage of Online Assessment Tools. The five most frequently used assessment tools were 1) online grade book, 2) online assignment submission, 3) discussion boards, 4) online quizzes or tests, and 5) online collaboration. The five least frequently used instruction content tools were 1) blogs or wikis, 2) virtual classroom, 3) student journals, 4) online groups, and 5) Turnitin or other anti-plagiarism tools. Data concerning the perceived value of online assessment tools is presented in Table 11. This data re-enforces the general pattern of use, with some differences. Online discussion boards and assignment submission had significant current perceived value. Anti-plagiarism tools, e.g., Turnitin, Wikis and Blogs were perceived to have future value. Virtual classroom, recorded video lecture, and online group tools were rarely used by the faculty, and the faculty perceived little value of these tools.

Table 10 summarized data for use of Online Course Management Tools. The five most frequently used online course management tools were 1) addition or deletion students/groups, 2) customized online grade books, 3) organization of course content by areas or folders, 4) copying or moving course content within a course section, and 5) copying or moving course content between course sections. The five least frequently used online course management tools were 1) student assessment passwords or other enhanced online assessment security, 2) online class dashboards for a course section, 3) HTML editing, 4) class performance reports, and 5) adaptive release of course content. While data concerning the perceived value of course management tools presented in Table 12 reinforces the general patterns of use, it is noteworthy to address the perceived value of exporting, importing and archiving course content.

4. CONCLUSIONS

Recommendations And Questions

After ten years' experience in online education initiatives, the results of this faculty survey and study indicated that 1) 30% faculty do not use

online delivery methods, 2) the majority of faculty using online course delivery systems used or valued very few of the existing online tools, and 3) only 21% of the faculty would categorize themselves as an advanced user. There is more to online education than posting readings, downloading and uploading assignments. For example, the data in Table 6 indicates a high concern for lack of Academic Quality Control of online course delivery across disciplines. However, Table 8 indicates that most faculty members rarely use the existing online and offline quality control tools available, e.g., Turnitin, randomized blocks, assessment passwords, or supplemental on-ground tests.

The data clearly indicated that faculty do not currently use or value most existing online tools. Now these faculty members are asked to render their opinions on the selection of a future Learning Management System, which is to be confirmed by administrators who may even be less knowledgeable about a pedagogically sound online system.

Selecting and delivering online learning systems involves the consideration of many components: a) curriculum content and structure, b) quality control, c) faculty commitment, d) faculty support, e) student target market, f) pedagogical and technological capabilities of the learning management system, and g) incremental revenues and costs. A learning management system selection process that focuses on new online tools, incremental revenues and costs is comparable to purchasing a new car only on the basis of miles-per-gallon. This approach does little to focus on the quality of "student delivered" online education.

All become more resistant to change as we mature and age. Tables 1 and 2 provide data to support the lack of involvement by senior faculty in online course delivery. One solution has been to staff less experienced adjunct, part-time and younger faculty. But, even these faculty do not use most of the available online tools.

Based on the results of this study, the following three recommendations are made. First, supporting and obtaining faculty commitment is as, or more, important than the selection of learning management system used. Faculty are the curriculum and content experts. The value of large-group support classes to support faculty for online development is questionable. Faculty support varies by course content, structure, and

learning objectives. Face-to-face individualized instruction and support by an experienced, online support staff is needed. The data indicates that the greater number of years of teaching experience, the less likely a faculty member will use online course delivery and online course tools.

When was the last time an experienced faculty member attended a large-group lecture or hands-on instruction that had no application to his or her discipline? It is important to customize the support to the needs of the individual faculty member, delivered in their environment, focused on his or her individual online courses. This type of customized support takes resources that are often ignored during LMS selection processes.

Sharing online resources without violating expectations of ownership of course materials may help faculty members convert their on-ground course to an online format. And, online courses and course materials should be periodically reviewed by faculty peers to provide faculty support, quality and consistency.

