Technology Evaluation Report:
Course Spaces

Report Contents

Note: This report summarizes outcomes of a specific UBC pilot. Findings do not reflect broader or official UBC opinions about the learning technology evaluated.

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September 2019

Executive Summary

This evaluation sought feedback from UBC instructors, instructional support staff (ISS), and students piloting Course Spaces, a WordPress-based platform for teaching and learning, content sharing, and general web development. Spaces provides a course delivery option between the functionality of a full Learning Management System (like Canvas) and a course blog/website (like what may be found on UBC Blogs).

Three instructors, three ISS, and 44 students provided feedback on Spaces during the consultation period that ran primarily during the 2018/19 W1 and W2 terms. The three courses in the pilot were from the Faculties of Arts and Law. Two were first-year courses, and one was a fourth-year course. All used a blended format, with content and activities happening in-class and online. Class sizes ranged from 30 to just over 100 students. The primary difference in application use was how heavily Spaces was relied upon to share course content.

Overall, most instructors and ISS reported a positive experience. In terms of drawbacks, Spaces was viewed as less technically stable than other learning technologies, with a complex admin interface that enabled fewer customizations than expected and did not always effectively track student engagement. However, instructors and ISS also reported Spaces offered good features that increased student engagement levels, at least anecdotally, and enabled students to support one another in their learning, when used robustly. Additionally, instructors were hopeful about the potential of Spaces and their role in influencing its future direction, given its in-house development status.

Student response to Spaces was also largely positive, with two-thirds of student respondents reporting an overall positive experience. Students did note an initial learning curve in getting familiar with the platform, some issues inherent to H5P quizzes (inability to save and difficulties using a foreign keyboard), challenges with site navigation, and the lack of student documentation. But students also expressed appreciation for having the H5P quizzes (with their variety of questions, immediate feedback, and opportunity for repeated practice), noted that activities on the platform generally helped practice a course skill, and indicated benefits to instructor-set learning objectives.

Based on the outcomes, recommendations for how Spaces could best be implemented at UBC include:

1. Forming a working group to guide further development
2. Providing stronger communication about Spaces
3. Building out and widely sharing a robust demo site
4. Improving the H5P quizzing tool (or considering replacements)
5. Piloting in more courses with richer use
6. Rolling successful pieces of Spaces into other areas of the Learning Technology Environment

Moving forward on Spaces with these recommendations may help resolve some of the concerns brought forward by instructors, ISS, and students and improve future users' perceptions of the platform's pedagogical value.

Goal

This evaluation sought feedback from UBC instructors, instructional support staff (ISS), and students piloting Course Spaces, a WordPress-based platform for teaching and learning, content sharing, and general web development. Spaces provides a course delivery option between the functionality of a full Learning Management System (LMS, like Canvas) and a course blog/website (like what may be found on UBC Blogs).

Spaces integrates UBC-specific functionalities, such as light, accessible, and learner-centric Common Look and Feel (CLF) themes and Campus-Wide Login (CWL) integration, as well as Enterprise Light Directory Access Protocol (LDAP)-based means of populating courses with students. It was designed from the ground up to enable clusters of sites with similar functionality; for example, a Faculty of Arts network or AR/GIS mapping-ready group of sites. It also includes a number of unique features, such as granular degrees of openness and competencies-based learning components[1].

Spaces was envisioned as adding a value to UBC's Learning Technology Environment (LTE) because:

- **It enables relatively easy development of new learning tools**: Spaces's multi-tenant architecture, built on open-source Linux/NginX/MySQL/PHP, with WordPress DNA and coupled with CLF, CWL, and Student Information Service Centre (SISC) integrations, makes it a robust development platform to build new tools with simple workflows on quickly. Historically, many Teaching Learning Enhancement Fund (TLEF) projects have been implemented on other WordPress platforms, but those are not a perfect solution, primarily due to the lack of SISC integration. Importantly, Spaces also enables use and development of H5P[2]-based solutions.

[1] This feature allows instructors to indicate what learning objective a part of the course relates to, and then, when students finish that part, they rate how well they feel the learning objective was addressed. This option was not available in the piloting courses, however.

