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August 17, 2020

User Committee
Learning Technology Hub
University of British Columbia
Irving K. Barber Learning Centre
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Dear Members of the User Committee:

The remote teaching and learning context at the University of British Columbia (UBC) has prompted a study of user experience with Canvas, the university's learning management system (LMS). This report, *Remote Education and UBC's Learning Management System*, has found that Canvas does not adequately support fully remote teaching and learning. If Canvas is not improved, the quality of education at the University of British Columbia will suffer.

As no one can be sure when students and faculty members will be able to return to face-to-face instruction, remote teaching and learning at UBC may extend far into the future. To ensure the highest quality of education possible, it is imperative that the User Committee act now to improve Canvas.

Thank you for your attention to this matter. If you have any questions or comments, please contact me at cody.gagnon@alumni.ubc.ca.

Sincerely,

Cody Gagnon

**Remote Education and UBC's Learning Management System:
Recommendations for Improved Teaching and Learning**

For the User Committee
Learning Technology Hub
University of British Columbia

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August 17, 2020

Abstract

In response to the COVID-19 pandemic, the University of British Columbia (UBC) is, for the present time, offering most courses only through online learning. As UBC's learning management system (LMS) was not designed to support fully remote teaching and learning, user experience with the LMS in this unprecedented and challenging context should be evaluated to ensure the highest quality of education possible.

To collect data regarding user experience with Canvas (the university's LMS), a voluntary and anonymous survey of UBC students and faculty members was conducted between July 17 and July 27. A total of 29 people responded to the survey, including 21 students and eight faculty members. In addition, a number of secondary sources were consulted, including official UBC websites, *The Ubysssey*, and r/UBC (an online community of UBC faculty, staff, and students).

Nearly a third of survey respondents (31%) are less than satisfied with Canvas, and only 6.9% of respondents are very satisfied. In addition, Canvas is heavily supplemented by many other software applications and digital tools. Nearly half of respondents (48.3%) indicated that using multiple software applications and digital tools is less than easy. In addition, using multiple software applications and digital tools is noticeably more difficult for students than for faculty members. Finally, students reported difficulty connecting with their peers, forming study groups, and making friends in the current remote teaching and learning context.

The features of Canvas that are least helpful for remote teaching and learning include Discussion, Collaborate Ultra, Grades, and Calendar. These features should be improved to strengthen the core functionality of the university's LMS.

The User Committee within the Learning Technology Hub at UBC should consider:

- Conducting a broader survey to better understand the changing needs of students and faculty members as they navigate teaching and learning remotely.
- Conducting further user testing of Canvas with special attention to Discussion, Collaborate Ultra, Grades, and Calendar.
- Investing in user experience improvements for Discussion, Collaborate Ultra, Grades, and Calendar.
- Researching and implementing a new tool to help facilitate student connections and study group formation.

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Introduction

Problem Statement

In response to the COVID-19 pandemic, the University of British Columbia (UBC) transitioned to online classes effective March 16, 2020. The current summer session is being taught online and term one of the upcoming winter session will also be taught online. Without face-to-face instruction, faculty members and students are increasingly dependent upon Canvas, the university's learning management system (LMS). As Canvas was not designed to support fully remote teaching and learning, user experience with the LMS in this unprecedented and challenging context should be evaluated to ensure the highest quality of education possible.

Purpose of this Report

The purpose of this report is to enhance the remote online teaching and learning experience at UBC by evaluating user experience with Canvas and recommending improvements.

Why Canvas Was Chosen

On June 8, 2017, UBC announced that Canvas had been selected as the university's new LMS. Canvas was chosen as a replacement for Blackboard Learn, also known as Connect, for several reasons. First, Canvas is designed to be responsive, so it works well across multiple devices and platforms, including Android and iOS. Other remarkable features that influenced UBC to choose Canvas as its new LMS, include SpeedGrader and Calendar. The ability to integrate with external tools is yet another reason why Canvas was chosen as UBC's new LMS.