Secondly, an online course delivery system needs to address faculty concerns: a) academic quality control, b) perceptions of external parties concerning online course curriculums, and c) interactions between faculty and students. Each of these challenges may be addressed by appropriate online curriculum design and marketing to external parties. Again these types of resources are often ignored during LMS selection processes.

Thirdly, faculty surveys similar to the one analyzed in this study are necessary to make informed decisions concerning the selection of alternative learning management systems. After a ten-year commitment to online education, the data presented in this study indicated that few faculty had used few online tools. There are many questions that need to be answered.

"How will a new online or changed learning management system help if faculty do not use what they already have available?"

Will the selection of a new and different learning management system be the silver bullet to motivate faculty to create better online curriculums?

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Appendix

Years of Teaching Experience	Use/Develop (n/ col %)	Do Not Use (n / col %)
Less than 4 years	13 / 16%	7 / 20%
4 - 9 years	19 / 24%	5 / 14%
10 - 19 years	25 / 31%	9 / 26%
20 - 29	14 / 17%	4 / 11%
Over 30 Years	10 / 12%	10 / 29%
Totals N/col %/overall%	81 / 100% / 70%	35/ 100% / 30%

Years of Teaching Experience	Use/Develop (n/ col %)	Do Not Use (n / c ol%)
Adjunct or Part-time	33 / 41%	12 / 34%
Lecturer	7 / 9%	0 / 0%
Assistant Professor	11 / 14%	4 / 11%
Associate Professor	24 / 30%	11 / 31%
Full Professor	6 / 7%	8 / 23%

	No Use	Use Other's Courses	Modify Other's Courses	Basic Development	Advanced Development
Business (n=20)	40%	10%	5%	40%	15%
CS/IS (n=18)	22%	5.6%	6%	50%	6%
English (n=36)	36%	11%	6%	44%	17%
Education (n=11)	9%	9%	27%	45%	36%
Social Science (n=12)	25%	8%	8%	58%	25%
Mathematics/ Science (n=10)	50%	20%	0%	20%	10%
Engineering (n=4)	50%	25%	0%	25%	0%
Nursing/ Medical(n=7)	0%	28%	0%	57%	14%
Other(n=7)	14%	28%	28%	57%	28%
Total %	30%	12%	7%	43%	21%

Concerns	Use/Develop (n/ col %)	Do Not Use(n / col %)
Inadequate Instructional Support	21 / 26%	9 / 26%
Inadequate Financial Incentives	23 / 29%	2 / 6%
Hybrid or Online Course Not Scheduled	8 / 10%	4 / 11%
Inappropriate Course Content	22 / 27%	10 / 29%
Inappropriate Course Structure	17 / 21%	9 / 26%
Development Time Exceeds Instructional Value	19 / 23%	4 / 11%
Academic Quality Control	41 / 51%	13 / 37%
Lack of Instructor Feedback and Interaction	40 / 49%	11 / 31%
Employer and Others Perceptions	27 / 33%	8 / 23%

	Instructional Support	Financial Incentives	Inappropriate Course Content	Inappropriate Course Structure
Business (n=20)	15%	15%	20%	10%
CS/IS (n=18)	22%	17%	34%	39%
English (n=36)	42%	33%	31%	22%
Education (n=11)	27%	9%	0%	9%
Social Science (n=12)	0%	8%	8%	17%
Math/Science (n=10)	50%	0%	40%	40%
Engineering (n=4)	25%	0%	25%	50%
Nursing/ Medical (n=7)	29%	57%	14%	14%
Other (n=7)	27%	43%	28%	22%
Total %	26%	22%	28%	22%

	Development Time Exceeds Instructional Value	Academic Quality Control	Feedback and Interaction	Employer And Other Perceptions
Business (n=20)	5%	50%	30%	30%
CS/IS (n=18)	11%	29%	50%	57%
English (n=36)	31%	47%	56%	33%
Education (n=11)	9%	36%	46%	18%
Social Science (n=12)	17%	25%	17%	8%
Math/Science (n=10)	10%	70%	40%	40%
Engineering (n=4)	25%	75%	25%	25%
Nursing/ Medical(n=7)	43%	43%	71%	14%
Other (n=7)	43%	57%	43%	29%
Total %	20%	47%	44%	30%