[2] "H5P is a free and open-source content collaboration framework based on JavaScript. H5P is an abbreviation for HTML5 Package, and aims to make it easy for everyone to create, share, and reuse interactive HTML5 content, [including] interactive videos, interactive presentations, quizzes, interactive timelines, and more." - from Wikipedia

- **It supports already committed WordPress users at UBC**: WordPress is the most popular web publishing framework in the world, and this is reflected at UBC as well. There is a great deal of interest in the platform among WordPress-using faculty members and students, especially those involved in open education and exploring new technology-enabled teaching pathways.
- **It offers high degrees of accessibility and responsiveness**: Spaces comes with an adopted "CLF light" mobile-centric theme (approved by UBC Communications and Marketing) that adapts high accessibility standards and levels of responsiveness.
- **It allows highly-customizable sharing of open education content**: Spaces enables granular control of content visibility, allowing specific content to be seen by specific audiences. For example, for a single lecture, a page may consist of the lecture notes, a self-test, and the students' discussion. In Spaces, unlike other platforms, instructors can keep part of the single page (e.g., the lecture notes) open to the general public, while making others (e,g., the self-tests and discussion) visible for current and logged-in students only.
- **It can serve as a platform for clusters of teaching that are not feasible with current centrally-managed applications in the LTE**: Spaces includes the ability for each of UBC's Faculties to manage their specific flavour of themes and plugins, decentralizing aspects that are important to each Faculty, without defragmenting or otherwise compromising the centralized enterprise nature of the system as a whole.

Methodology

The Course Spaces pilot ran primarily during the 2018/19 W1 and W2 terms in three courses, with varying degrees of use. Three instructors and three ISS were interviewed at or near the end of the term about their experience. Each interview consisted of 14 questions (see Appendix A.1), directly or indirectly addressed during in-person or teleconference meetings.

Students in two[3] of the courses were asked to respond to an optional online survey near the end of term; 44 responded prior to August 2019. At the time of the survey, all students had used Spaces in some capacity, though use depended on what the course offered. The student survey included 10 questions (see Appendix A.2).

The courses in the pilot came from the Faculties of Arts and Law. Two were first-year courses, and one was a fourth-year course. All used a blended format, with content and activities happening in-class and online. Class sizes ranged from 30 to just over 100 students. Summarized use cases for each course are provided below. The primary difference in platform use was how heavily Spaces was relied on to share course content.

Courses	Students	Spaces Use
Course 1 Arts / 1st Year	~110 students (n/a)	• Optional module (also provided on Canvas) of content and quizzes
Course 2 Arts / 1st Year	~70 students 32 responded to survey	• Numerous recommended practice H5P quizzes for self-assessment
Course 3 Law / 4th Year	~30 students 12 responded to survey	• All course content for term, including instructor content, student-generated posts, discussions, and practice exercises

Findings

Instructor motivations

In piloting Spaces, instructors described three primary motivations that led them to use this platform over another.

[3] One instructor ran the survey but received no valid responses.

Enabling specific tool functionality

Spaces allowed instructors to easily include plug-ins for H5P quizzes and Socrates exercises in their courses. The H5P quizzes let instructors construct interactive and flexible self-assessments for learning a new language, with varied question types (e.g., multiple-choice, fill-in-the-blank) available. The Socrates exercises invited students to enter keywords, which then returned matching article links to research. After refining the search results and reading select articles, students were prompted to write an exploration of the idea they'd researched, in their own words. The pedagogical purpose here was to develop a critical argument after considering multiple perspectives on it.

Removing barriers to course content

As noted earlier, Spaces provided the ability to have highly customize-able open course content that could persist over time, rather than become unavailable to students at the end of the term. For some instructors, this traditional approach where *"everything disappeared at the end of the semester…is just very insulting"* to the students, and offering ongoing open access was a philosophical sticking point to putting the course online.

Increasing student engagement

For the most interactive course (Course 3), Spaces offered more enticing options for how and when students could engage with the course content than other available platforms. From the instructor's perspective, this provided important personalization for the students, because *"choices allow students to move more easily to the way they might learn"* best, allowing them to both optimize their learning and have more buy-in to the course.

Instructor/ISS response to using Spaces

On a 5-point scale from very negative to very positive, most pilot instructors and ISS gave Spaces an overall rating of "Somewhat Positive", though both weaknesses and strengths were discussed in the interviews.

Less technical stability

All instructors and ISS noted having encountered more technical issues than felt average for the learning technology they had used. *"There were glitches and problems and things to work through"* throughout the term, leading to a sense that *"it doesn't feel solid or robust yet"* as a platform.

