

Faculty Grading Experience Project

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Rebecca Kallemeyn & Doris Cheung
Academic Technology Design Team
Office of Information Technology

Project Summary

Aisha Jackson, the Associate Director for Academic Technology Applications (ATAP), asked the Academic Technology Design Team (ATDT) to review and identify grading applications that could: 1) integrate seamlessly with Canvas and 2) offer advanced formula grading capabilities. The ATDT would then select a tool to pilot with CU Boulder faculty, while identifying any other grading needs that OIT could better support through software and training. The project would conclude with a report on the pilot and a final recommendation to ATAP on whether to implement the tool at CU Boulder.

An early review, described in more detail in the project [Midterm Report](#), quickly revealed that few grading applications on the market integrate with Canvas while offering more advanced functionality. The project therefore excluded a technology pilot, but continued with the discovery work to better understand grading needs and practices. The project aimed to document requirements for any potential future grading application, and make recommendations for improving the faculty grading experience in Canvas Learning Management System (LMS), including OIT support.

The ATDT reviewed several pre-existing data sources, as well as monitoring the faculty experience in Canvas throughout Spring 2018. Sources are summarized below, and were used to create an extensive list of feature requests, as well as recommendations for potential future software enhancements and improvements to current support methods.

Data Sources

LMS Evaluation Faculty Survey

Early in the project, we reviewed the results of this survey sent to faculty during the LMS Evaluation Project. We looked at responses to: “Please use this space to describe why you are satisfied or dissatisfied with the tools that you use that were not listed in previous questions” and “When thinking about the upcoming review of LMSs and the possibility of moving to another LMS, is there anything you think should be considered?” The first received 407 responses, 74 of which related to grading. The second received 799 responses, 73 related to grading.

These responses gave us an early look at what faculty most value in a grading platform, and helped determine our subsequent approach to data gathering. It also contributed to the bulk of the [feature requests](#) listed in the appendix.

Training Observations

Next, we observed the trainings ATAP offered for faculty new to Canvas early in the spring semester. In total, seven trainings were observed by one to three LxDs. Trainings ranged from

introductory overviews to lengthier, more in-depth discussions and were offered both in-person and over Zoom. Observing these trainings led to insights on common points of confusion, as well as faculty preferences in receiving support.

Consultations & Focus Groups

When trainings concluded, we had consultations with select faculty and course assistants who were using Canvas heavily over the spring semester, to gather feedback on their grading processes within Canvas.

Consultations

The first faculty consultation focused on technical issues, but included some usability concerns as well. His course had 850 students, which revealed significant loading delays in the gradebook. His feature requests were related to managing a team of TAs and their grading processes, such as the ability to create a text-only column viewable in the gradebook, for grading comments. Regardless of LMS capability, this professor also keeps his own master grade sheet externally for each class, and did so when teaching in D2L as well.

The second faculty consultation focused on usability and differences in Canvas and D2L, noting both where Canvas offered improvements over D2L, and where it resulted in “extra clicks” compared to D2L. The consult also highlighted Canvas’ relative lack of grading statistics, which, combined with similar requests from other sources, informed [recommendations](#) that appear below.

Course Assistant (CA) Focus Group

We interviewed two of the four CAs from ASEN1022: Materials Science for Aerospace to learn about their perspective. ASEN1022 has approximately 280 students. The CAs administer labs and help with grading weekly homework and exams.

Overall, the CAs have found grading in Canvas to be a vast improvement over D2L--they were able to design rubrics within Canvas to ensure grading consistency among the CAs and set up grades by groups. They consider SpeedGrader “a lifesaver.” Exams are graded outside of Canvas as an in-person group activity and, while the CAs are “highly reliant on this system,” the TAs do keep a backup master gradebook as a departmental practice.

Still, they found searching for and analyzing data (e.g., average score and class distribution) in Canvas tedious and would like to see the following capabilities: visual representation of student performance (e.g., histogram), average score and class distribution, and color coding of students by overall grade.

Software Demos

We met with two faculty members who were piloting alternate grading software in their classrooms, to determine whether these might meet the wider needs of campus faculty.

Gradescope

[Gradescope](#) enables students and faculty to upload scanned copies of paper homework. Faculty can then grade work flexibly--Gradescope's "rubrics" are not the typical structured, rigid grids. They are ad-hoc, tying varying points added or subtracted to particular reasons or errors. Faculty can refine their grading criteria as they proceed through homework and easily go back and adjust earlier grades with updates.