Table 7. Preferences and Previous Use of Learning Management Systems (n=81) (col %)

	Preferred LMS	Previously Used
Blackboard	68%	65%
eCollege	15%	36%
Other	8%	4%
Moodle	3%	6%
Desire to Learn	1%	3%
Sakai OLE	1%	2%

Table 8. Academic Quality Control Concerns and Tool Usage and Perceived Value (row %)

	Never used	1-25%	26-60%	61%-99%	Always
Turnitin/Anti-Plagiarism Tools	51%	11%	14%	8%	16%
Used Randomized Question Blocks	62%	5%	9%	7%	17%
Used assessment password or other security	74%	5%	12%	2%	6%
Required on-ground assessment to accompany online course	74%	10%	11%	0%	5%
	Unsure	No current of Future Value	Some Current Value	Significant Current Value	Possible Future Value
Turnitin/Anti-Plagiarism Tools	22%	6%	13%	35%	24%
Used randomized question blocks	20%	7%	18%	35%	20%
Used assessment password or other security	33%	12%	16%	12%	28%
Required on-ground assessment to accompany online course	30%	16%	11%	7%	33%

Instruction Content Tool	Never Used	1% - 25%	26% - 60%	61% - 99%	Always	Mean	SD
Availability of online course syllabus, course objectives, rules, and other course administration information.	4%	4%	7%	7%	78%	3.52	1.541
Online course calendar or schedule of assignments, projects, quizzes, tests and other schedule information.	13%	11%	12%	13%	51%	2.78	1.64
Downloads of assignments, projects, and other instructional documents, workbooks or databases.	8%	13%	9%	9%	60%	3.00	1.58
Online availability of PowerPoint Presentations developed by others.	45%	20%	7%	4%	24%	1.71	16.1
Online availability of PowerPoint Presentations modified or developed by the instructor.	22%	12%	15%	9%	42%	2.36	1.68
Online availability of graphic, image, audio or video developed by others.	29%	24%	11%	9%	28%	1.82	1.59
Online availability of graphic, image, audio or video modified or developed by the instructor.	46%	15%	10%	15%	15%	1.36	1.48
Use of URL or other links to content to support course.	15%	9%	18%	13%	45%	2.64	1.59
Import course content, quizzes, tests, packages or cartridges from publishers or other courses.	52%	12%	11%	13%	12%	1.21	1.43

Assessment Tool	Never Used	1%-25%	26%-60%	61% - 99%	Always	Mean	Standard Deviation
Use of online quizzes or tests.	36%	12%	9%	12%	32%	1.94	1.69
Use of online assignment submission.	17%	15%	5%	15%	49%	2.61	1.69
Use of Turnitin or other anti-plagiarism tools.	51%	11%	15%	80%	16%	1.26	1.46
Use of online grade book and online grading.	18%	7%	8%	8%	60%	2.82	1.74
Use of online groups.	57%	25%	9%	9%	9%	1.09	1.27
Use of online student journals.	63%	13%	8%	4%	12%	.88	1.30
Use of online collaboration.	45%	21%	11%	4%	20%	1.32	1.48
Use of online discussion boards.	24%	13%	12%	8%	43%	2.34	1.73
Use of a wiki.	74%	15%	8%	3%	1%	.43	.796
Use of a blog.	80%	13%	1%	1%	4%	.36	.859
Use of a real time virtual classroom.	75%	16%	4%	3%	3%	.42	.853
Use of captured (recorded) instructor lectures.	71%	11%	8%	5%	4%	.62	1.03