Many said they understood the ongoing development status of the project and the inevitability of hitting these kinds of bugs, but this heightened the need for strong communication from support. Frustrations primarily arose when communication felt too sparse for an evolving product: *"I...understood that this was an alpha, not even a beta"*, and what that means, *"but we're going through it in the dark"* at times.

Complexity of admin interface

Many instructors and ISS also thought the administrative interface seemed overly complex and hard to access, built *"not thinking in terms of how users would use this"*. (This feedback was not surprising to the development team, as they've not had proper time to address the instructor/admin side yet.)

- *"I don't even remember how I got to the back end"*
- *"There's not a linear way of doing anything"*
- *"Lectures require a whole learning curve to know how that works"*

These sentiments contributed to the sense that the platform was less robust and resulted in instructors and ISS assigning a usability rating average of 3 (out of a possible 5).

Hard to track student engagement

A related issue to a less usable instructor/admin dashboard was: there was no way to view everything students did or interacted with[4], except when students left an obvious footprint in the platform (e.g., posting something under their own name). This meant instructors *"don't know how many went in there and played around"* with the content or activities offered,

[4] This issue partly reflects a problem with H5P itself.

and for key interactions, *"the ones who I feel like they really should do it, there's no way to tell if they did it or not"*.

The uncertainty here meant instructors couldn't verify if the platform was promoting engagement more than anecdotally and prevented them being able to grade certain activities (e.g., the H5P quizzes). *"It would be nice if we could do [tracking]"* in the future, to get a clearer picture of engagement and add more accountability to learning activities by attaching marks.

Constraints on customization

Many instructors and ISS expressed a desire to customize more (e.g., the visual look, the navigation, using more features available in UBC Blogs) than what the platform allowed or seemed to allow (i.e., some instructors thought there were more limits to colours and banners than actually exist).

This frustration fed into a perception of the platform being more limited than other current WordPress options and possibly not a good fit for courses more complex than those piloted. *"It's good they're trying to keep it consistent, but it definitely is a turn-off"*, since it removes the personalization that is often what drives instructors to use a platform outside the main LMS in the first place. Navigation constraints[5] in particular gave the impression *"it would be really difficult to build a course that is content-heavy in Spaces"*, with the worry "*it will turn out like Connect and you have to keep clicking within folders and folders and folders*".

Good options for student engagement

On the other hand, instructors and ISS expressed appreciation for the variety of functionalities in the platform inviting student engagement. Instructors particularly liked the ability to embed interactive elements within the course content itself, something not possible with Canvas:

- *"I have often wanted to include these little sorts of formative quizzes"*
- *"I like the idea that [students] can take notes right on the pages"*

[5] Principally, that all the course sections must appear in a sidebar when viewing course content.

- "*You can have your content and you can have a discussion board right after it*"

These options added to the feeling that the platform provided unique interactivity not available in the main LMS or other current WordPress options.

Increased (perception of) student engagement

Instructors and ISS generally felt that students engaged well with the platform, given what each individual course offered for engagement. The Course 2 instructor reported *"[students] were saying they were very happy that they had this",* and the Course 3 instructor felt *"even with all the…challenges, there's no question students would and do interact better with this"* than an older WordPress site on UBC Blogs used for the same course.

This perception of high engagement supported a belief that the platform has pedagogical value or potential, at least within the bounds of how each course applied it.

Enabled students supporting each other

The most robust course (Course 3) provided opportunities for students contribute their own content and opinions to the platform. The instructor noted this resulted in more occurences of *"horizontal"* learning or learning happening *between* peers, often outside of instructor prompting (e.g., posting interesting news items for each other without a requirement to do so). *"That's another benefit…when you have a classroom that's supporting each other's learning"* rather than having only a top-down or vertical learning structure.

Potential to influence development

The fact that Spaces is an in-house project in active development signalled the possibility that individual voices could have a meaningful impact on the platform. This meant when instructors or ISS encountered issues, they expressed more positivity than is often present in technology evaluations LT Hub has done on external products.