A Shrinking Footprint

In *UBC's Learning Technology Ecosystem: Developing a Shared Vision, Blueprint & Roadmap*, which outlines the driving vision and principles behind the Learning Technology Environment (LTE) Renewal Project, the authors note a shifting focus, writing:

Faculty desire a greater choice of tools, so that the one with the best fit for the pedagogical purpose can be selected. The number of available tools integrated with Connect has increased significantly over the last few years [...]. As a result, the functional footprint of the LMS is shrinking over time (though the footprint of the entire ecosystem is arguably increasing). [...] We anticipate a shrinking LMS footprint while still envisaging the need for a core within the ecosystem. (Bates et al., 2015, p. 16)

The authors add that the core functionality necessary in an LMS was unclear at the time, but would likely include a "portal" and a "grade book" at minimum. To recommend improvements to Canvas, this report intends to investigate the core functionality necessary for an effective LMS.

Scope

To assess the needs of faculty members and students, and to establish which features of Canvas should be improved, this study will pursue the following areas of inquiry:

1. What features of Canvas are least helpful for remote teaching and learning? Why?
2. What features of Canvas are most helpful for remote teaching and learning? Why?
3. What features, if any, should be added to Canvas? Why?
4. What software applications or digital tools are used to supplement Canvas? How do these software applications or digital tools help with remote teaching and learning?
5. How easy or difficult is it to learn and use multiple software applications or digital tools for remote teaching and learning?
6. How has the shift to remote teaching and learning impacted the need for digital tools?
7. How satisfied or dissatisfied with Canvas are faculty members and students?

Methods

Data for this report was collected via a voluntary and anonymous survey to which 29 people responded, including 21 students and eight faculty members. The survey contained 10 questions, including one multiple-choice question, two rating-scale questions, and seven open-ended questions. The survey aimed to collect a combination of quantitative and qualitative data. In addition, information was collected from secondary resources, including official university websites, relevant articles in *The Ubyyssey*, and comment threads on r/UBC, an online community of UBC faculty, staff, and students.

Data and Analysis

Satisfaction with Canvas

When asked, “How satisfied or dissatisfied are you with Canvas?” 18 of 29 respondents (or 62.1%) rated their satisfaction as four out of five, where one is “very dissatisfied” and five is “very satisfied.” However, only two respondents (or 6.9%) rated Canvas as five out of five, which indicates that nearly all respondents believe that Canvas has room for improvement. Furthermore, more than a quarter of respondents (eight of 29 or 27.6%) were neither satisfied nor dissatisfied with Canvas, rating their experience with the LMS as a neutral three out of five. In addition, one respondent (or 3.4%) indicated dissatisfaction with Canvas, rating it two out of 5. When considering only students, the average rating is 73.3%, whereas the average rating when considering only faculty members is 77.5%. In terms of satisfaction or dissatisfaction with Canvas, students and faculty members are largely in agreement. Overall, 62.1% of respondents are satisfied, 31% of respondents are less than satisfied, and only 6.9% of respondents are “very satisfied.”