Gradescope appears to be most useful in a course with a large teaching team and significant amounts of paper-based, handwritten homework. Its primary benefits are in workflow improvement for classrooms where previously this paper load was handled manually. It may merit piloting to wider groups on campus, but does not address some crucial concerns of this project, such as the overall structure of the LMS gradebook, grade schemes, and calculation methods. It also does not currently integrate seamlessly with Canvas.

GradeCraft

[GradeCraft](#) allows faculty to gamify their teaching, creating a course in which students select which assignments to complete, earning points and ranks toward their desired final grade. It offers much more flexibility than a typical LMS in contexts where all work could be optional. Beyond this, its actual gradebook functions are somewhat limited.

This platform might also merit some sort of structured pilot on campus, but it meets a niche need and, like Gradescope, it does not address an overall enhancement of the LMS gradebook or grade schemes. Also like Gradescope, its integration with Canvas is somewhat manual.

ASSETT Faculty Survey

During this project, ASSETT sent out its biennial survey on faculty technology use. We included a question on this survey that asked faculty to indicate whether, and how frequently, they used D2L, Canvas, iClickers and Excel for grading. Respondents were also able to select "Other" and write in alternate technologies.

906 respondents, including faculty, faculty and TAs, answered the survey. 844 elected to answer the grading question.

As expected, D2L topped the list with 58.6% of respondents saying they frequently use it to grade, and 11.8% saying they occasionally use it. Excel was the second most common, with 56% stating they frequently used it, and 18.8% saying occasionally. Canvas came third

(understandably, given its recent implementation), with 28.3% saying they frequently use it and 7.4% saying they occasionally do. 39.4% also stated they had never used Canvas but were interested; 22.1% stated they never used Canvas and did not want to. iClickers came last, with 14.1% saying they frequently used it and 10.8% stating occasionally.

63 respondents selected “Other” and submitted a text response. The most popular submissions were Google Sheets, with 12 counts, and Moodle, with 11. Six said they graded by hand.

ServiceNow Tickets

The project also monitored ServiceNow tickets that addressed faculty issues with Canvas. A handful of tickets directly requested something that is not available in Canvas--these were recorded in the feature requests included in the [appendix](#). Several tickets requested features that actually are available in Canvas, indicating a need to further educate faculty and ensure they have access to training. Many tickets led to in-person consultations and did not have content that could be extrapolated to the project. Finally, some tickets suggested potential solutions via support rather than feature changes.

Canvas Satisfaction Survey

Finally, we reviewed the data gathered in the Canvas Satisfaction Survey sent by ATAP at the close of spring semester. ATAP distributed the survey to faculty and graduate students who had used Canvas to teach that spring. 332 responses were submitted.

For this project, we reviewed the responses to two open-ended questions: “What does Canvas do well?” gathered 279 responses, 99 of which mentioned grading. “How can Canvas be improved?” gathered 273 responses, 121 of which mentioned grading.

Broadly, positive comments tended to mention SpeedGrader, easier grade input, the grade calculator, rubrics, and grading of uploaded files. Negative comments varied and have been incorporated into the analysis below.

Feature Requests

All desired features that could be extracted from survey responses, observations and trainings have been compiled into a list of 65 feature requests, which have been categorized and included in the [appendix](#). The vast majority of these requests were highly specific and individualized.

Beyond these feature requests, a number of higher-level themes arose in comments that did not fit neatly into a desire for a particular technical tool or function.

Gradebook Mental Models

Some faculty refer to their gradebook as its own entity, separate from what is entered into the LMS. This could point to a mental model that still aligns closely to physical gradebooks kept by hand. Several faculty implied that, regardless of LMS content, they maintain a separate gradebook either digitally--on their personal device or in a cloud--or physically in their office.

Other faculty want one gradebook, and expect it to be entirely hosted within the LMS. Unlike faculty who export by default, these faculty do not want to ever have to export their grades or cross multiple systems to be able to accomplish their grading.

This observation bears more on ad-hoc, one-on-one support than anything else. If the LMS cannot perform a particular function but Excel can, for instance, some faculty will be more amenable to this workaround than others, who will reject it out-of-hand due to their strong desire to stay within one platform.