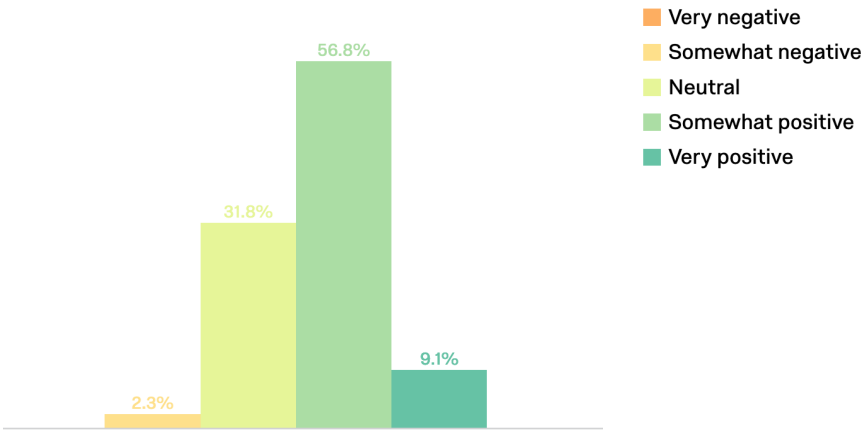
- *"There's a lot of room for improvement"*
- *"We can make that learning curve easier"*
- *"Happy to engage in this development process"*

- *"To be a partner in making it better: that's what CTLT has done for me"*

This feeling of possibility and partnership provoked optimism about the platform's future and spurred creativity about specific development ideas for moving forward, which instructors and ISS shared hopefully during the interviews.

Student response to using Spaces

On a 5-point scale from very negative to very positive, most piloting student respondents, like the instructors and ISS, chose "Somewhat Positive". Two-thirds gave Spaces a positive rating (66%), with about 32% reporting neutral and 2% negative[6].



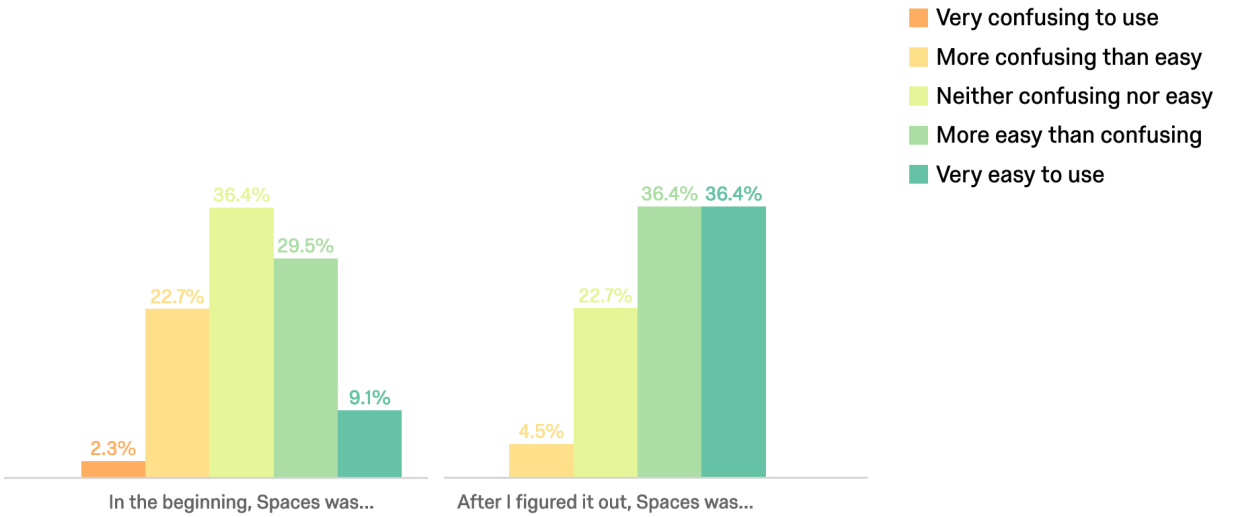
Usability improved over time

When asked to rate the usability of Spaces, student responses revealed a learning curve that lessened over time, with 39% rating it highly usable initially and 73% later[7].

This latter sentiment was also supported by 16% of students complimenting good ease-of-use in open-ended response later in the survey (see Appendix B.1).

[6] Both embedded graphs in this section reflect N = 44 students.

[7] This is similar to the usability ratings from the Canvas pilot (N = 87 students), where initially 46% of students rated Canvas high, 31% neutral, and 23% low and, later, 73% high, 22% neutral, and 5% low.



Missing functionality with H5P quizzes

Since most survey respondents were from Course 2, many student comments[8] focused on issues with the H5P quizzes used in that course. These students found that *"answers are not saved and thus we cannot track our mistakes"* in the quizzes over time. Additionally, for open-ended questions, students "*can't type using the keyboard needed"* nor could they apparently cut-and-paste from a virtual foreign language keyboard.

