Student and Faculty Use and Perceptions of Technology-Enhanced Learning and Teaching at Dalhousie University, 2021-2022

Centre for Learning and Teaching



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The Dalhousie University eLearning surveys seek to understand student and faculty use and perceptions of various eLearning tools and technologies for learning, teaching, and working at Dalhousie. This is the third survey of its kind, with previous iterations occurring in 2013 and again in 2017-2018. As in the past, learning more about the landscape of technology-enhanced learning and teaching at the institution will help guide future decision-making around available tools and technologies and the supports and resources offered; and the policies, practices, and supports around online and blended learning. This is especially needed as the pandemic has changed how we all use and interact with technologies in the teaching and learning context.

Two contextual variables challenge analysis of the survey results. The first challenge arises from some measure of incommensurability between the 2013 and 2017-2018 surveys and these, 2021/22 surveys— there has been some change in terms and wording between surveys. Additionally, the change in our collective understanding and usage of technical/technological terms and the development of nuance within single terms (such as "blended") that has occurred in the intervening years challenges the ability to make direct comparisons between surveys.

The second contextual variable that challenges analysis is the pandemic effect. The survey results presented some discrepancies that may seem irreconcilable; however, taking into consideration the unique ways faculty and students taught and experienced crisis-response online courses begins to explain some of the marked deviations from preference trajectories established in previous surveys. Due to the unique point in history we currently occupy, only the next iteration of this survey will allow a more complete understanding of the results from this one. Also, we should be wary of diminishing the findings of previous surveys: disruptive, large-scale social events will certainly find themselves represented on the page by dramatic changes in numbers and sharp rises and falls in graphs.

Methods

Surveys were sent to both students and faculty on November 9, 2021. The questions were grouped into four main sections: (1) Campus Tools and Technologies, (2) Online and Blended Learning, (3) Dalhousie's Instructional Technologies, and (4) Learning with Technology. The survey also contained introductory questions (to determine eligibility, student and faculty employment status, and discipline) and demographic questions. The student survey had 43 questions (Appendix A); the faculty survey had 41 questions (Appendix B). For most questions that asked respondents for a rating or level of agreement,

there was a 5-point Likert scale of response options, ranging from, for example: "Poor, Fair, Neutral, Good, Excellent", or "Strongly disagree, Disagree, Neither Agree nor Disagree, Agree, Strongly Agree".

The student and faculty surveys were sent the second week of December 2021 and remained open for one month. The student survey was sent to 12,070 students and a total of **795** students completed all or part of the survey (511 completed, 284 partial) for a response rate of **6.6%**. There were 2,657 invitees to the faculty survey and total of **259** faculty completed all or most of the survey (215 completed, 44 partial) for a response rate of **9.7%**.

We believe the timing of the survey distribution—at the end of the Fall term and before the Winter term began—resulted in lower response rate than seen in previous iterations of these eLearning surveys.

For both the student and faculty surveys, survey submissions that contained answers to only the first question, but no subsequent ones, were *not* included in the analysis.

Who Were the Respondents?

The student and faculty respondents represented people from a variety of disciplines and roles within the university. About 85% of students and 80% of faculty respondents came from four disciplinary areas: health/medicine, management, arts and social sciences, and science/engineering.

Of student respondents, just over half were in their first or second year of university. Eighty-six percent (86%) are pursuing an undergraduate or honours degree, with the remainder pursuing master's, doctoral, or advanced professional degrees. Most of the students are domestic (i.e., not international) and live off campus. When not on campus, 90% of the respondents have access to a reliable Internet connection.

Half of the faculty respondents are tenured; nine percent of respondents are part-time academics. The remaining 41% of respondents were a combination of faculty on limited term, probationary, or ongoing appointments, or tenure track, but not yet tenured. Most faculty teach and/or supervise undergraduate students (87.3%) and graduate students (61.8%), and one-quarter indicated they work with professional students.

For student respondents, 62% self-identified as women and almost 30% as men. Of the remainder, seven percent identified as other genders and three percent preferred not to indicate their gender. Four percent of student respondents identified as Indigenous, a broad category that includes people who identify as First Nations, Métis, and Inuit. Almost 20% of students identified as racially visible, with 12% of those indicated being a person of historical Black or African Nova Scotian ancestry. Eighteen percent of student respondents indicated being a person with a disability.

Just over 50% of faculty respondents self-identified as women and 37% as men. Of the remainder, two percent identified as other genders and 10% preferred not to indicate their gender. Three percent of faculty identified as Indigenous and 11% preferred not to answer this question. Faculty respondents who identify as racially visible made up 12% of respondents, with 14% of faculty preferring not to answer. Fourteen percent of faculty identified as being a person with a disability.

Administrators wishing to conduct analysis across demographic factors or look at Faculty specific data can contact Dalhousie Analytics at <u>analytics@dal.ca</u> for access.

Results

Section 1: Campus Tools, Technologies, and Spaces

In this section of the survey, students and faculty were asked to rate their experiences with the various technologies and other resources provided by Dalhousie, as well as indicate where they go for technology support.

A. Classroom and Institutional Technologies

Overall, most students and faculty indicated *good/excellent* experiences with classroom-based technology resources, communication technologies like email, and cloud-based technology such as OneDrive. Seventy-three percent of students had *good/excellent* experiences with the available communication technologies, like email, and only 9% indicated having a *poor/fair* experience. Fifty-three percent of students indicated *good/excellent* experiences with classroom-based technology resources; fifty-six percent indicated *good/excellent* for and cloud-based technologies. Twelve percent of students indicated a *poor/fair* experience with these classroom-based technology resources and cloud-based technologies.

Faculty members reported positive experiences that were slightly higher than that of students for classroom-based technology (62% *good/excellent*) and for communication technologies (78% *good/excellent*). Classroom-based technology was rated *poor/fair* by 12% of faculty, while only seven percent of faculty indicated negative experiences with communication technologies.

Faculty were asked to comment on their satisfaction with specific classroom technologies, such as the hardware and software of instructor stations, projectors, microphones, and wireless access, as well as the availability and reliability of such equipment. Across all choices, over 50% of faculty indicated being *satisfied* or *strongly satisfied*. A summary of faculty responses is shown in Figure 1.



Figure 1: Level of faculty satisfaction with aspects of on-campus classroom technologies

Fifty-five percent of students agreed/strongly agreed that they get more involved in in-person courses that integrate technology, which could include a range of practices, from using a student response system, such as Top Hat, or sharing multimedia content during class. Twenty-eight percent of students neither agreed nor disagreed, and only 12% disagreed/strongly disagreed.

Students were fairly evenly split on their responses to the questions on whether they were more likely to skip in-person classes when (1) lecture recordings or (2) course content and materials are available online (Figure 2 and Figure 3).

B. Software Preparation and Use

Both students and faculty were asked about students' preparation to use software programs and applications such as Microsoft Office, online technologies, videoconferencing, etc., upon entering university. Both groups had similar responses with over 70% in each group agreeing or strongly agreeing to students being prepared to use basic applications. Only 14% of students and 12% of faculty disagreed/strongly disagreed to students being prepared to use these fundamental applications.

When students were asked if Dalhousie sufficiently prepared them to use Dal technology such as the course registration system, Brightspace, the library search, etc., half of them agreed/strongly agreed, while 21% had a neutral opinion, and 28% disagreed/strongly disagreed to being prepared to use these institution-specific technologies. On the other hand, faculty felt more positively about their students' level of preparation in using everyday Dalhousie technologies with almost 70% agreeing/strongly agreeing, 14% neither agreeing nor disagreeing, 17% disagreeing/strongly disagreeing.

Students were given the opportunity to comment on the extent that Dalhousie was preparing them to use technology that they would use in their chosen career after university. Overall, there were mixed feelings about how well trained they were in the use of technologies; however, the majority felt somewhat prepared to use it in their career. One student commented, "The majority of the time I have to teach myself how to use these software programs which are useful for my future career, but Dalhousie did not prepare me for using these programs."

Although some students expressed that the technology in use at Dalhousie was "behind the times" and that the technology used in class "rarely translates to use in workplace," some students cited the direct connection and "immense advantage" of learning discipline-specific software while in university. For example, one student said, "I need to be able to use different software in [my discipline], so having access to that software at school whenever I need it is fabulous."



Figure 2: Percentage of students likely to skip in-person classes if lecture recordings are available online



Figure 3: Percentage of students likely to skip in-person classes if course content is available online

Students also recognized that office applications they use during their programs, such as software used for organization, presentation, and communication, will be useful after graduation. "Going into a digital world post-university means that as much exposure to digital tools during university will greatly support the transition to the workforce."

Through the Libraries' Software Download site, Dalhousie students, faculty, and staff can access, download, and use a variety of software packages. Although 22% of students and 15% of faculty had *not* used this free software downloads site, for those who had, around 45% of students and faculty indicated having had a good experience. At the same time, one student complained that software they need for their discipline is not available on the download site in a version compatible with their computer's operating system.

C. Technology Support

Both students and faculty were asked where they go when they need technology support for school- or work-related activities. Overwhelmingly, students looked for assistance through more informal means. The top choices for students needing tech support were to ask classmates, ask friends or family, conduct an online search, or troubleshoot on their own.

Top faculty choices for sources of technology support also, similarly to students, included informal means, such as figuring it out on their own, conducting an online search, or asking peers or colleagues. But the second most-selected choice for faculty was using the ITS Help Desk or Academic Technology Services (ATS). When reaching out to ITS or ATS, most faculty (85%) used email (<u>intech@dal.ca</u> or <u>support@dal.ca</u>). Fifty-seven percent of faculty had contacted ATS through the virtual drop-in support room, while 40% had sought support via telephone.