Transparency and Trust

Particularly during trainings, faculty convey a lack of trust in the LMS when building their gradebooks from scratch and when calculating grades. Faculty are suspicious that the LMS does not actually do what it says it does. They look to other faculty, rather than to LMS administrators and support staff, for confirmation that features and settings will function as expected. They practice and confirm with trial and error, but unless they have very simple grading systems, they begin with mistrust.

Flexibility

The particular barriers faculty described were often highly specific to individual preference, and even similar-sounding requests diverged on further investigation. Faculty expect the system to adapt to their own grading preferences, particularly when transitioning from one system to another. This expectation can make it difficult to ensure diverse groups of faculty have a satisfactory experience with the same tool, given the range of teaching and departmental practices at CU.

Feature Recommendations

Out of the data gathered, we were able to distill two major feature requests that came from multiple areas of campus and would have a large, positive impact if implemented. If OIT were to investigate alternate or supplementary grading applications in the future, either through an external vendor or internal development, the following areas should be prioritized.

Formula Grading

D2L's formula grade feature was widely-used on campus, and faculty feel its absence in Canvas. We heard requests for its return in nearly every avenue we explored, including

consultations, surveys, ServiceNow tickets, and group trainings. Faculty who rely on advanced calculations for their grades must now export them into Excel, adding several steps to their process and requiring a new tool to learn. As noted above, though some faculty already routinely use Excel in addition to their LMS, others do not and will not use anything but one application.

Statistics and Analytics

Another very common critique of Canvas is its comparative lack of grading statistics and analytics. This request comes from faculty who rely on statistics to track overall student performance and calibrate their grading methods. They also wish students to be able to compare their performance to that of the rest of the class. Faculty want basic data points such as mean and standard deviation, as well as visual representations such as histograms.

Support Recommendations

Given the wide range of faculty needs and individual preferences, many feature requests could be better addressed but by better tailoring support for grading. The following are recommended for ATAP support methods.

ATAP Services Promotion

Comments cropped up in surveys that OIT does not offer enough LMS support. Faculty are not always aware of the range of available resources through ATAP: online documentation, in-person trainings, department-specific sessions, and one-on-one support over phone, email, or in-person. They also are not necessarily aware ATAP is distinct from, and more specialized than, the OIT Helpdesk.

Similarly, faculty do not always take advantage of training and resources available to them. Many faculty submitted requests for Canvas functionality that actually exists; seemingly, they gave something a try, did not meet with success, and did not follow up or ask for help from anyone.

ATAP should measure and promote awareness through a communications plan including emails, announcements in campus newsletters, and website development. The website should give an overview of ATAP services offered, distinguishing ATAP from the Helpdesk, and should be optimized for search engines so that faculty who Google “CU Canvas help” reach the webpage. Communications should also point traffic to this website.

Video Tutorials & Webinars

Multiple faculty, in-person and in surveys, requested short LMS video tutorials. ATAP could create a YouTube channel and slowly build an inventory of screencasts accessible at any time. This could help faculty who tend to work outside of typical OIT business hours, or who work close to deadline, feel they have immediate support.

Training Webinars

Faculty frequently request that trainings be recorded and posted after the fact, due to scheduling conflicts. ATAP should either pre-record a session and post it before the semester begins, or record an early training and post it immediately.

Faculty Peer Workshops

Faculty are interested in learning how other faculty use technology. In observed trainings, it was also clear that faculty trust the recommendations of other faculty, potentially more than they trust those of staff. Given this, a workshop geared toward faculty teaching and experimenting with each other may be fruitful.

LTC Library of Workarounds

ServiceNow ticket history shows that many faculty come to ATAP with variations of the same request. In addition, student turnover in the Learning Technology Consultant role means knowledge leaves the ATAP team every couple of years. LTCs could document their most frequent questions and requests for LMS workarounds to be shared internally among LTCs, or potentially posted online for faculty.

Excel Support

In the ASSETT Faculty Technology Survey, 455 of 906, or 50.2%, stated they use Excel frequently while grading, either by itself or in combination with an LMS. Though ATAP does not own the Microsoft Office service at CU Boulder, the fact that many faculty use Excel in tandem with their LMS, particularly to expand LMS functionality, indicates ATAP may want to offer some guidance from that lens. ATAP could create a limited amount of documentation covering best practices, tips and tricks, or workarounds for grading in Excel, within the context of using Excel with Canvas.