As a workaround, many students would write down their responses on paper, then submit blank responses to the online quiz question, in order to reveal the correct answers.

Struggles with site navigation

Some student respondents[9], particularly in the most content-rich course (Course 3), discussed issues with navigating Spaces. It was not always clear where different parts of the course would be located for these students.

[8] 58%, where N = 19 students (see Appendix B.1)

[9] 26%, where N = 19 students (see Appendix B.1)

- *"Multiple drop down menus (sections, socrates, comments) were somewhat confusing and finding the lecture survey for that day was difficult"*
- *"Posting & finding others' posts were confusing"*
- *"Struggle to understand the function of the sections & the notes section"*

Lack of application documentation

Finally, in terms of drawbacks, the student concerns above also tied into another: a lack of online documentation to consult about how to use the platform. Students did not have a resource other than the instructor to go to with questions about Spaces, and sometimes instructors did not have an answer.

Benefits to using H5P quizzes

Despite the missing functionality noted above, many student respondents[10] in Course 2 expressed positive feelings about the H5P quizzes overall. These were seen as a *"convenient way to review & practice what is learned in class"*, with benefits like how it *"gave feedback after every question"* immediately and "*you can do [quizzes] multiple times and go back anytime you'd like"*, unlike some traditional quizzes that are taken once and then no longer available for practice. Additionally, the quizzes offered different formats of questions (e.g., multiple-choice, fill-in-the-blank), and students appreciated this variety.

Activities helped with practicing a skill

Across courses, over a third of student respondents[11] described the platform as supporting learning of a course skill. Spaces courses helped develop skills by featuring *"very helpful online exercises"*, the ability to easily *"go back & see what was taught"* at any time, and an *"interactive nature of the discussions tabs and ability to post news that we're interested in"*. In Course 3, students pointed to the Socrates exercises as being particularly helpful as well.

[10] 63%, where N = 19 students (see Appendix B.2)

[11] 37%, where N = 19 students (see Appendix B.2)

Learning objectives benefitted

Both surveyed courses asked if students felt they benefitted or not from using Spaces to meet instructor-set objectives. More than 70% of student respondents in each course[12] said they did benefit in the areas that were asked.

No issues with initial access

The development team was particularly keen to see if students reported issues with initially accessing Spaces, as this has been a common stress point of other WordPress platforms. For example, in using Blogs, students would have to create a Blog account (with the email the student used for their CWL), then the instructor would have to invite them into the course, and the student would have to accept the invitation. With multiple points of failure possible along the way, support would often have to intervene to get students up and running. Since Spaces relies on the SISC integration to automatically manage class lists, none of these steps are required.

The fact that no students brought up struggles with access was a strong indicator that this integration worked well and was an improvement over the prior process.

Recommendations

Based on this pilot's outcomes, these are some recommendations for how Spaces could best be developed and implemented at UBC to maximize its perceived benefits and minimize its perceived shortcomings.

1) Form a working group to guide further development	
May address	• Complexity of admin interface (instructor/ISS issue) • Constraints on customization (instructor/ISS issue) • Potential to influence development (instructor/ISS benefit)

[12] Course 2: N = 32 students; Course 3: N = 12 students (see Appendix B.3)

One of the things instructors and ISS felt most positively about was the platform being developed in-house. This contributed to a sense of optimism and enthusiasm about where the technology could go from here. Capitalizing on this energy by recruiting a team of faculty (and even ISS) to help guide the project would benefit both the platform and its perception as a collaborative effort. It could also help resolve more quickly issues that reflect a mismatch between expectations and the current user experience, such as the complexity of the admin interface and the constraints on customization. Finally, it may help with recruitment of future course use, as has been the case with ComPAIR (another in-house learning technology project).

2) Provide stronger communication about Spaces	
May address	• Less technical stability (instructor/ISS issue) • Complexity of admin interface (instructor/ISS issue) • Good options for student engagement (instructor/ISS benefit) • Lack of application documentation (student issue)

Frustrations with technical stability arose primarily when communication from support seemed less forthcoming about if/when or how feedback would be addressed. Spaces would benefit from a place to communicate the status of feedback requests as well as share documentation more broadly. This documentation could promote the innovative features Spaces offers instructors for engagement, detail how they can get set up with trying it out, and provide short tutorials and/or FAQs for instructors and students, particularly around the already reported pain points.