Response	Students (%)	Faculty (%)
Poor	3.7	6.3
Fair	10.5	14.2
Neutral	21.4	18.3
Good	56.3	51.7
Excellent	8.0	9.6
Total	100	100

Finally, students and faculty were asked to reflect on the aspects of technology covered in the previous questions and rate their overall technology experience at Dalhousie. As seen in Table 1 and Figure 4, most of the respondents—64% of students and 61% faculty—noted having a positive experience. Fourteen percent of students and 21% percent of faculty indicated having a poor or fair experience.



Figure 4: Overall technology experience at Dalhousie

Section 2: Online and Blended Learning

In this section of the survey, students and faculty were asked about their (1) preferred environments for learning and teaching, (2) perceptions of student behaviour around online learning, and (3) level of agreement around trends and potential for online learning and teaching in higher education. The questions in this section also asked students and faculty about the suitability of online environments for course activities or assignments.

First, students and faculty were asked about their previous experience in taking or teaching an online or blended course. Prior to Winter term 2020, just over half of students had taken an online or blended course, while only 40% of faculty had taught an online/blended course (Table 2).

Table 2: Percent of students/faculty who took/taught an online or blended course prior to Winter 2020 (i.e., pre-pandemic)

Response	Students Who Took Online/Blended Course (%)	Faculty Who Taught Online/Blended Course (%)
Yes	55.2	40.5
No	37.0	53.2
N/A	7.8	6.3

A. Preferred Environments for Learning and Teaching

To determine preferences for in-person, blended, or online experiences, students were asked in which type of environment they preferred to learn, and faculty were asked in which type of environment they preferred to teach. Choices included:

- It depends on the course mix of in-person, online, and blended courses
- One that is completely in person
- One that is completely online (asynchronous on Brightspace)
- One that is completely online with blend of synchronous (i.e., live) and asynchronous
- One with a blend of in-person and online components
- No preference

Table 3: Preferred environments for learning and teaching

Response	Students	Faculty
It depends on the course – mix of in-person, online, and blended courses	29.5	29.9
One that is completely in person	29.8	25.8
One that is completely online (asynchronous on Brightspace)	9.3	3.7
One that is completely online with blend of synchronous (i.e., live) and asynchronous	8.3	3.3
One with a blend of in-person and online components	21.9	35.2
No preference	1.1	2.0
Total	100.0	100.0

Twenty-nine percent of students prefer a total in-person environment for learning, and a similar number said their preferred learning environment was dependent on the course (29.5%). For faculty, the top choice for teaching environments was blended (35%), and this was followed closely by their preference for in-person (25.8%), or it being dependent on the course (29.9%). Both students and faculty indicated that online learning and teaching environments—whether asynchronous or synchronous—were least preferred.

B. Student Learning in Online Courses

Students and faculty were asked whether students get more actively involved in courses that are held asynchronously on Brightspace only or in courses that have some synchronous elements. Fifty-six percent of students disagreed they were more active in fully asynchronous courses, while 14% neither agreed nor disagreed, and 27% agreed/strongly agreed (see Figure 5). Faculty responses aligned with those of students, with 66% disagreeing to their students' being more actively involved in asynchronous courses held fully on Brightspace. In response to this statement, 16% of faculty held a neutral opinion and only 7% agreed/strongly agreed.

Figure 5: Level of agreement that students are more involved in courses that are held asynchronously (i.e., on Brightspace) only

In reference to their experience of online classes, just about half of students agree/strongly agree that they are more actively involved when courses hold some live sessions (e.g., class, lab, tutorials, etc.) using video technologies (Figure 6). Even more faculty (56%) felt their students had more active involvement in courses with online synchronous elements. Thirty percent of students and 17% of faculty disagreed to students having more active involvement in courses with some synchronous elements.

Figure 6: Level of agreement that students are more involved in courses that include online synchronous elements

Students and faculty were asked questions about academic integrity in fully online courses versus those held in person. When students were asked whether it was more challenging to maintain academic integrity in a fully online course than in one held in person, there was a fairly even distribution of responses with 38% strongly agreeing/agreeing, 26% neither agreeing nor disagreeing, and 34% disagreeing/strongly disagreeing (Figure 7).

In a corresponding question, faculty were asked whether they were seeing more instances of students not maintaining academic integrity in fully online courses than in courses where at least some components are held in-person. More faculty agreed than disagreed, with 29% strongly agreeing this was the case, 21% agreeing, and 27% indicating not applicable or they did not know.

Figure 7: Students' level of agreement with the statement, "It is more challenging to maintain academic integrity in a fully online course where at least some components are held in person."

In the final question about student learning in online course, students were asked whether they feel they have the necessary supports (as defined by the students themselves) for learning in their online and blended courses. Students were split in their responses. Thirty-eight percent strongly agreed or agreed to having the support needed to learn, while 34% indicated they did not. Twenty-six percent of students neither agreed nor disagreed with having supports required for learning in their online and blended courses.

Response	Faculty (%)
Strongly disagree	3.3
Disagree	10.5
Neither agree nor disagree	10
Agree	20.9
Strongly agree	28.5
N/A or don't know	26.8
Total	100.0

Table 4: Faculty level of agreement to seeing more instances of students not maintaining academic integrity in fully online courses than in courses held fully or partially in person.

C. Trends, Potential, and Future of Online Education

Students and faculty were asked to indicate their level of agreement with various statements about online learning and teaching such as its effectiveness; whether online pedagogy will lead to new and innovative teaching practices; the effect online education will have on the availability and affordability of higher education for students; as well as the number of faculty and teaching positions in higher education; and the competence for and interest in taking and teaching online courses in the future.

Over half of students (58%) and faculty (68%) agreed/strongly agreed that students can learn effectively online, while 28% of students and 15% of faculty disagreed. The remainder (13% students; 15% faculty) had a neutral opinion on whether students can learn effectively online. When asked if online courses can lead to innovative ways of teaching that can enhance student learning, 55% of students agree or strongly agree. Nineteen percent of students neither agreed nor disagreed; one quarter of students disagreed on this potential for online teaching. Compared to students, more faculty (75%) agreed that innovative ways of teaching could arise from online education, whereas only 12% disagreed/strongly disagreed.

Students and faculty were both asked about the potential of online learning to enhance the availability and affordability of higher education for students. Most students and faculty agreed or strongly agreed that online learning makes higher education *available* to more students, while relatively fewer disagreed or had neutral feelings about the impact of online learning on availability of higher education (Figure 8). Opinions about online learning making higher education more *affordable*, students and faculty both had mixed responses, with relatively similar levels of agreement across the scale.

When students and faculty were asked to provide their level of agreement to the statement, "Overall, I feel positive about online learning," both groups responded similarly. Forty-six percent of both students and faculty agreed/strongly agreed they feel positive about online learning/teaching. Twenty-one percent of students and 24% of faculty took a neutral position, while 33% of students and 30% of faculty disagree/strongly disagreed with feeling positive about online learning/teaching overall. Differences arise in how students and faculty gauge their competence to take/teach online courses. More faculty (77%) felt competent to teach online courses than students (69%) felt about taking them. Equal numbers of students and faculty (~13%) took a neutral position. Eighteen percent of students did not feel competent to take online courses, whereas only 10% of faculty indicated they did not feel competent to deliver online teaching.

Figure 8: Levels of agreement with the idea that online learning enhances availability & affordability

Even though 46% of students and faculty feel positive about online learning and teaching, only about one-third in both groups are interested in learning/teaching online in the future. However, over 60% of both students and faculty were interested in taking/teaching blended courses or those with a mix of in person and online components. See Figure 9 for more information.

Figure 9: Percentage of students and faculty who agreed or strongly agree with various statements about online learning and teaching

D. Activities, Online vs. In Person

Students and faculty were asked which kinds of course activities or assignments they prefer to do online and which they prefer to do in person. Both students and faculty agreed that *in-person* was the preferred modality for *lectures, discussions, group work,* and *learning activities.* There was a similar level of agreement in terms of accessing course content: most students (82%) and faculty (75%) preferred this to be done *online*.

For other classroom activities, students and faculty responded differently from each other. For example, students were evenly split on their preference for online versus in-person for both giving presentations and watching their classmates' presentations. But faculty overall preferred that students give presentations in person. More significant was the difference in responses for students and faculty around exams: 61% of students preferred that exams happen online; 65% of faculty, on the other hand, preferred students take exams in person.

Section 3: Dalhousie's Instructional Technologies

Students and faculty were asked about what technologies and tools they use for courses, and then specifically about how four of those learning and teaching technologies—(A) Brightspace, (B) Panopto, (C) Collaborate, and (D) Microsoft Teams—were used, accessed, and supported.

A. Brightspace

Brightspace is Dalhousie's learning management system (LMS). It can be used for class-wide announcements; to host content such as readings, audio, video, links, etc.; for online asynchronous discussions; and as a place for students to submit assignments and for instructors to post student grades. Although it is the main platform for offering online or blended courses, it can support in-person teaching, as well.

Both students and faculty were asked about their satisfaction with using Brightspace for various learning- and teaching-related activities, such as those related to content, interaction, assessment, and collaboration. Students and faculty were also asked about the overall ease of use and available training and support.

Overall, students were more satisfied with Brightspace compared to faculty (Figure 10). When looking at general ease of use, accessing course content, checking course progress and grades, submitting course assignments, and receiving feedback on assignments, around 80% of students indicated they were satisfied/very satisfied. Faculty were most satisfied with the Brightspace function of posting content (74% satisfied/very satisfied) and receiving student work via the assignments dropbox (78% satisfied/very satisfied).

For Brightspace functions that facilitate discussion and collaboration, there were differences in satisfaction between students and faculty. In terms of holding discussions in Brightspace, almost half of students were satisfied/strongly satisfied, while only one-quarter of faculty felt that way. For group work, 39% of students felt strongly dissatisfied/dissatisfied, and while only 25% of faculty indicated dissatisfaction, 40% indicated they did not use Brightspace for student group work.

Both students and faculty were asked if they accessed Brightspace on a handheld mobile device. Just over three-quarters of students say they do, while the same percentage of faculty indicated they do not. Fifty-six percent (56%) of students use the Brightspace Pulse app.