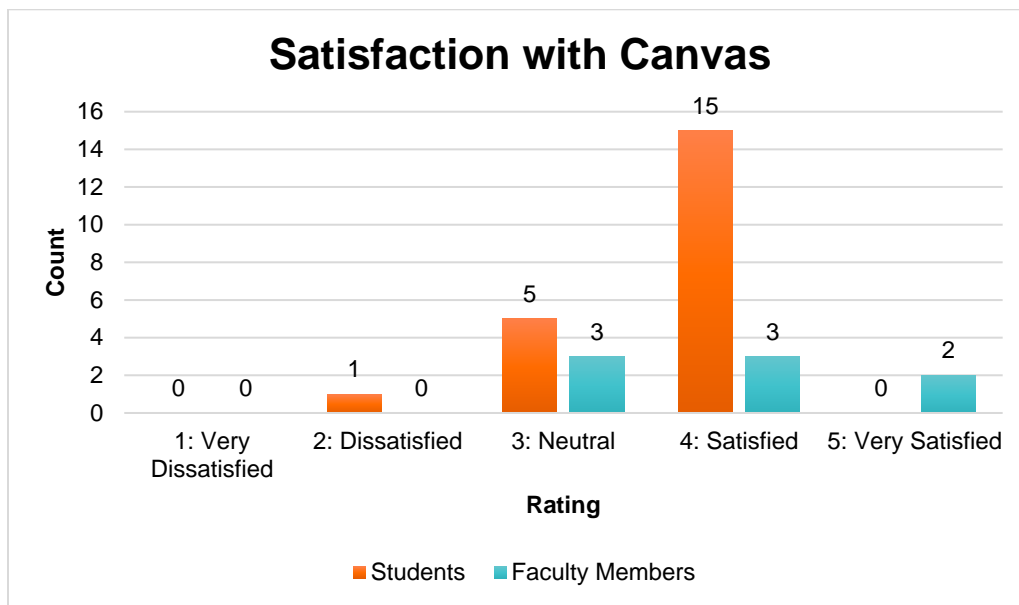


Figure 1: Satisfaction with Canvas

Software Applications and Digital Tools Used to Supplement Canvas

In total, respondents named 19 unique software applications or digital tools that are used to supplement their courses. Some digital tools were named multiple times. For example, more than half of respondents (15 of 29 or 51.7%) named Piazza and more than a third of respondents (11 of 29 or 37.9%) named Zoom. Some respondents named other popular communication tools, such as Slack, Skype, Teams, and Facebook Messenger. In addition, seven of 29 respondents (or 24.1%) commented that their course(s) used Gradescope to supplement the Grades feature in Canvas.

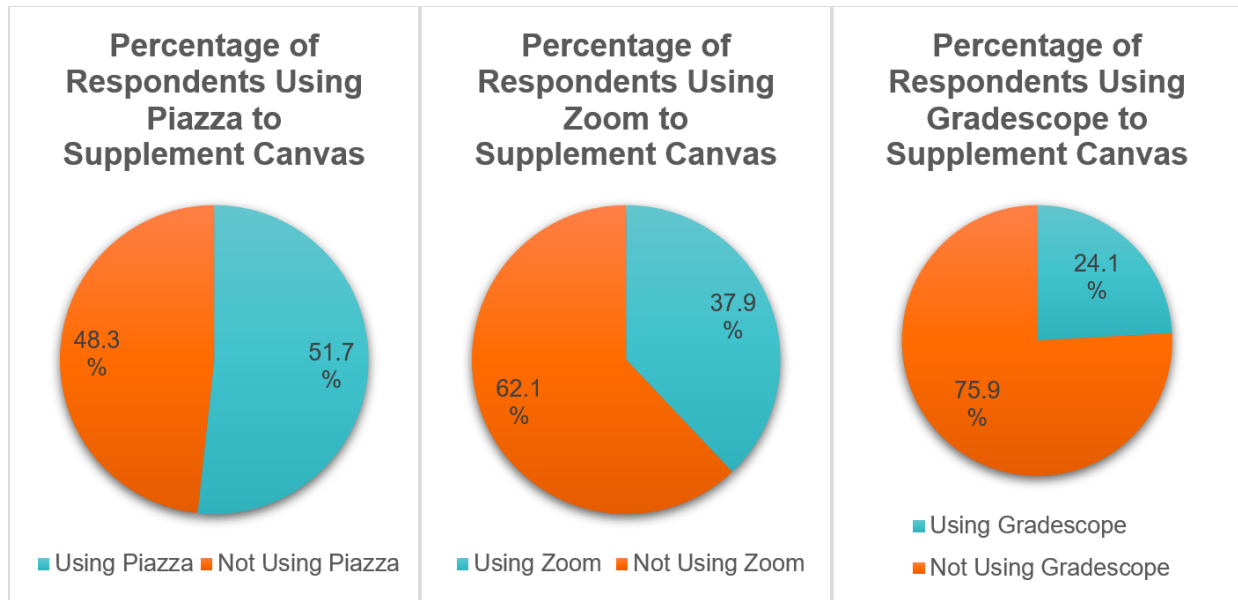


Figure 2: Percentage of Respondents Using Piazza, Zoom, and Gradescope to Supplement Canvas

On Using Many Software Applications and Digital Tools

When asked, “How easy or difficult is it to learn and use multiple software applications or digital tools for remote teaching or learning?” more than half of respondents (15 of 29 or 51.7%) indicated that using multiple software applications or digital tools is “easy” or “very easy.” However, 14 of 29 respondents (or 48.3%) rated their experience as three out of five or lower, where one is “very difficult” and five is “very easy.” In other words, nearly half of respondents feel that using multiple software applications or digital tools is less than easy. In addition, four respondents (13.7%) indicated that using multiple software applications or digital tools is “difficult” or “very difficult.”