3) Build out and widely share a robust demo site	
May address	• Constraints on customization (instructor/ISS issue) • Good options for student engagement (instructor/ISS benefit) • Enabled students supporting each other (instructor/ISS benefit) • Struggles with site navigation (student issue) • Activities helped with practicing course skill (student benefit)

Instructors and ISS did not always understand what the platform was or was not capable of doing, especially in terms of customization. As one interviewee suggested, *"a demonstration of what it could be"* would be helpful here, using a realistic *"course that makes sense"* (not

dummy content) with *"all the bells and whistles in it"*. The team could also build this course with the help of learning designers to feature best practices in course design (promoting active learning, collaboration, etc.) and a recommended navigation structure.

4) Improve the H5P quizzing tool (or consider replacements)	
May address	• Hard to track student engagement (instructor/ISS issue) • Missing functionality with H5P quizzes (student issue) • Benefits to using H5P quizzes (student benefit)

Given the benefits of the H5P quizzing tool, issues raised by students about the quizzes (inability to save progress / lack of overview, troubles with foreign keyboard) should be investigated to see if they can be improved. Additionally, instructors noted the desire to track student progress in the quizzes and link to an individual question in a set.

Alternatively, given that many of these issues would be time-consuming to resolve, perhaps alternatives to H5P quizzes could be explored. There may be better options for quizzes that don't suffer the constraints inherent to the H5P framework.

5) Pilot in more courses with richer use	
May address	• Increased (perception of) student engagement (instructor/ISS benefit) • Activities helped with practicing course skill (student benefit) • Learning objectives benefitted (student benefit)

Since this pilot was limited both in how instructors used the platform and how many students gave feedback[13], it would help to pilot with more courses to better understand the potential benefits to students and their learning and the best practices around successful implementation. In particular, recruiting instructors who can utilize more of the engagement options (similar to Course 3 and beyond) would greatly inform future recommended use of Spaces.

[13] Course 3 alone utilized the platform in the way it was designed (hosting all content for a course) and had only 12 respondents.

6) Roll successful pieces of Spaces into other areas of the LTE	
May address	• Good options for student engagement (instructor/ISS benefit) • No issues with initial access (student benefit)

Spaces was built in a modular way and therefore represents a collection of pieces of distinct functionality and reusable code. The framework of Spaces is not the only way these elements can be deployed. Moving forward, other WordPress-based platforms (CMS, Blogs) could also repurpose the successful parts of Spaces, so that the benefits can spread further in the LTE. The Socrates exercises (on the teaching/learning side) and SISC integration (on the technical side) are two such examples that could be easily added to enhance these other platforms.

Moving forward on Spaces with these recommendations may resolve some of the concerns brought forward by instructors, ISS, and students and improve future users' perceptions of the platform's pedagogical value.

Appendices

Appendix A - Instruments

A.1) Instructor interview questions

1. First, please explain why you decided to use Spaces initially.
2. How did you use Spaces as a teaching tool in this course?
3. How did you train students (pedagogically and/or technically)?
4. How were activities in Spaces graded or otherwise accounted for?
5. Please rate your overall experience with Spaces.
    a. Very negative
    b. Somewhat negative
    c. Neutral
    d. Somewhat positive
    e. Very positive
6. What were the benefits you saw to using Spaces?
7. What were the downsides or inconveniences?
8. If you have used another similar learning technology, how did this compare?
9. Please rate how much you disagree or agree with the following. (Scale: Strongly Disagree, Somewhat Disagree, Neutral, Somewhat agree, Strongly agree)
    a. Space's capabilities met my requirements
    b. Spaces was easy for me to use
10. Why did you pick these ratings?
11. Please describe any training or support you needed and if/how you got it.
12. At this point, how committed do you feel to Spaces specifically, compared to another technology that would also support what you want to do?
    a. I would rather try another technology
    b. I am open to trying another technology
    c. I prefer to continue using Spaces, if central support is available
    d. I prefer to continue using Spaces, regardless of central support
13. Finally, what advice do you have for instructors considering using Spaces in the future?
14. Is there any other negative or positive feedback you'd like to provide that we haven't already discussed?