Figure 10: Percent of students and faculty satisfied/very satisfied with various functions of Brightspace

B. Panopto

Panopto is a software integrated into Brightspace that both students and faculty can use to create or upload audio or video content. Built-in features include auto-generated captions, collaborative notetaking and annotation, and formative quizzing. Students and faculty that use Panopto were given the opportunity to indicate their levels of satisfaction with its various functions. About 65% of students and 50% of faculty were satisfied/strongly satisfied with the general ease of use of Panopto.

Seventy-seven percent (77%) of students were satisfied/strongly satisfied with using Panopto for viewing instructor lectures or slide presentations; eleven percent were neither satisfied nor dissatisfied and 10% were strongly dissatisfied/dissatisfied. Faculty responses indicated 60% were satisfied/strongly satisfied, 13% neither satisfied nor dissatisfied, and 18% strongly dissatisfied/dissatisfied with creating recorded lectures or presentations with Panopto.

For other functions of Panopto, such as using it for recorded demonstrations of hands-on-activities, using it to host audio or video from other outside sources (e.g., video content created on another device, podcasts downloaded from the Internet, etc.), or using student-created audio/video content for activities or assignments, most faculty indicated they had not used these aspects of the tool. About one-

quarter of faculty had not used the captioning features of Panopto to create accessible audio/video content.

Just over 60% of students had not used the Help Desk for Panopto support. About 75% of faculty had participated in initial-use training or ongoing support for using Panopto. Of those faculty, 34% were satisfied/strongly satisfied (25% were neutral, 41% strongly dissatisfied/dissatisfied) with the training they received for Panopto. For ongoing support for using Panopto, 41% were satisfied/strongly satisfied (30% were neutral; 29% strongly dissatisfied/dissatisfied)

C. Collaborate Ultra

Collaborate Ultra is a video conferencing and virtual classroom add-on tool for Brightspace that can be used to hold live online class sessions, to bring in guest speakers, to pre-record lectures for later use by students, or to host online office hours or tutoring sessions for students. In this survey, mirroring the results for the other learning technologies, 70% of students and 60% of faculty were satisfied/strongly satisfied with the ease of use of Collaborate. As Collaborate is a synchronous technology, these results make sense when holding them up against the lower levels of satisfaction with interacting asynchronously (i.e., in Brightspace).

Students were, overall, satisfied with the various functions of Collaborate. For activities like attending online lectures or slides presentations, 75% of students indicated feeling satisfied/strongly satisfied; for live classes, labs, or tutorials held online through Collaborate, 79% were satisfied/strongly satisfied. Students also indicated satisfaction/strong satisfaction for using Collaborate for demonstrations of hands-on activities (65%) or virtual office hours (64%). Students were relatively less satisfied with using Collaborate for activities that involved interacting with other students, such as whole-class discussions, interacting with students/peers, and student group work, with levels of satisfaction for these hovering around 50% and one-third of students indicating strong dissatisfaction/dissatisfaction.

For the most part, most faculty indicated they were satisfied with using Collaborate for various teaching activities, with levels of satisfaction around 60% for holding classes synchronously or giving lectures or presentations online. Sixty-eight percent of faculty were satisfied/strongly satisfied with using Collaborate for holding office hours. One exception was holding whole-class discussions in Collaborate, where 50% of faculty indicated they were strongly dissatisfied/dissatisfied (13% were neutral; 37% satisfied/strongly satisfied).

As a videoconferencing tool, Collaborate can support teaching activities that are more challenging to achieve in an asynchronous learning environment, such as facilitating student group work, demonstrating hands-on activities, and giving live quizzes or exams. However, over 50% of faculty indicated they did not use Collaborate in these ways, instead using it for giving presentations and communicating with students during live online class, lab, or tutorial sessions.

Figure 11: Students' level of satisfaction in using Collaborate for the listed activities

D. Teams

Microsoft Teams is a software that supports communication and collaboration and is the main platform at Dalhousie for holding virtual meetings. It is integrated with other Office 365 applications, such as messaging, calendar, and file storage. Overall, both students and faculty were satisfied with using Teams for various learning and teaching activities (Figure 12). For using Teams to attend and/or hold live online class, lab, or tutorial sessions, 80% of students and 76% of faculty were satisfied/strongly satisfied, while 13% of students and 15% of faculty were strongly dissatisfied/dissatisfied (6% and 9%, respectively, were neutral). This high level of satisfaction was reported by both students (77% satisfied/strongly satisfied) and faculty (71% satisfied/strongly satisfied) for viewing or giving instructor lectures or slide presentations, as well. Thirteen percent of students and 19% of faculty were strongly dissatisfied/dissatisfied for using Teams for this this purpose.

Just as with Collaborate, more than half of faculty did not use Teams for teaching and learning activities such as giving demonstrations, facilitating student group work, or giving quizzes or exams synchronously.

Figure 12: Level of satisfaction among students and faculty for using Teams for learning and teaching

When asked about their level of satisfaction with using the Help Desk for Teams support, 63% of students indicated they had not used the Help Desk for this purpose; the remainder of the responses were spread evenly across the scale from strongly dissatisfied to neutral to satisfied.

On the faculty side, although approximately one-third did not seek initial training nor ongoing training and support on using Teams, those that did had mixed levels of satisfaction. Twenty percent of faculty reported being satisfied/strongly satisfied, another 20% were neither satisfied nor dissatisfied, and the remaining third were strongly dissatisfied/dissatisfied with the Teams support they received.

Section 4: Teaching with Technology

In this section, students answered questions about their instructors' integration of various resources, tools, or technologies in teaching; faculty were asked to rate factors that would motivate them to integrate more or better technology into their teaching practices or curriculum, as well as rate their experiences with the available technology-enabled teaching services, supports, and resources. Both students and faculty were asked their thoughts around emerging instructional approaches in higher education, and to identify one thing Dalhousie can do with technology to better facilitate or support their learning or teaching.

A. Integration of Resources, Tools, and Technologies into Teaching

For various resources, tools, or technologies, students were asked how they would rate their instructors' integration of them in teaching. In a parallel question, faculty were asked to indicate their level of interest in improving their skills at integrating those same resources, tools, and technologies into their teaching practice.

Learning Technologies

Students rated their instructors' integration of Brightspace as either effective (44%) or very effective (46%). Although 90% of students felt their instructors integrated the LMS effectively, 73% faculty were interested in improving their skills at integrating Brightspace into their teaching. For videoconferencing platforms such as Collaborate and Teams, over 70% of students rated their instructors' use of these tools as effective or very effective. Sixty-four percent of faculty were interested or very interested in improving their skills at integrating videoconferencing.

Sixty-six percent of students indicated that their instructors effectively used lecture capture, and 54% of faculty were interested/very interested in learning more about integrating the recording of lectures for later use and review in their course sites.

Although almost 30% of students said instructors do not incorporate students' devices as a learning tool for course-related activities, for those who do, 65% of students rated their instructors' use of student

devices as effective or very effective (21% neither effective nor ineffective; 14% very ineffective/ineffective). Forty-five percent of faculty were interested in learning how to better integrate students' mobile devices in the classroom, while 21% expressed a neutral opinion and 25% were not interested in improving their skills at integrating mobile devices into their teaching.

Technology-Enabled Tools and Software

About half of the students indicated their instructors effectively integrated online tools for collaborative work and one-third responded that their instructors' integration of these tools was very ineffective/ineffective. Sixty-six percent (606%) of faculty wanted to improve their skills at using online collaboration tools for student group work, while 13% felt neutral and 21% were not interested.

When faculty were asked whether they would be interested in having software specific to facilitating student peer review that would allow students to assess and provide feedback on their classmates' work, 35% of faculty said they *would be* interested and 37% said they *might be* interested.

In some cases, up to half of surveyed students indicated their instructors did not use the specified technology-enabled tools or software. For example, half of the students said their instructors did not use simulations and game-based learning nor social media as learning tools. When faculty were asked if they were interested in learning more about how to effectively integrate these into their teaching, the results varied. For simulations or games, 66% agreed/strongly agreed to wanting to learn more, while 20% were not interested in learning more about integrating simulations or games into their teaching. Faculty were split on wanting incorporate social media (46% agreed/strongly agreed; 16% were neutral; 39% strongly disagreed/disagreed).

Although a third of students indicated their instructors did not use in-class polling tools such as Top Hat (mostly used in in-person classes) or polls in Teams, for those students whose instructors do, 61% said the integration was effective/very effective, and 20% for each neither effective nor ineffective and very ineffective. Still, 54% of faculty were interested (15% were neutral; 31% disinterested) in learning more about implementing in-class polling tools into their teaching.

Digital Resources and Content

For online resources such as publisher-provided content and Open Education Resources (OERs) students either indicated that instructors did not use the resource or, in the cases where faculty did, whether the digital content was effectively integrated into the course.

Twenty percent of faculty indicated they did not use OERs. Of those that did, 70% were interested/very interested in improving their skills in integrating them into their courses. For electronic resources provided by publishers, about half of the faculty who use these would like to improve their skills in their integration. Twenty percent were not interested in improving their skills at integrating the electronic resources provided by publishers.

Students' rating of integration and faculty interest in pursuing or improving the incorporation of e-books or e-textbooks, videos or multimedia content, and free, web-based content paralleled one another: most students found faculty use of these resources to be effective or highly effective: 61% for e-books, 78% for videos, and 73% for free web content; and most faculty were interested or very interested in improving skills at their integration of these same resources, namely e-books (61%), videos (70%), and supplemental content from the web (74%).

Enhancing Student Learning with Technology

Four themes emerged from students' responses to the question, "What is *one* way your instructors could use technology to enhance your learning?"

Theme 1 – Students' learning would be enhanced with ready access to online content.