When considering only students, the average rating is 68.6%, whereas the average rating when considering only faculty members is 77.5%. In other words, using multiple software applications or digital tools is noticeably more difficult for students than for faculty members. One student offers a possible explanation: “Ever [sic] teacher uses a different format, so the first two weeks of class you always have to be learning the format of each teacher.” Another student commented, “I would prefer if the professors integrated tools to [Canvas], rather than asking students to keep track of several distinct platforms.” A third student explained how using multiple software applications and digital tools can cause difficulty: “I always feel like I’ve missed something when there are assignmnts, [sic] quizzes, readings spread across a course website, canvas, [sic] gradescope, [sic] and possibly one or more locations, too.” Similarly, a faculty member commented, “I’ve actually tried to simplify the elements of the course, just so students have less to keep track of. No fancy groups, no projects, no peer eval—all things I might consider if we were meeting in person.” Clearly, using multiple software applications and digital tools is a challenge for at least some students and faculty members.

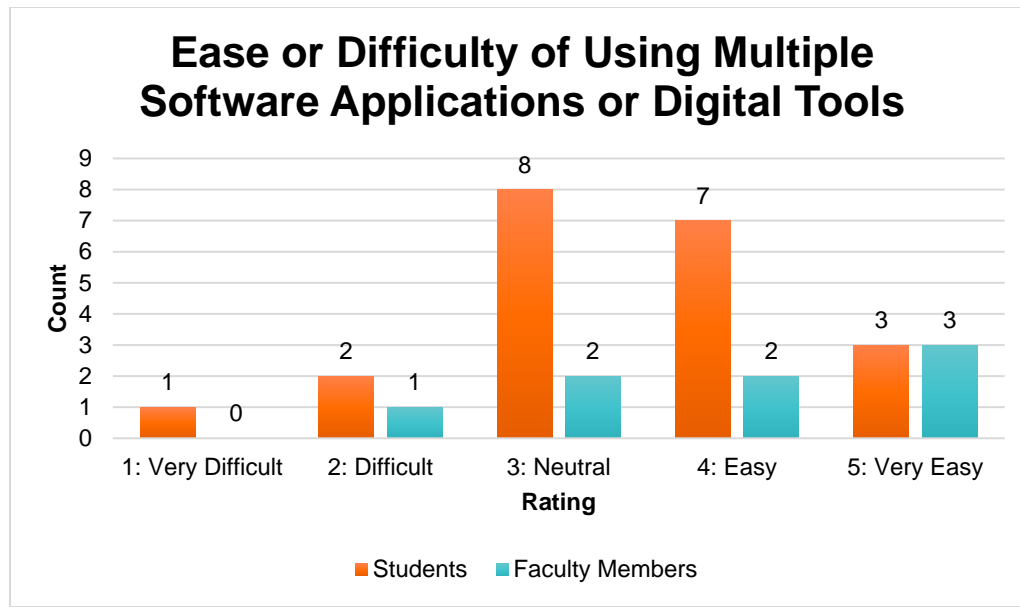


Figure 3: Ease or Difficulty of Using Multiple Software Applications or Digital Tools

Least Helpful Features

The feature identified by respondents as least helpful for remote teaching and learning is the Discussion feature. More than a third of respondents (10 of 29 or 34.5%) identified the Discussion feature as least helpful. Respondents commented that the Discussion feature is “difficult to follow,” “very confusing,” and “hard to navigate.” Numerous respondents commented that Piazza is a better tool for facilitating discussions. One respondent suggested that Piazza is often preferred by faculty members and students because it is “more feature-rich.” Other respondents commented that Piazza “show[s] a lot more detail” and is “way better organized” than the Discussion feature in Canvas.

Collaborate Ultra was identified by five respondents (17.2%) as one of the least helpful features for remote teaching and learning. One faculty member commented that Collaborate Ultra is “clunky and technically challenging for students.” Another faculty member commented that creating and posting video recordings of lectures is “doable, but require[s] several steps to make it happen.” One respondent commented that Collaborate Ultra could be improved by allowing students to save video recordings. Several respondents commented that students should be able to independently create their own video calls to facilitate collaborative group work.