A.2) Student survey questions

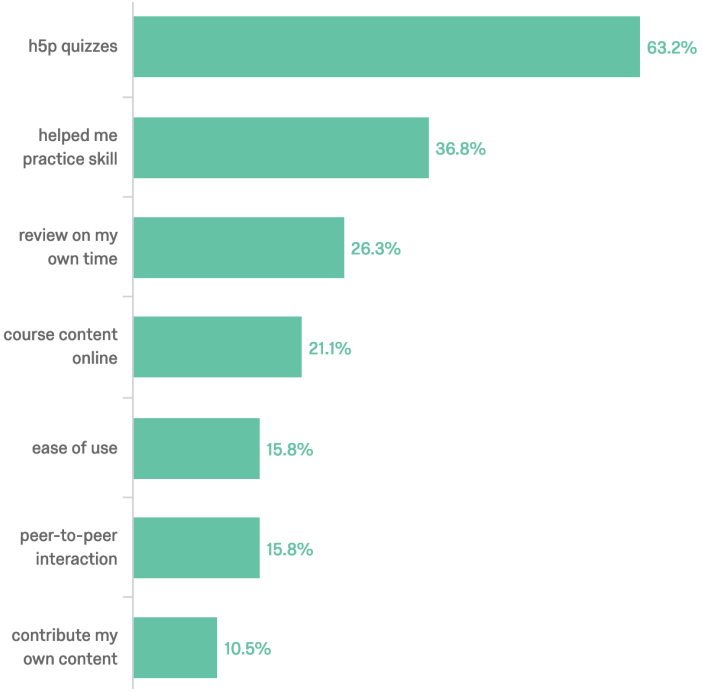
1. Please tell us how confusing or easy Spaces was to use at the following points. (Scale: Very confusing to use, More confusing than easy, Neither confusing nor easy, More easy than confusing, Very easy to use)
    a. In the beginning, Spaces was…
    b. After I figured it out, Spaces was…
2. What parts of Spaces, if any, were less easy to use for you? (Scale: Less easy to use, Less easy only initially, Easy to use, (did not do))
    a. Navigating through the course
    b. Reading or watching course content
    c. Downloading/accessing course files
    d. Completing quizzes
    e. Completing Socrates method assignments
    f. Understanding what work I'd completed
    g. Using Spaces on a mobile device
3. How would you rate your overall experience with Spaces in this course?
    a. Very negative
    b. Somewhat negative
    c. Neutral
    d. Somewhat positive
    e. Very positive
4. What, if anything, did you like about using Spaces?
5. What, if anything, did you DISlike about using Spaces?
6. Please tell us how helpful for this course you found the following features. (Scale: Not at all helpful, Somewhat helpful, Very helpful, (did not use))
    a. Making notes on course content
    b. Bookmarking course content
    c. Checkmarking content as complete or incomplete
    d. Completing Socrates method assignments
    e. Tracking my overall progress through the course
7. Now tell us if using Spaces benefited you in the following ways. (Scale: Did not benefit, Benefited)
    a. Course 2: My understanding of how <language> grammar works

    b. Course 2: My fluency in using <language> grammar accurately
    c. Course 3: My feeling of control over how I learn
    d. Course 3: My engagement level with this course
    e. Course 3: My ability to stay current with new information
8. If Spaces were a person, what would you want to say to it after your interactions together this term?
9. Finally, please describe your preferences for the setup used in this course. (Scale: I wanted less, What was done was just right, I wanted more)
    a. The amount of training provided for using Spaces
    b. The amount of work given in Spaces
10. Is there any other feedback you'd like to provide UBC? Or anything you would want other students or instructors to know about using Spaces?

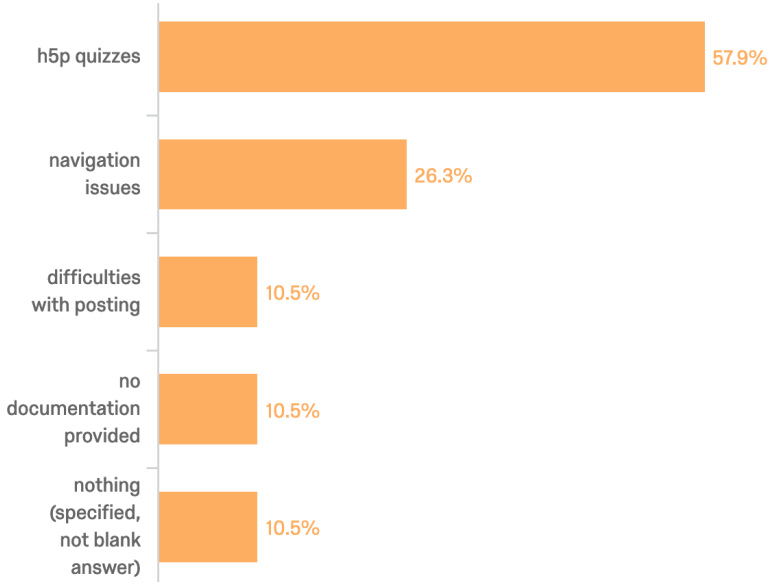
Appendix B - Compiled Student Data

(See: Qualitative codes for these questions)