About half of the student responses mentioned the importance of having lectures recorded and posting them and the associated PowerPoint presentations on Brightspace. Students said this practice is helpful for many reasons, including studying, completing notes, review, and overall accessibility. Students also responded with the desire that faculty post content, including supplemental resources, in a variety of formats: videos, text, visuals, simulations, games, and e-books. Several students emphasized accessibility such as ensuring course content is screen reader compatible and video/audio recordings have captions.

Theme 2 – Students' learning would be enhanced with more interaction in online courses.

In response to questions about ways instructors could use technology to enhance learning, students mentioned the need for more interaction across the three domains of student-to-content, student-to-student, and student-to-instructor. Like the first theme, students felt interactive online content would improve their learning. Students are also looking for more opportunities to interact with their peers through group work and collaborative projects. Students also want more synchronous time with their professors via videoconferencing platforms (e.g., Collaborate, Teams, etc.), especially for lectures and discussions. One student said, "Synchronous lectures are always better because students can ask questions more freely." Finally, several students mentioned a lack of timely communication from or presence of their instructors in online spaces.

Theme 3 – Students' learning would be enhanced by better using online platforms for assessment.

Although students did not mention wanting more virtual assessment options, responses included their desire for more assessment-related supports that take advantage of online tools. For example, students asked for live (online) exam review opportunities and for practice problems (and answers) be posted online. Students also responded with the need for robust and timely feedback, something they said is lacking in online courses in particular. Finally, although not online specific, students felt scaffolded

assignments broken into several parts, or having several smaller assessments (vs. one or two with a high point value) would allow them to express better what they learned.

Theme 4 – Students' learning would be enhanced if online class environments were better organized.

Student responses indicated a need for more consistency across and organization within Brightspace course sites. One student commented, "Some courses have had Brightspace set up really well, with due dates and reminders and tests laid out in a way that's easy to see and make sense of, but others have not had it set up well with wrong or conflicting due dates, things appearing and disappearing accidentally, etc." They also felt that a straightforward and concise schedule, regular announcements, and clear directions for activities and assignments posted in Brightspace would enhance their capacity to learn.

B. Motivation to Integrate Technology in Teaching

Faculty were asked to select up to three factors that would motivate them to integrate more or better technology into their teaching practices or curriculum. Response choices included the chance to work in a faculty community of practice, a monetary or other value-oriented incentive, direct assistance from a CLT or ATS staff member, and others.

The choices selected most by faculty included "clear evidence that students would benefit" and "release time to design or redesign their courses." These choices were followed by "more technology-oriented professional development opportunities" and "confidence that the technology will work the way faculty plan." Consideration of tenure decisions, and increased student or institutional expectations were the least motivating factors to integrate technology into teaching.

C. Teaching- and Technology-Related Services, Supports, and Resources

Faculty were asked to rate their experiences with teaching-related services, supports, and resources offered by units across Dalhousie. Half of faculty indicated they had not used the supports specified, including those related to making courses accessible to people with disabilities, CLT videography, Open Educational Resources (OERs), and copyright. Although 45% of faculty indicated they had not used the online course site building services, of those who did, 60%, indicated having a good or excellent experience, with 10% having a neutral experience, and 30% having a poor or fair experiences.

For the other teaching-related services and supports, more faculty indicated having a positive experience than a neutral or negative one (Figure 13). Individualized consultations for using technology in teaching was rated as good or excellent by 72% of respondents (18% rated poor or fair; 10% rated neutral). About 50% of faculty rated their experiences as good/excellent for (1) classroom audio/visual support, (2) professional development for the integration of technology in teaching, and (3) hardware and software technology support; around 20% of faculty reported a neutral experience, while the remainder indicated a poor or fair experience.

Figure 13: Faculty experiences with teaching- and technology-related services, supports, and resources

An open-ended question asked faculty what one thing Dalhousie could do with technology to better facilitate or support their teaching. Most of the responses fell under three categories: (1) training, (2) institutional support, and (3) upgrades to technology hardware. In terms of training, faculty were looking for Dalhousie to provide more professional development opportunities to improve online teaching. Faculty were also looking for broader institutional support for teaching, specifically online teaching and online course development. The supports suggested included setting aside time for faculty to develop online courses, with financial incentives for doing so, as well as for the institution to show more respect for the online teaching already happening at Dalhousie. Finally, faculty expressed ideas to improve online and in-class technologies, including changing the software used (e.g., Brightspace), upgrading hardware used in classrooms (e.g., projectors, computers in instructor stations), and providing computers for faculty use.

D. Technology-Enabled Approaches in Higher Education

Students and faculty were asked about their support of technology-enabled learning and teaching approaches in higher education, including competency-based education; badges and digital credentials; gamification or game-based learning; online degree programs; Open Educational Resources (OERs); and video.

Figure 14: Student and faculty support of various technology-enabled learning and teaching approaches in higher education

Eighty percent of students and 87% of faculty were generally to completely supportive of competencybased education, with relatively low numbers of students and faculty taking a neutral (15% students; 10% faculty) or completely/generally opposed (5% students; 3% faculty) position. No other educational approach had such a positive response (Figure 14).

For using badges or digital credentials, half of the students were generally/completely supportive while one-third were neither opposed nor supportive. Faculty responses were fairly evenly split with one-third each reporting opposition to, a neutral opinion towards, or support of using badges or digital credentials in higher education. Fifty-two percent of students and 43% of faculty were supportive of gamification or game-based learning, and 29% of both groups took a neutral position.

While 60% of students responded with support of online degree programs (20% were neutral; 20% opposed), only 40% of faculty were generally/completely supportive. One quarter of faculty felt neither opposed nor supportive of this trend in higher education, and one-third were opposed to online degree programs.

The results were similar between the approaches of using OERs or using video in learning and teaching in higher education. Over 70% of students and faculty were generally to completely supportive of using video in the classroom. For using OERs, 67% of students and 73% of faculty were generally to completely supportive. Opposition of using OERs and video in learning and teaching was in the single digits for both groups.

Discussion

The 2021-2022 Dalhousie University eLearning surveys seek to understand student and faculty use and perceptions of various eLearning tools and technologies in four areas. First, students and faculty were asked to rate their experiences with general tools and technologies available at Dalhousie, along with the support for their use. Second, participants were asked about their experiences with and thoughts around online and blended learning and teaching. In the third section, students and faculty were asked questions related to Dalhousie's four main instructional technologies (Brightspace, Collaborate, Panopto and Teams). Finally, students and faculty were asked about various aspects of technology-enhanced learning and teaching, including what Dalhousie can do with technology to better facilitate or support learning and teaching.

This is not the first survey of this kind, although the questions change with each iteration to account for the rapid changes in the academic landscape and available tools and technologies. In this section, we compare the results of 2021-2022 with those of the 2017-2018 surveys, although the comparisons are sometimes difficult due to differences in wording of the questions across years. Nonetheless, some meaningful comparisons are worth noting.

The other marked difference between surveys is the pre- and post-pandemic context of each iteration. The experience of pandemic teaching and learning strongly influenced student and faculty preference for delivery modality, visible in the discrepancy between the generally positive feelings about online teaching and learning—such as perceived competencies to do it successfully, and interest in taking or teaching blended courses in the future—and the dramatic rise in preference, in this year's survey, for a totally in-person modality. The pandemic's devastating effect on social relations and interactions, coupled with crisis-response course delivery—aggravating feelings of isolation, as most courses were not significantly re-designed for the online environment—naturally resulted in a dramatic increase in preference for totally in-person courses.

Experiences of Campus Tools and Technologies

In this current survey, most students and faculty indicated a positive overall technology experience at Dalhousie. When comparing these results to the 2017-2018 eLearning surveys, we see the student experience remains relatively the same. Faculty indicated an improved experience from 2017-2018, and overall, current student and faculty ratings are more similar to one another than they were in previous eLearning surveys. These results align with responses to the more specific questions about components that make up an "overall" experience, namely classroom and communication technologies, technology-enabled collaborative spaces, access to discipline-specific software, and technology support.

In addition to the hardware and software aspects of technology, another important factor that may affect student and faculty attitudes is the availability and quality of support they received for the use of those technologies. In the current survey, most students indicated informal means for technology support, namely asking classmates, seeking answers through an Internet search, or figuring it out on their own. These informal sources of support were among the top choices for faculty, as well, although they most often sought help from the Dalhousie-provided resources through ITS or Academic Technology Services (ATS). The 2017-2018 survey results for students mirror those of the current survey. For faculty, "Search Google, YouTube, or another online source" was the top choice in 2017-2018; in 2021-2022, the top choice was to contact the Dalhousie Help Desk or ATS. This shift may be due, in part, to ATS's expanded options for Brightspace and other instructional technology support, such as a virtual, drop-in space, which has been available seven days a week, up to 11 hours a day since its inception in March 2020. This service ensures just-in-time, personalized support resulting in ease of access and responsiveness to faculty needs.

Finally, although fewer faculty indicated they sought technology support in 2021-2022 than compared to 2017-2018, respondents indicated a more positive experience with the quality of support for desktop computers, learning and classroom technologies, and office software than in the past. Though related research indicates a positive correlation between support and training and voluntary uptake and/or positive perceptions of technology (Dogan et al., 2021) one might also assume a related phenomenon: that previous experience with the tech may be positively correlated to perceptions of offered support being good, or effective—someone with little to no Brightspace experience, not knowing what questions

to ask, will go away with less from a support room interaction than someone who has familiarity with the system and knows better which questions to ask and how to ask them. Additionally, faculty and student perceptions of their own competencies in using and applying the tech, and the perception of the technology's usefulness in their contexts (the necessity for rapid, online course delivery brought on by a pandemic, for example) may also positively affect perceptions of the usefulness and efficacy of the supports offered.