Similarly, several respondents commented that Collaborate Ultra does not allow the creation of breakout rooms during lectures. One faculty member commented that “moving students into breakout groups is slow, manual, and error-prone.” The faculty member added, “Caps on the number of breakout groups make it difficult to scale small-group work to even modestly large courses.” One respondent suggested that the issue could be resolved if breakout groups could be “pre-assigned.” Several respondents suggested that Zoom was preferable because it supports breakout rooms.

Three respondents (10.3%) identified the Grades feature as one of the least helpful features for remote teaching and learning. One respondent explained, “The grading feature doesn’t generally reflect a students [sic] grade summary,” because it fails to account for how assessments are weighted.” Another respondent commented that feedback on graded work is “annoying” when using the mobile app. A faculty member suggested that the Grades feature should have better “sorting and editing” functionality, explaining that many faculty members use best-of schemes for final grades, which is not easily accomplished in Canvas. Another

respondent suggested that the Grade feature could be improved by enabling faculty members to retroactively change the answer key and automatically regrade assessments. One faculty member stated, "I'd use a better grade book if it existed." Several respondents suggested that Gradescope is a better tool for faculty members and students.

Three respondents (10.3%) identified the Calendar feature as one of the least helpful features for remote teaching and learning. One respondent commented that "the Calendar doesn't adapt to the time zone," which can make it difficult for some students to effectively manage their time and submit assignments before they are due. Another respondent commented that "it is more difficult to keep track of time when learning from home." A third respondent wrote, "The calendar system is not useful at all," explaining that "none of the deadlines, exams or important dates are posted on it."

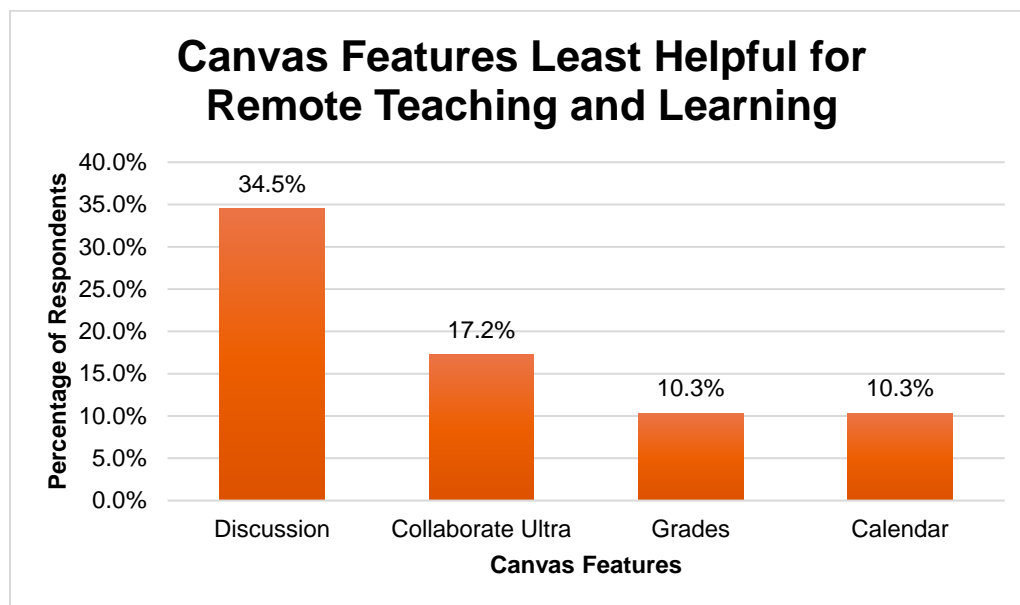


Figure 4: Canvas Features Least Helpful for Remote Teaching and Learning

To summarize, the features of Canvas that are least helpful for remote teaching and learning include Discussion, Collaborate Ultra, Grades, and Calendar. Communication tools are crucial for remote collaboration, yet the Discussion and Collaborate Ultra features have been identified as the two least helpful features of Canvas for remote teaching and learning. The authors of *UBC's Learning Technology Ecosystem: Developing a Shared Vision, Blueprint & Roadmap* identify a grade book as an essential feature of an effective LMS, yet the Grades feature of Canvas falls far short of student and faculty expectations (Bates et al., 2015). Good time management is necessary for the completion of any project, yet the Calendar feature in Canvas has been described as "not useful at all." All four of these features are essential to remote teaching and learning, yet they are the least helpful features of Canvas.