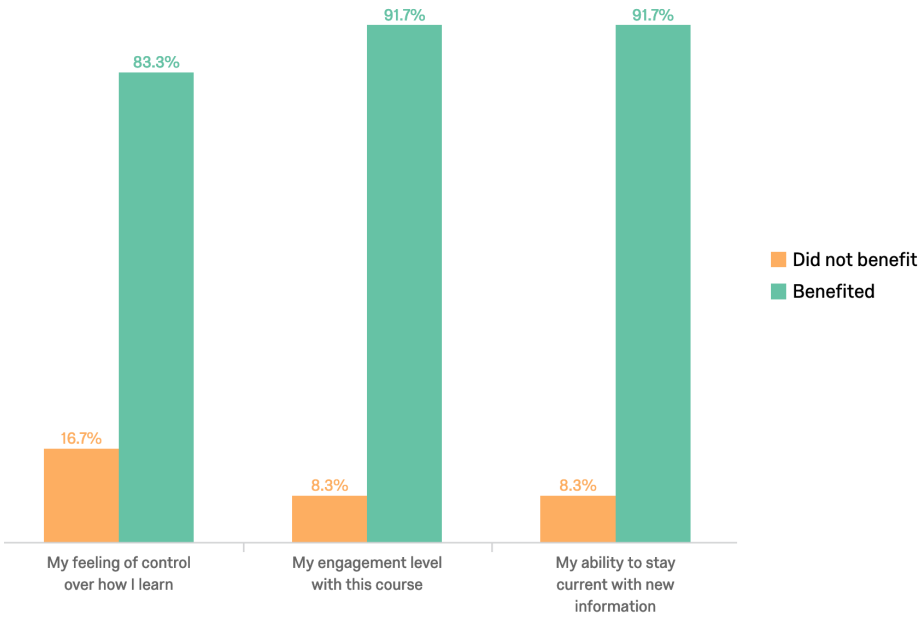
B.1) What students liked about Spaces in open-ended response (N = 19)



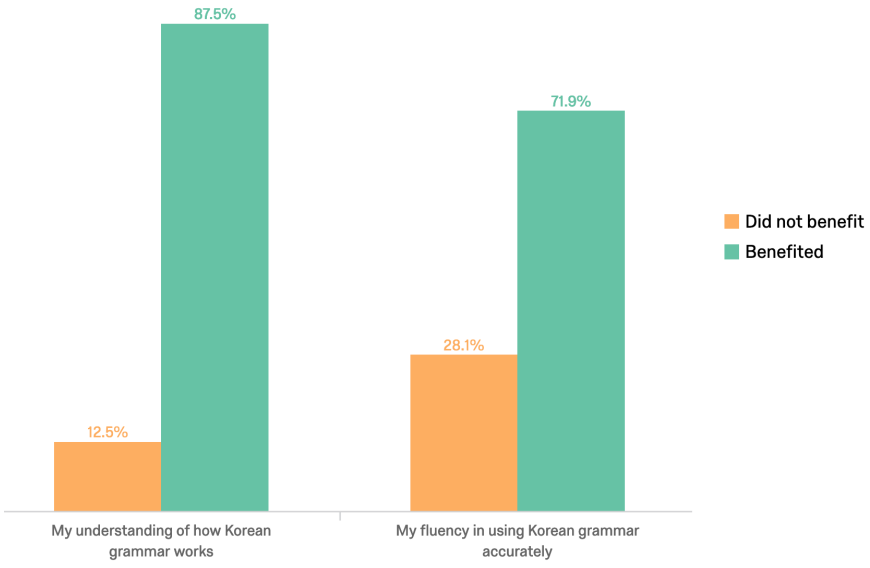
B.2) What students didn't like about Spaces in open-ended response (N = 19)



B.3) Where students reported benefits when asked in each course



Course 2 (N = 32)



Course 3 (N = 12)