Preferences for Online and Blended Learning

As in previous years, students and faculty were asked in what type of learning environment—online, blended, or in person—they prefer to learn and teach. Perceptions of online learning in the years 2021-2022 are strongly influenced by the pandemic experience, and, generally speaking, student preferences for one modality over another are complexly configured and entangled with both academic and non-academic factors, including, for example, psychological, scheduling, perception of course difficulty, perceptions of online versus in-person learning, or perceived financial value, to name a few (Mali & Lim, 2021; O'Neill & Sai, 2014; O'Neill et al., 2021; Reinhold et al., 2021). Faculty articulate preferences that stem from perceived effect on student learning, workload concerns, convenience, and possibility for student-instructor interactions (Heldt, 2021). Previous experience in online teaching and confidence in teaching technologies strongly influences positive attitudes toward online teaching (Wingo et al., 2017).

Comparisons of preferred learning and teaching environments between the 2017-2018 and 2021-2022 eLearning surveys are difficult due to differences in wording of the questions across years and the "pandemic effect." Noting that, for both students and faculty, there is an increase in preference for courses that are *completely in-person with no online components*. For faculty, preference for in-person courses doubled, and for students, the results indicate that an in-person learning environment is around four times higher now than in 2017-2018. Faculty continue to show strong support for blended (or "half online") courses and show an increase in preference for blended on the 2021-2022 survey. There is little change in students' preference for blended learning across the years. Specific to the pandemic experience, this recommitment to in-person classes arises from experiences of isolation from pandemic social restrictions and internet cognitive fatigue (e.g., "Zoom fatigue") (Shao et al., 2022); a realization of the high demands online learning places on self-regulation; and, crisis-response course delivery resulting in learning experiences that were deficient in instructor and peer presences (Mali & Lim, 2021; Reinhold et al., 2021; Ratan et al., 2022). In addition to general motivations for faculty listed above, a stronger preference for face-to-face teaching may also result from negative experiences with the technology, negative perceptions of the success of the emergency move to remote teaching and learning, and unhappiness with the lack of time and resources given to make the transition to online environments.

This year, we added "it depends on the course" as a possible choice for the question about preferred learning and teaching environment, whether it be fully in person, fully online, or a blend of the two. One third of both students and faculty indicated that their preference is dependent on the course. For students, this preference might be related to a number of different factors. Students may prefer online

courses because they perceive them to be GPA "boosters". Students with little interest in the course may select the more "passive" [i.e., online] experience. Students may also perceive that a particular modality (online or in-person) provides the best conditions within which to master disciplinary content and practice norms (O'Neill & Sai, 2014; O'Neill et al., 2021). In a study by Robert (2022), results indicate that students may prefer online courses for non-academic factors such as ease of scheduling, need to provide caregiving, or the convenience of not having to commute. Students may decline to take online courses because of concerns around lack of motivation to keep up with online work; perceived higher value (i.e., "getting the most" out of the course); and ease of communication with instructor (O'Neill & Sai, 2014).

From the faculty perspective, literature arising from the studied effects of the COVID-19 pandemic on teaching and learning suggests a continued preference for the in-person experience, though, study results from Heldt et al. (2021) also indicate that faculty consider the necessity for remote learning even when "normal" is reinstated; faculty concede that, in some cases and contexts, online or blended options are necessary. The literature also indicates that flexibility and convenience are highly motivating for faculty to engage in online teaching (Green et al., 2009; Wright, 2014).

Results on the trends and potential of online education give us insight into how faculty and students perceive its future. For example, most students and faculty agreed that students can learn effectively online, and that teaching online can lead to new and innovative pedagogies that enhance student learning. These results are more positive, with fewer negative or neutral faculty responses, compared to results of the 2017-2018 eLearning surveys (students were not asked these questions in 2017-2018). A high percentage of both students and faculty agreed that online learning makes higher education *available* to more students, however less than 50% thought online courses and programs would make higher education more *affordable* for students. Though students and faculty feel generally positively about online learning and teaching, a smaller percentage were interested in pursuing it in future, though they indicated more interest in blended/hybrid courses. The stark difference between crisis-response, emergency remote teaching, and non-emergency, intentional course design for online environments, and that faculty and students experienced a large dose of the former, may account for the discrepancy between their overall positive feelings and their subdued willingness to pursue online teaching and learning in the future (Guppy et al., 2022; Hodges et al., 2020).

Satisfaction with Dalhousie's Instructional Technologies

In 2017-2018, students and faculty were not asked about instructional technologies beyond Brightspace, but we are able to compare students' and faculty's satisfaction with using the LMS for certain learning and teaching functions. In some cases, compared to 2017-2018, we see more satisfaction amongst students and faculty. This is true for using Brightspace for checking/entering course progress or grades, submitting/receiving course assignments, or receiving/giving feedback on those assignment submissions—functions more ubiquitously used since 2017-2018. For functions such as accessing/posting content and holding discussions, students and faculty both show a higher level of

polarization, with fewer neutral responses, in the current survey compared to 2017-2018. With both groups, we see a downward shift in satisfaction in Brightspace discussions. Whereas the abovementioned functions are navigational and utilitarian (i.e., once mastered, do not require on-going acquisition of know-how), creating effective discussion posts and protocol requires more thoughtfulness and attention. The downward shift in satisfaction, may be due, in part, to the lack of time and/or resources instructors had to thoughtfully transition courses to the online environment and to pick appropriate technological features for the components of teaching.

In terms of Dalhousie's other instructional technologies, like Panopto, Collaborate, and Teams, there were overall positive attitudes towards using these platforms for learning and teaching. We see students and faculty are satisfied with ease of use, watching/uploading recorded lectures in Panopto, or, in the case of Collaborate and Teams, attending/holding live lectures and presentations. However, we see high numbers of students and faculty indicating they did not use the more advanced features, like giving demonstrations or facilitating group work via Teams and Collaborate; or giving students access to Panopto for student-created audio and video. This may be easily explained by the urgent nature of remote delivery. Faculty certainly tended to avoid features that require more steps and/or more step-by-step instructions, when attentions and capacities were already stretched thin. Further, it was recognized that more advanced or complicated technological moves might leave some students behind, due to connectivity or bandwidth issues, or take up more (real or imagined) time in the set up than instructors were willing to devote.

Learning and Teaching with Technology

When asked about ways that instructors could use technology to enhance learning, students' responses fell under four themes, all of which centered on online technologies, but could be applied to online, blended, or in-person courses. Students cited that faculty posting lecture recordings and other class materials to Brightspace would improve learning by making studying and notetaking easier and adding to overall accessibility. Students felt better organized with consistent Brightspace course sites and a straightforward and concise schedule. Regular announcements and clear directions for activities and assignments would enhance their capacity to learn, students report.

Students also would like to see their instructors increase the opportunities for and quality of interaction and assessment in online courses. Students indicated that their learning would improve with more opportunities to interact with their peers through group work and collaborative projects. Students also want more synchronous class time for interactive lectures and discussions, as well as assessment supports such as live, virtual exam review, including practice problems. It is strongly established in the literature that students feel more engaged and experience more perceived learning gains when learnerto-instructor and learner-to-learner interactions are prioritized and nurtured through the course (Bolliger & Martin, 2018; Kahu, 2013; Lowenthal & Mulder, 2017; Martin & Bolliger, 2018; Ratan et al., 2022). In one study, students rated announcements, emails, and feedback on assessments (Martin et al., 2018) as amongst the most important engagement tactics within the learner-to-instructor engagement pillar; ice-breaker activities and working collaboratively on tasks were the highest rated within learn-tolearner interaction (Bolliger & Martin, 2018).

When faculty were asked to indicate what would motivate them to integrate more or better technology into their teaching practices or curriculum the top responses selected in 2021-2022 mostly mirrored those selected in the 2017-2018 eLearning survey. They chose factors related to having release time to design their courses; more professional development opportunities on integrating technology; confidence that when they use technology, it will work the way they planned; and, most importantly, evidence that students' learning will be improved. This last factor is repeated as a main priority across the literature (Gibson et al., 2008; Heldt, 2021; Martin et al., 2020; Wright, 2014).

There were fewer faculty who chose "assigning me a classroom that matches my educational technology needs" in 2021-2022 than in the previous survey, which is understandable considering the shift to online teaching due to COVID-19. One notable difference was the increase in faculty selecting a "monetary incentive" as a factor that would motivate faculty to integrate more or better technology into their teaching. This was the least-selected motivating factor in 2017-2018. The experience of emergency course delivery may account for the difference between years—it is now apparent how much work course re-design and online delivery requires.

Summary, Conclusions, and Recommendations

The 2021-2022 Dalhousie University eLearning surveys sought to understand student and faculty use and perceptions of various eLearning tools and technologies for learning, teaching, and working. As in the past, the survey results will help guide future decision-making around available tools and technologies and the supports and resources offered, and the policies, practices, and supports around online and blended learning. This is especially needed as the pandemic has changed how we all use and interact with technologies in the teaching and learning context.

Both students and faculty have a positive experience overall with the technologies available at Dal, whether that be those related to teaching and learning, from the computers and projectors in in-person classrooms to Brightspace as an LMS, or those used for working, like email, Teams, and OneDrive. And as more than half of students feel they get more involved in courses that integrate technology in its various forms, we recommend faculty continue to integrate interactive technologies and digital media into their teaching practice, whether teaching online, in-person, or in blended formats.

Interactive technologies include those that foster active exchanges between students and between students and faculty. For online courses, this can be as simple as faculty holding regular synchronous classes, labs, or tutorial sessions, or using technology to support robust collaborative group work

opportunities and peer-review processes with students. In person, faculty might encourage interaction by employing Top Hat, Dalhousie's student response system, into their classes.

Students and faculty are generally to completely supportive of the use of digital media in learning and teaching. For example, Open Educational Resources (OERs), digital content that is readily available and free to use (Otto et al., 2021), can mitigate the rising costs of education for students and offer instructors a broader variety of resources that support student learning. Video, whether instructor-provided or student-created, is another digital resource that can engage students and support assessment (Hawley & Allen, 2018).