Assessment Tool	Unsure	No Current or Future Value	Some Current Value	Significant Current Value	Possible Future Value	Mean
Online quizzes or tests.	11%	13%	17%	46%	13%	2.38
Online assignment submission.	7%	1%	18%	53%	21%	2.80
Turnitin or other anti-plagiarism tools.	22%	7%	13%	35%	24%	2.32
Online grade book and grading.	10%	3%	12%	60%	16%	2.67
Online groups.	16%	13%	32%	25%	15%	2.29
Online student journals.	31%	16%	16%	20%	18%	1.77
Online collaboration.	25%	8%	25%	26	17%	2.02
Online discussion boards.	15%	5%	20%	46%	15%	2.40
Wiki.	36%	8%	20%	10%	26%	1.81
Blog.	36%	9%	24%	7%	26%	1.78
Real time virtual classroom.	29%	15%	16%	11%	29%	1.96
Captured (recorded) instructor lectures.	23%	9%	21%	18%	25%	2.06

Course Management Tool	Never Used	1%-25%	26%-60%	61% - 99%	Always	Mean	Standard Deviation
Organization of course content by areas or folders.	11%	8%	8%	17%	56%	2.58	1.63
Copying or moving course content or folders within a course section.	25%	4%	20%	9%	41%	2.37	1.72
Copy or moving course content or folders between course sections.	31%	8%	11%	12%	39%	2.24	1.75
Use of online early warning systems course section.	72%	12%	7%	4%	5%	.59	1.06
Use of adaptive release of course content or assessment tools.	55%	13%	12%	9%	10%	1.08	1.36
Use of online class performance reports for a course section.	53%	8%	12%	11%	15%	1.26	1.48
Use of online class dashboards for a course section.	61%	15%	10%	8%	6%	.85	1.20
Edit, manage or customize online grade books for a course section.	24%	4%	8%	11%	53%	2.63	1.78
Add or delete students or groups within a course section.	19%	11%	7%	8%	55%	2.68	1.78
Export, import or archive course content or assessment data.	26%	12%	14%	7%	42%	2.27	1.72
Create or edit online assessment questions or surveys using text.	45%	7%	14%	10%	25%	1.61	1.63
Create or edit any online course content using HTML.	60%	11%	10%	10%	10%	.97	1.31
Use of randomized question blocks in an online assessment.	56%	6%	7%	10%	22%	1.35	1.64
Use of student assessment passwords or other enhanced online assessment security.	72%	7%	10%	5%	7%	.73	1.23
Required on-ground assessment or student requirement for an online course.	72%	8%	10%	4%	7%	.67	1.22

Table 13. Perceived Value of Online Course Management Tools (n=81) (% of row)						
	Un- sure	No Current or Future Value	Some Curren t Value	Significant Current Value	Possible Future Value	Mean
Organization of course content by areas or folders.	8%	1%	14%	63%	14%	2.72
Copy or moving course content or folders within a course section.	10%	0%	18%	56%	16%	2.69
Copy or moving course content or folders between course sections.	12%	1%	15%	52%	19%	2.64
Use of online early warning systems course section.	36%	12%	19%	11%	22%	1.71
Use of adaptive release of course content or assessment	34%	80%	22%	19%	19%	1.86
Use of online class performance reports for a course section.	26%	10%	19%	23%	22%	2.05
Use of online class dashboards for a course section.	38%	8%	19%	16%	17%	1.67
Edit/manage/customize online grade books for a course section.	12%	3%	17%	56%	12%	2.52
Add or delete students or groups within a course section.	15%	1%	22%	46%	5.3%	2.44
Export, import or archive course content or assessment data.	13%	6%	20%	45%	17%	2.47
Create or edit online assessment questions or surveys using text.	17%	6%	27%	348%	17%	2.28
Create or edit any online course content using HTML.	33%	10%	17%	20%	20%	1.84
Use of randomized question blocks in an online assessment.	21%	11%	15%	35%	18%	2.18
Use of student assessment pwd or other enhanced online assessment security.	30%	13%	16%	13%	28%	1.97
Required on-ground assessment or student requirement for an online course.	31%	20%	11%	11%	27%	1.83