ATAP might also consider offering limited templates that contain common grading calculations not available in Excel, or possibly sample gradebooks.

Clarify Security Guidelines for Grading Tools

Finally, 12 faculty wrote in the ASSETT survey that they use Google Sheets for grading. Google Sheets is not considered by OIT to be secure enough to host FERPA-protected information. ATAP should consider putting together a handout or webpage of common security-related FAQs and/or best practices. ATAP could, for instance, rank common grading tools according to security and FERPA standards and distribute at trainings and online.

Appendix - List of Individual Feature Requests

Desired Feature	Category	SubCategory
Edit text of paper while grading	Feature Request	Annotation
Sync with personal spreadsheet	Feature Request	Automation
Autograding	Feature Request	Automation
Formula grade items	Feature Request	Calculation
Letter grades disconnected from points	Feature Request	Calculation
Formula copy/paste from Excel	Feature Request	Calculation
Calculated grade item	Feature Request	Calculation
Letter grade schemes on a 4.0 scale	Feature Request	Calculation
Text grade schemes with a numeric correspondent	Feature Request	Calculation
Customized grade schemes	Feature Request	Calculation
Set weights independently of point value	Feature Request	Calculation
Dynamic weight schemes	Feature Request	Calculation
Estimate final grade in curving system	Feature Request	Calculation
Final grade and final adjusted	Feature Request	Calculation
Display current grades to students while grade is weighted to overall course	Feature Request	Calculation, Feedback
Robust statistics	Feature Request	Data & Visualization
Visualization of grades	Feature Request	Data & Visualization
Easily view stats in gradebook	Feature Request	Data & Visualization
Better individualized feedback options	Feature Request	Feedback
Screencast grading	Feature Request	Feedback
Delay publishing grades	Feature Request	Feedback
"Read" notification on both dropbox and grades when students view	Feature Request	Feedback
Drop lowest grade that is not zero	Feature Request	Flexibility
Conditional dropping	Feature Request	Flexibility
Pop-out window for grading	Feature Request	Layout
Peer grading with group support	Feature Request	Peer/Group
Distribute grading tasks to TAs based on question not student	Feature Request	Quiz
Change rubrics after publishing	Feature Request	Rubrics

Flexible rubric	Feature Request	Rubrics
Partial rubric completion by multiple people without rubric overwriting	Feature Request	Rubrics
Assign rubric score without clicking individual sub-scores	Feature Request	Rubrics
Text column in gradebook	Feature Request	Spreadsheet View
Column of TA names	Feature Request	Spreadsheet View
Link a survey to a grade	Feature Request	Survey
Access for my TA	Feature Request	TA role
Assign TAs to course sections	Feature Request	TA role
Assign multiple TAs to one assignment	Feature Request	Workflow
Add set amount of points to all students	Feature Request	Workflow
Auto-prompts for categorization of new uploaded grade items	Feature Request	Workflow
Flexibility to change grading criteria for particular students	Feature Request	Workflow
Mute grades based on section, not course	Feature Request	Workflow
Easily upload grades from other vendors	Integrations	Integrations
Integration with scantron & testing services	Integrations	Integrations
Use Attendance in D2L integrated with Grades	Productivity	Attendance
Upload/download easily	Productivity	Download
Bulk download and bulk upload all student assignments	Productivity	Download
Subscores of rubrics available for download	Productivity	Download
Upload grading feedback and comments	Productivity	Feedback
Flexible grade types/systems	Productivity	Flexibility
Sync to registrar's web grading system	Productivity	Structural Issue
System that works quickly	Productivity	System Performance
Fast gradebook loading	Productivity	System Performance
Regrade easily when answer key is changed	Productivity	Workflow
Modify grading after assignment published	Productivity	Workflow
Scan worksheets & hard copy exams to upload and grade	Productivity	Download
Manage section grades as individual classes	Structural	Structural Issue
More OIT support	Support	Support
On demand video tutorials	Support	Support

Feedback that students can easily find	Transparency	Feedback
Reliable/clear transfer of quiz grades to gradebook	Trust	Quiz
Transparent/intuitive grading calculations	Trust	Calculation
Easy to use rubric tool	Usability	Rubrics
Less complexity than D2L	Usability	Usability
Easy to learn/intuitive	Usability	Usability
System components that work together easily	Usability	Usability

Note: Highlighted rows were features requested multiple times and from multiple sources.