Dalhousie's instructional technologies, like Panopto, Collaborate, and Teams, which students and faculty have overall positive attitudes towards, are useful for bringing interactive elements and digital media into the classroom. However, the results suggest that these technologies were used in more expected ways, for example Panopto for hosting instructor-created videos and Collaborate and Teams for holding synchronous lectures online. As such, faculty might consider **expanding the use of the available educational technologies to support online interaction and activities, and student group work and collaboration**, in order to improve student engagement and learning. Panopto, for example, features collaborative notes and timestamped discussions, which although asynchronous, give students the opportunity for authentic dialogue around course video content. Panopto can support assessment through embedded quizzes to check students' understanding or as a tool for students to express their knowledge.

Synchronous technologies, like Collaborate or Teams, can also be used to enhance opportunities for interaction between students and between students and faculty. Students and faculty had overall positive experiences in using these tools for live class sessions, but results show that Teams and Collaborate were not used as often for demonstrations, activities, group work, or assessment. Live captioning in Teams supports accessibility and student comprehension in ways not available in in-person classes. Functions like built-in polling in Teams offer opportunities for formative assessment; the breakout rooms in Collaborate can facilitate smaller groups of students holding a discussion or working collaboratively on a problem or project. Both technologies can mirror an in-person exam environment online, where students take a test or quiz synchronously, with the opportunity to raise their hand, ask questions, but without the pitfalls of online proctoring systems.

Further to above, we recommend faculty **continue to explore possibilities for blended learning**, especially as almost twice as many students and faculty indicated they would be interested in taking/teaching blended courses in the future over fully online ones. Just as with learning how the available instructional technologies can be used to more robust ways, redesigning courses as blended may require an investment of time on the part of faculty. Blended course design is one that Joosten et al. (2021) call a "strategic integration" (p. 11) of course elements into in-person and asynchronous

online modalities. This alignment is already evident in the surveys where both students and faculty agree that *in-person* is the preferred modality *discussions*, *group work*, and *learning activities*.

Blended courses may serve as a solution to the tensions highlighted in the results of these surveys. For example, half of the students emphasized the importance of accessibility and studying of having lectures recorded and posted in Brightspace for asynchronous review. However, almost half of student respondents indicated they are more likely to skip in-person classes if lecture recordings are available online. In a blended design, an asynchronous platform (e.g., Brightspace) can be used to support the more passive elements of a course, such as accessing content (including lectures), guiding independent work, turning in assignments, and checking grades. Synchronous classes (in person or online) can be reserved for active learning, such as discussions, collaborative work, and activities that allow students to apply or practice what they were introduced to during asynchronous study.

In questions about level of involvement in online courses of different formats, both students and faculty expressed that levels of active involvement were greater for online courses with some synchronous elements versus those fully asynchronous on Brightspace. Although not a traditional "blended" course, which usually refers to courses held partially online and partially in-person, the capability of videoconferencing technologies that allow students to see and hear their instructor and classmates may represent a balanced compromise between in-person and fully asynchronous online courses.

The first three recommendations based on the 2021-2022 Dalhousie University eLearning survey results together lead us to the fourth, which is to **centre student learning, equity, and accessibility through the implementation of Universal Design for Learning (UDL)**. Considering the close relationship between technology and digital media, and successful UDL implementation (Edyburn, 2010, 2021), it only makes sense that results from a survey about teaching, learning, and technology could be coded against the principles, guidelines, and checkpoints of UDL.

Throughout the results, students reference classroom practices that are tied directly to UDL. For instance, the UDL Guidelines ask faculty to provide options for students to perceive course learning materials, such as text alternatives for auditory information, although in the survey, about one-quarter of faculty had not used the captioning features of Panopto to create accessible audio/video content. The themes from students' responses to the question, "What is *one* way your instructors could use technology to enhance your learning?" align with the three principles of UDL. For example:

Providing Multiple Means of Engagement – Through the survey, students asked for faculty to embed more interaction in online courses, including more opportunities for students to work together in groups on collaborative projects. Students also noted missing timely communication from or presence of their instructors in online spaces.

Providing Multiple Means of Action & Expression – Across learning environments, students commented on how having scaffolded assignments, ones where the assessment was broken into multiple, smaller steps, would allow them to express better what they learned. They also felt that support for their executive functions, through a consistent, predictable schedule, regular announcements, and clear activity and assessment directions, especially in online classes, would enhance their capacity to learn.

Providing Multiple Means of Representation – Students responded with the desire that faculty post content, including supplemental resources, in a variety of formats: videos, text, visuals, simulations, games, and e-books. Several students emphasized accessibility by asking their instructors to ensure course content is screen reader compatible and that video and audio recordings have captions.

In conclusion, through the integration of more interactive technologies and digital media; support for online interaction and students' collaboration through expanded technology use; blended courses designed by careful consideration of the most compatible environment for various teaching and learning activities; and the implementation of UDL, we will continue to see improvements in student and faculty use and perceptions of the various eLearning tools and technologies for learning, teaching, and working at Dalhousie.

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Appendix A – Dalhousie University eLearning Survey (Student)

Introductory Questions

- 1. Which of the following best describes your student status during the current academic year?
 - a. 1st year undergraduate student
 - b. 2nd year undergraduate student
 - c. 3rd year undergraduate student
 - d. 4th year undergraduate student
 - e. 5th year or beyond undergraduate student
 - f. Another type of graduate student (e.g., certificate, diploma)
 - g. Another type of undergraduate student (e.g., certificate, diploma)
 - h. Masters student
 - i. PhD student
- 2. What is your primary faculty?
 - a. Agriculture
 - b. Architecture and Planning
 - c. Arts and Social Sciences
 - d. Computer Science
 - e. Dentistry
 - f. Engineering
 - g. Graduate Studies
 - h. Health
 - i. Law
 - j. Management
 - k. Medicine
 - I. Open Learning & Career Development
 - m. Science
 - n. Sustainability
 - o. University of King's College

Campus Tools and Technologies

- 3. Rate your experiences with the following technologies and resources provided by Dalhousie:
 - a. Classroom-based technology resources
 - b. Laboratory or research-based technology resources
 - c. Communication technologies (e.g., e-mail, instant messaging, videoconferencing, etc.)
 - d. Cloud-based technologies (e.g., OneDrive, SharePoint, etc.)
 - e. Remote access (as opposed to locally installed) to software applications, e.g., Virtual Lab (Vlab), Remote Lab (RLab), VPN, etc.
 - f. Access to free software downloads through the Software Downloads site

- g. Reliable access to Wi-Fi networks throughout campus
- 4. To what extent do you agree with the following statements?
 - a. I was well prepared to use basic software programs and applications when I started university (e.g., Microsoft Office, online technologies, videoconferencing, etc.).
 - b. Dalhousie sufficiently prepared me to use institution-specific technology when I started university (e.g., the course registration system, Brightspace, the library search system).
- 5. To what extent and how will the technology that you use in your courses prepare you for your chosen career after university? [LONG ANSWER]
- 6. When you need technology support or assistance for school-related activities, what do you typically do? Choose up to three items.
 - Ask friends or family
 - $\circ \quad \text{Ask classmates} \\$
 - Ask instructors
 - Ask teaching assistants
 - Search Google, YouTube, or another online source
 - Contact the company or vendor
 - Contact the university Help Desk
 - Figure it out on your own
 - Contact the Student Accessibility Centre (Halifax) or Student Success Centre (Truro)
- 7. Rate your experiences with the following spaces provided by Dalhousie: (poor, fair, neutral, good, excellent, N/A)
 - a. Online collaborative spaces in which you and your classmates can work synchronously (i.e., live) or asynchronously on projects or assignments
 - b. Physical collaborative spaces in which you and your classmates can work on projects or assignments
 - c. Physical computer labs on campus
- Reflecting on the aspects of technology asked about in previous questions, how would you describe your overall technology experience at Dalhousie? (poor, fair, neutral, good, excellent, N/A)

Online and Blended Learning

- 9. In what type of learning environment do you most prefer to learn?
 - a. It depends on the course mix of in person, online, and blended courses
 - b. One that is completely in person
 - c. One that is completely online (asynchronous on Brightspace)

- d. One that is completely online with blend of synchronous (i.e., live) and asynchronous
- e. One with a blend of in-person and online components
- f. No preference
- 10. To what extent do you agree with the following statements about online learning?
 - a. I get more actively involved in courses that are held on Brightspace only (i.e., that are held asynchronously).
 - b. I get more actively involved in courses that hold some live sessions (e.g., class, lab, tutorials, etc.) online using videoconferencing technologies.
 - c. I prefer online exams versus those that are held in person.
 - d. I am concerned about my privacy and/or security when using online learning technologies.
 - e. It is more challenging to maintain academic integrity in a fully online course than a course where at least some components are held in person.
 - f. I feel I have the necessary support to learn in my online and blended courses.
- 11. Did you take online or blended courses prior to winter term 2020?
- 12. To what extent do you agree with the following statements about online learning and teaching?
 - a. I can learn effectively online.
 - b. Online learning can lead to new and innovative ways of teaching that can enhance my learning.
 - c. Online learning makes higher education available to more students.
 - d. Online learning makes higher education more affordable for students.
 - e. Overall, I feel positive about online learning.
 - f. Overall, I feel competent to take online courses.
 - g. I am interested in taking fully online courses in the future.
 - h. I am interested in taking blended courses (those with a mix of in person and online) in the future.
 - i. I feel my intellectual property is protected in the online learning and teaching environment
- 13. What types of course activities or assignments do you prefer to do online and what types of course activities or assignments do you prefer to do in person? [online, in person, no preference]
 - a. Lectures
 - b. Accessing course content
 - c. Learning activities
 - d. Discussions
 - e. Group work

- f. Exams
- g. Giving presentations
- h. Watching classmates' presentations
- i. Communicating with instructors
- j. Communicating with classmates
- k. Office hours
- 14. To what extent do you agree with the following statements?
 - a. I get more actively involved in in-person courses that integrate technology.
 - b. I am more likely to skip in-person classes when lecture recordings are available online.
 - c. I am more likely to skip in-person classes when course content and materials are available online.
 - d. I feel that in-person courses are more accessible than online or blended ones.