Most Helpful Features

More than a quarter of respondents (eight of 29 or 27.6%) identified video recordings of lectures as one of the most helpful features for remote teaching and learning. One respondent commented that video recordings of lectures are helpful, because they offer more flexibility than live lectures. Another respondent commented that video recordings of lectures could be watched multiple times, which makes it easier to take more detailed notes. A third respondent commented that video recordings of lectures and office hours are helpful for students studying in different time zones. The same respondent remarked that video recordings of lectures are "one of the only benefits so far from the swap to online learning."

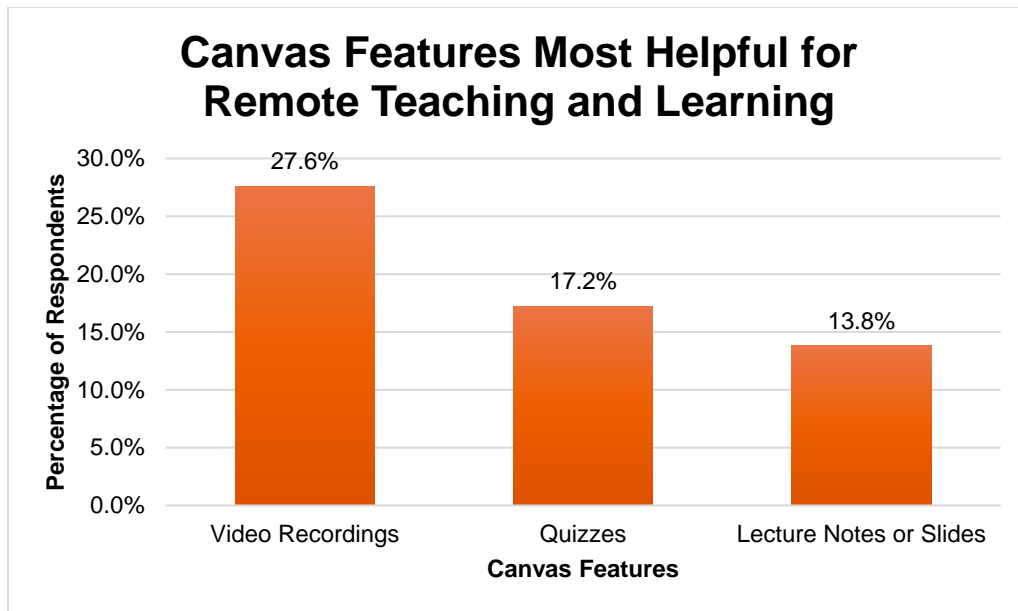


Figure 5: Canvas Features Most Helpful for Remote Teaching and Learning

Two other features identified as being most helpful for remote teaching learning include Quizzes (five of 29 respondents or 17.2%) and lecture notes or slides (four of 29 respondents or 13.8%).

Possible Feature Additions

One respondent suggested that a good addition to Canvas might be “a feature to better handle forming study groups,” because “that has become more difficult with the swap to online learning.” The same respondent commented that study group formation could be facilitate by better communication tools, such as an improved discussion forum. Similarly, a second respondent suggested a “study-buddy pairing feature,” explaining that it could “make it a lot easier to meet other people in online class, where it’s usually harder to make friends.”

Two respondents suggested that a feature similar to Socrative could be added to Canvas to facilitate real-time quizzes, surveys, and polls during lectures.