Dalhousie's Instructional Technologies

- 15. Which of the following technologies/tools have your instructors used for your learning in the last year?
 - a. Zoom
 - b. Respondus
 - c. Ouriginal
- 16. Please indicate your satisfaction with using Brightspace to perform the following activities:
 - a. Ease of use in general
 - b. Accessing course content
 - c. Holding discussions
 - d. Checking course progress and/or grades
 - e. Submitting course assignments
 - f. Receiving feedback on course assignments
 - g. Engaging in meaningful Interactions with other students
 - h. Engaging in meaningful interactions with your instructors
 - i. Collaborating on group work
 - j. Studying with other students
 - k. Taking quizzes or exams
 - I. Help Desk support for using Brightspace
 - m. Taking exams with accommodations in place
- 17. Do you use a handheld mobile device to access Brightspace? (Yes/No)
- 18. Do you use the Brightspace Pulse app to access your online courses? (Yes/No)

- 19. Please indicate your satisfaction with using Panopto to perform the following activities:
 - a. Ease of use in general
 - b. Viewing instructor lectures or slide presentations
 - c. Watching demonstrations of hands-on activities
 - d. Creating video content for a course assignment
 - e. Viewing captioned audio and video content
 - f. Help Desk support for using Panopto
- 20. Please indicate your satisfaction with using Collaborate:
 - a. Ease of use in general
 - b. Attending live online class, lab, or tutorial sessions
 - c. Viewing instructor lectures or slide presentations
 - d. Watching demonstrations of hands-on activities
 - e. Accessing course content
 - f. Having whole-class discussions
 - g. Having small-group breakout discussions
 - h. Interacting with other students
 - i. Interacting with your instructors
 - j. Collaborating on group work
 - k. Studying with other students
 - I. Taking quizzes or exams
 - m. Help Desk support for using Collaborate
 - n. Attending virtual office hours with your instructor
- 21. Please indicate your satisfaction with using Microsoft Teams:
 - a. Ease of use in general
 - b. Attending live online class, lab, or tutorial sessions
 - c. Viewing instructor lectures or slide presentations
 - d. Watching demonstrations of hands-on activities
 - e. Accessing course content
 - f. Having whole-class discussions
 - g. Having small-group breakout discussions
 - h. Interacting with other students
 - i. Interacting with your instructors and/or supervisor
 - j. Collaborating on group work
 - k. Taking quizzes or exams
 - I. Help Desk support for using Microsoft Teams
 - m. Attending virtual office hours with your instructor and/or supervisor

Teaching with Technology

- 22. Overall, how would you rate your instructors' integration of these resources, tools, or technologies in teaching?
 - a. Brightspace
 - b. Synchronous or videoconferencing technologies (e.g., Teams, Collaborate)
 - c. Online collaboration tools for group work
 - d. E-books or e-textbooks

- e. Free, web-based content to supplement course-related materials
- f. Open Educational Resources (OERs)
- g. Simulations or educational games
- h. Lecture capture (i.e., recording lectures for later use/review)
- i. Students' devices as a learning tool for course-related activities
- j. Social media as a teaching and learning tool
- k. Videos or multimedia content
- I. Search tools to find references or other information online for class work
- m. Publisher electronic resources
- n. In-class polling tools (e.g., Top Hat)
- 23. How do you primarily communicate with your instructors and/or supervisor?
 - a. Asynchronously (e.g., posting in Brightspace, email, etc.)
 - b. Synchronously (e.g., in person, telephone, videoconferencing, etc.)
 - c. A mix of asynchronous and synchronous means
- 24. Which of the following best represents your opinion of the following instructional approaches in higher education?
 - a. Competency-based education
 - b. Badges or digital credentials
 - c. Online degree programs
 - d. Gamification or game-based learning
 - e. Open Educational Resources (OERs)
 - f. Video
 - g. Pathways programs
 - h. Microcredentials
- 25. What is ONE way your instructors could use technology to enhance your learning? [LONG ANSWER]

Demographic Questions

- 26. In the past 12 months, including the current term, how many for-credit courses have you taken or are you currently taking?
- 27. Degree sought
 - a. A bachelor's degree or equivalent
 - b. An honors degree
 - c. A master's degree or equivalent
 - d. A doctoral degree or equivalent
 - e. An advanced professional degree (MD, DDS, JD, EdD, etc.)
 - f. Other, please specify:
- 28. Are you an international student? (Yes/No)
- 29. Where do you live?
 - a. Off campus

- b. On campus
- 30. When you are not on campus, do you have access to a reliable Internet connection? (Yes/No)
- 31. Are you the first person in your immediate family to attend university? (Yes/No)
- 32. What is the highest level of education completed by your parents?
 - a. At least one of my parents attended a college or university
 - b. None of my parents attended a college or university
 - c. Prefer not to answer
- 33. With which gender do you most identify?
 - a. Agender
 - b. Gender fluid
 - c. Genderqueer
 - d. Man
 - e. Non-binary
 - f. Trans
 - g. Two-Spirit
 - h. Woman
 - i. Not listed (please specify)
 - j. Prefer not to answer
- 34. Do you consider yourself to be an Indigenous/Aboriginal person? For the purposes of this survey, Indigenous/Aboriginal persons include people who identify as First Nations (Status, non-Status, Treaty), Métis, Inuit, Native or North American Indian (including North and Central America and the Caribbean). (Yes/No/Prefer not to answer)
- 35. If YES to above: Do you consider yourself to be Mi'kmaw? (Yes, No)
- 36. Do you consider yourself to be racially visible? For the purposes of this survey, racialized persons are people (other than Indigenous/Aboriginal persons) who are non-white in colour and/or non-Caucasian in race, regardless of their place of birth or citizenship. (Sometimes referred to as "racialized" or "visible minority") (Yes/No/Prefer not to answer)
- 37. If YES to above: Do you consider yourself to be a person of Historical Black/African Nova Scotian ancestry? (Yes, No)
- 38. Do you consider yourself a person with a disability? For the purposes of this survey, persons with a disability are people who have a chronic, long-term or recurring physical, sensory, mental, learning or intellectual impairment, that, in interaction with a barrier, hinders that person's full and effective participation in society. This includes, but isn't limited to, people whose functional limitations due to their impairment have been accommodated in their workplace (ex: by the use of technical aids, changes to equipment or other working arrangements). (Yes/No/Prefer not to answer)

Appendix B – Dalhousie University eLearning Survey (Faculty)

Introductory Questions

- 1. Which of the following best describes your employment status during the current academic year?
 - a. Tenured
 - b. Not tenured, but on a tenure track
 - c. Not on a tenure track (appointment without term)
 - d. Limited term appointment
 - e. Probationary appointment
 - f. Part-time academic
- 2. What is your primary faculty?
 - a. Agriculture
 - b. Architecture and Planning
 - c. Arts and Social Sciences
 - d. Computer Science
 - e. Dentistry
 - f. Engineering
 - g. Graduate Studies
 - h. Health
 - i. Law
 - j. Management
 - k. Medicine
 - I. Open Learning & Career Development
 - m. Science
 - n. Sustainability
 - o. University of King's College
- 3. I teach and/or supervise:
 - a. Undergraduate students
 - b. Graduate students
 - c. Professional students

Campus Tools and Technologies

- 4. Rate your experiences with the following technologies and resources provided by Dalhousie:
 - a. Classroom-based technology resources
 - b. Laboratory or research-based technology resources
 - c. Communication technologies (e.g., e-mail, instant messaging, videoconferencing, etc.)
 - d. Cloud-based technologies (e.g., OneDrive, SharePoint, etc.)

- e. Remote access (as opposed to locally installed) to software applications, e.g., Virtual Lab (Vlab), Remote Lab (RLab), VPN, etc.
- f. Access to free software downloads through the Software Downloads site
- g. Reliable access to Wi-Fi networks throughout campus
- 5. To what extent do you agree with the following statements?
 - a. My students are prepared to use basic software programs and applications (e.g., Microsoft Office, online technologies, videoconferencing, etc.).
 - b. My students are prepared to use institutionally specific technology (e.g., the course registration system, Brightspace, the library search system).
- 6. When you seek support from the Dalhousie Help Desk and/or Academic Technology Services, what method(s) of contact do you use?
 - o Telephone
 - Virtual drop-in room
 - o Email
- 7. When you need technology support or assistance for work-related activities, what do you typically do? Choose up to three items.
 - Ask your friends or family
 - Ask your peers or colleagues
 - Ask your students
 - Ask teaching or research assistants
 - Ask a Dalhousie Course Builder
 - Search Google, YouTube, or another online source
 - Contact the company or vendor
 - Contact the Dalhousie Help Desk (ITS/ATS) or Academic Technology Services (ATS)
 - Contact Dalhousie Centre for Learning and Teaching
 - Contact embedded faculty/school/department course development support (e.g., instructional designers, MedIT, educational developer, etc.)
 - Figure it out on your own
 - Contact the Student Accessibility Centre (Halifax) or Student Success Centre (Truro)
- 8. Rate your satisfaction with the following classroom technologies:
 - a. Availability of classrooms with multimedia equipment
 - b. Reliability of equipment available
 - c. General ease of use of instructor stations
 - d. Computers in the instructor stations
 - e. Software on the instructor-station computers
 - f. Computer projection

- g. Microphones
- h. Wireless access
- i. Student response systems (Top Hat)
- 9. Rate your experiences with the following spaces provided by Dalhousie: (poor, fair, neutral, good, excellent, N/A)
 - a. Online collaborative spaces in which your students or colleagues can work synchronously or asynchronously on projects or assignments
 - b. Physical collaborative spaces in which your students or colleagues can work on projects or assignments
 - c. Physical computer labs on campus
- Reflecting on the aspects of technology asked about in previous questions, how would you describe your overall technology experience at Dalhousie? (poor, fair, neutral, good, excellent, N/A)

Online and Blended Learning

- 11. In what type of learning environment do you most prefer to teach?
 - a. It depends on the course mix of in person, online, and blended courses
 - b. One that is completely in person
 - c. One that is completely online (asynchronous on Brightspace)
 - d. One that is completely online with blend of synchronous (i.e., live) and asynchronous
 - e. One with a blend of in-person and online components
 - f. No preference
- 12. To what extent do you agree with the following statements about online learning?
 - a. My students get more actively involved in courses that are held on Brightspace only (i.e., that are held asynchronously).
 - b. My students get more actively involved in courses that hold some live sessions (e.g., class, lab, tutorials, etc.) online using videoconferencing technologies.
 - c. My students prefer online exams versus those that are held in person.
 - d. My students are concerned about my privacy and/or security when using online learning technologies.
 - e. I am seeing more instances of students not maintaining academic integrity in fully online courses than in courses where at least some components are held in person.
 - f. My students feel I have the necessary support to learn in my online and blended courses.
- 13. Did you teach online or blended courses prior to winter term 2020? (yes/no/N/A)

- 14. To what extent do you agree with the following statements about online learning and teaching?
 - a. Students can learn effectively online.
 - b. Online learning can lead to new and innovative ways of teaching that can enhance student learning.
 - c. Online learning makes higher education available to more students.
 - d. Online learning makes higher education more affordable for students.
 - e. Online learning will reduce the numbers of faculty and teaching positions in higher education.
 - f. Overall, I feel positive about online teaching.
 - g. Overall, I feel competent to deliver online teaching.
 - h. I am interested in teaching fully online courses in the future.
 - i. I am interested in teaching blended courses (those with a mix of in person and online) in the future.
 - j. I feel my intellectual property is protected in the online learning and teaching environment
- 15. What type of course activities or assignments do you prefer to have your students do online and what types of course activities or assignments do you prefer to have your students do in person? [online, in person, no preference]
 - a. Lectures
 - b. Accessing course content
 - c. Learning activities
 - d. Discussions
 - e. Group work
 - f. Exams
 - g. Giving presentations
 - h. Watching classmates' presentations
 - i. Communicating with instructors
 - j. Communicating with classmates
 - k. Office hours

Dalhousie's Instructional Technologies

- 16. Which of the following technologies/tools have your instructors used for your learning in the last year?
 - a. Zoom
 - b. Respondus
 - c. Ouriginal
- 17. Please indicate your satisfaction with using Brightspace to perform the following activities:
 - a. Ease of use in general

- b. Creating or posting content
- c. Holding discussions
- d. Entering student progress information and/or grades
- e. Receiving course assignments
- f. Giving feedback on course assignments
- g. Engaging in meaningful interactions with students
- h. Managing student group work
- i. Importing content from a previous offering of the same course
- j. Monitoring or managing enrollments
- k. Integrating third-party content
- I. Initial use training for using Brightspace
- m. Ongoing training and support for using Brightspace
- n. Set up for student exam accommodations
- 18. Do you use a handheld mobile device to access Brightspace? (Yes/No)
- 19. Please indicate your satisfaction with using Panopto to perform the following activities:
 - a. Ease of use in general
 - b. Creating recorded lectures or slide presentations
 - c. Creating recorded demonstrations of hands-on activities
 - d. Importing audio and video created in programs other than Panopto
 - e. Facilitating student creation of video content
 - f. Creating captioned audio and video content
 - g. Initial use training for using Panopto
 - h. Ongoing training and support for using Panopto
- 20. Please indicate your satisfaction with using Collaborate:
 - a. Ease of use in general
 - b. Holding live online class, lab, or tutorial sessions
 - c. Giving live lectures or slide presentations
 - d. Demonstrating hands-on activities
 - e. Sharing course content
 - f. Holding whole-class discussions
 - g. Holding small-group breakout discussions
 - h. Interacting and/or communicating with students
 - i. Facilitating student group work
 - j. Giving quizzes or exams
 - k. Initial use training for using Collaborate
 - I. Ongoing training and support for using Collaborate
 - m. Holding virtual office hours
- 21. Please indicate your satisfaction with using Microsoft Teams:
 - a. Ease of use in general
 - b. Holding live online class, lab, or tutorial sessions

- c. Giving live lectures or slide presentations
- d. Demonstrating hands-on activities
- e. Sharing course content
- f. Holding whole-class discussions
- g. Holding small-group breakout discussions
- h. Interacting and/or communicating with students
- i. Facilitating student group work
- j. Giving quizzes or exams
- k. Initial use training for using Microsoft Teams
- I. Ongoing training and support for using Microsoft Teams
- m. Holding virtual office hours

Teaching with Technology

- 22. I am interested in improving my skills at integrating this resource, tool, or technology into my courses: [strongly disagree, disagree, neither agree nor disagree, agree, strongly agree, N/A or do not know]
 - a. Brightspace
 - b. Synchronous or videoconferencing technologies (e.g., Teams, Collaborate)
 - c. Online collaboration tools for group work
 - d. E-books or e-textbooks
 - e. Free, web-based content to supplement course-related materials
 - f. Open Educational Resources (OERs)
 - g. Simulations or educational games
 - h. Lecture capture (i.e., recording lectures for later use/review)
 - i. Students' devices as a learning tool for course-related activities
 - j. Social media as a teaching and learning tool
 - k. Videos or multimedia content
 - I. Search tools to find references or other information online for class work
 - m. Publisher electronic resources
 - n. In-class polling tools (e.g., Top Hat)
- 23. Would you be interested in having a peer review software available so your students could assess and provide feedback on their classmates' work? (Yes/No/Maybe/Unsure)
- 24. How do you primarily communicate with your students?
 - a. Asynchronously (e.g., posting in Brightspace, email, etc.)
 - b. Synchronously (e.g., in person, telephone, videoconferencing, etc.)
 - c. A mix of asynchronous and synchronous means
- 25. Select up to three factors that would motivate you to integrate more or better technology into your teaching practices or curriculum:
 - More/better technology-oriented professional development opportunities
 - A monetary or other value-oriented incentive
 - o Tenure decisions and other professional advancement considerations
 - Release time to design/redesign my courses

- Direct assistance from an Educational Developer (CLT) to help me design (or redesign) my courses
- Direct assistance from an Instructional Technologist (ATS) to support the technology I choose to implement
- Assigning me a classroom that matches my educational technology needs
- o Working in a faculty cohort or community that is adopting the same types of practices
- A better understanding of the types of technologies that are relevant to teaching and learning
- A better understanding of how to use student-owned technology and devices during class for teaching and learning
- Confidence that the technology will work the way I plan
- Increased student expectations of technology integration
- o Increased institutional expectations of technology integration
- o Clear indication or evidence that students would benefit
- 26. Rate your experiences with the following services, supports, resources:
 - a. Professional development for the integrated use of technology in your teaching, whether face-to-face or online.
 - b. Individualized consultations for using technology in teaching
 - c. Support for making courses accessible to students with disabilities
 - d. Support for making courses accessible to faculty with disabilities
 - e. Support for finding and using Open Educational Resources (OERs)
 - f. Support for finding and using copyrighted materials online
 - g. Videography services from the Centre for Learning and Teaching
 - h. Course Builders to assist with setting up Brightspace course sites
 - i. Embedded faculty/school/department course development support (e.g., instructional designers, MedIT, educational developer, etc.)
 - j. Audio/Visual (A/V) support for classrooms, e.g., equipment borrowing, troubleshooting, etc.
 - k. Technology support (e.g., desktop computers, classroom technology, Brightspace, Office 365, Collaborate Ultra, etc.)
- 27. Which of the following best represents your opinion of the following instructional approaches in higher education?
 - a. Competency-based education
 - b. Badges or digital credentials
 - c. Online degree programs
 - d. Gamification or game-based learning
 - e. Open Educational Resources (OERs)
 - f. Video
 - g. Pathways programs
 - h. Microcredentials
- 28. What is ONE thing that Dalhousie can do with technology to better facilitate or support your teaching role? [LONG ANSWER]

Demographic Questions

- 29. In the past 12 months, including the current term, how many for-credit courses have you taught or are you currently teaching?
- 30. With which gender do you most identify?
 - k. Agender
 - I. Gender fluid
 - m. Genderqueer
 - n. Man
 - o. Non-binary
 - p. Trans
 - q. Two-Spirit
 - r. Woman
 - s. Not listed (please specify)
 - t. Prefer not to answer
- 31. Do you consider yourself to be an Indigenous/Aboriginal person? For the purposes of this survey, Indigenous/Aboriginal persons include people who identify as First Nations (Status, non-Status, Treaty), Métis, Inuit, Native or North American Indian (including North and Central America and the Caribbean). (Yes/No/Prefer not to answer)
- 32. If YES to above: Do you consider yourself to be Mi'kmaw? (Yes, No)
- 33. Do you consider yourself to be racially visible? For the purposes of this survey, racialized persons are people (other than Indigenous/Aboriginal persons) who are non-white in colour and/or non-Caucasian in race, regardless of their place of birth or citizenship. (Sometimes referred to as "racialized" or "visible minority") (Yes/No/Prefer not to answer)
- 34. If YES to above: Do you consider yourself to be a person of Historical Black/African Nova Scotian ancestry? (Yes, No)
- 35. Do you consider yourself a person with a disability? For the purposes of this survey, persons with a disability are people who have a chronic, long-term or recurring physical, sensory, mental, learning or intellectual impairment, that, in interaction with a barrier, hinders that person's full and effective participation in society. This includes, but isn't limited to, people whose functional limitations due to their impairment have been accommodated in their workplace (ex: by the use of technical aids, changes to equipment or other working arrangements). (Yes/No/Prefer not to answer)