Conclusion

Summary of Findings

Canvas has significant room for improvement, as 31% of respondents are less than satisfied with the LMS and only 6.9% of respondents are very satisfied. Canvas is heavily supplemented by other software applications and digital tools; the 29 respondents to the survey named 19 unique software applications and digital tools used in their courses. Popular software applications and digital tools used to supplement Canvas include Piazza (used by 51.7% of respondents), Zoom (used by 37.9% of respondents), and Gradescope (used by 24.1% of respondents). Although more than half of respondents (51.7%) indicated that using multiple software applications and digital tools is “easy” or “very easy,” nearly half of respondents (48.3%) indicated that using multiple software applications and digital tools is less than easy. Furthermore, using multiple software applications and digital tools is noticeably more difficult for students than for faculty members. A faculty member and several students commented that using multiple software applications and digital tools makes it difficult to keep organized and manage one’s time effectively. Furthermore, some respondents suggested that they would prefer if tools were integrated into a central LMS.

The features of Canvas that are least helpful for remote teaching and learning include Discussion, Collaborate Ultra, Grades, and Calendar. These features are tools for communication, instruction, feedback, and time management; these four features are fundamental for successful remote teaching and learning and yet user experience with these features indicates that they are the very worst features of Canvas.

The features of Canvas that are most helpful for remote teaching and learning include video recordings of lectures, Quizzes, and lecture notes or slides.

A new feature could be added to Canvas to help students connect with their peers, form study groups, and make friends in our physically distanced reality.

Interpretation of Findings

Canvas was selected as UBC's new LMS as a result of the LTE Renewal Project, which was guided by the vision and principles set out in *UBC's Learning Technology Ecosystem: Developing a Shared Vision, Blueprint & Roadmap*. This guiding document states,

We anticipate a shrinking LMS footprint while still envisaging the need for a core within the ecosystem. Exactly what functionality is needed at the centre of the ecosystem requires further consultation with faculty (likely both a portal and a grade book as a minimum). (Bates et al., 2015, p. 16)

Given the results of this study, there is clearly a need for the university's LMS to be a robust core within the broader learning technology ecosystem. It is also clear that the core functionality of the university's LMS should include more than a portal and grade book. Discussion, Collaborate Ultra, Grades, and Calendar should all be considered core features of Canvas. These four features need improvement.

Recommendations

1. Conducting a broader survey to better understand the changing needs of students and faculty members as they navigate teaching and learning remotely.
2. Conducting further user testing of Canvas with special attention to Discussion, Collaborate Ultra, Grades, and Calendar.
3. Investing in user experience improvements for Discussion, Collaborate Ultra, Grades, and Calendar.
4. Researching and implementing a new tool to help facilitate student connections and study group formation.

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Appendix 1: Survey

UBC's Learning Management System: Your Remote Teaching and Learning Experience

As an undergraduate student at UBC enrolled in ENGL 301 Technical Writing, I am conducting research for a formal report. The purpose of this survey is to collect primary data that will be analyzed as part of an investigation that aims to provide recommendations for improving your remote teaching and learning experience with Canvas, UBC's Learning Management System (LMS). The formal report will be addressed to the User Committee or the Innovation Committee within UBC's Learning Technology Hub. Combined with scholarly research about best practices for remote teaching and learning, as well as an investigation into the strengths of Learning Management Systems used by other leading universities, this survey will help to provide recommendations to improve user experience with UBC's LMS and, ultimately, improve your remote teaching and learning experience. The survey contains 10 questions and it should take approximately 10 minutes to complete. Your responses are voluntary and anonymous. Thank you very much for your time.

* Required

Are you a current UBC faculty member or student? *

- Current UBC faculty member
- Current UBC student
- Neither

What features of Canvas do you find least helpful for remote teaching or learning? Why? *

Your answer

What features of Canvas do you find most helpful for remote teaching or learning? Why? *

Your answer

What features, if any, do you think should be added to Canvas? Why?

Your answer

What software applications or digital tools do your courses use to supplement Canvas? How do these software applications or digital tools help you with remote teaching or learning? *

Your answer



How easy or difficult is it to learn and use multiple software applications or digital tools for remote teaching or learning? *

1 2 3 4 5

Very Difficult Very Easy

If you are a current UBC faculty member, how has the shift to remote teaching impacted your need for digital teaching tools?

Your answer

If you are a current UBC student, how has the shift to remote learning impacted your need for digital learning tools?

Your answer

How satisfied or dissatisfied are you with Canvas? *

1 2 3 4 5

Very Dissatisfied Very Satisfied

Do you have any other comments about Canvas that you would like to add?

Your answer

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