



# Technology Evaluation Report: iClicker Cloud

## Report Contents

<a href="#">Goal</a>	..... 3
<a href="#">Methodology</a>	..... 3
<a href="#">Contexts of feedback</a>	
<a href="#">Findings</a>	..... 7
<a href="#">Instructor overall positive response to using iClicker Cloud</a>	..... 7
<a href="#">Instructor motivations for using iClicker Cloud</a>	..... 7
<a href="#">Checking for student understanding of course content</a>	
<a href="#">Keeping students engaged during lectures</a>	
<a href="#">Distributing more grade weight to lower-stakes activity</a>	
<a href="#">Benefits instructors saw to iClicker Cloud</a>	..... 8
<a href="#">Lowered the barrier to entry by letting students use their own devices</a>	
<a href="#">Offered flexibility in how instructors built and ran questions</a>	
<a href="#">Expanded SRS use into online and blended learning environments</a>	
<a href="#">Seemed to help students learn the course content</a>	
<a href="#">Provided students a reportedly positive experience</a>	
<a href="#">Synced grades automatically with Canvas</a>	
<a href="#">Drawbacks instructors saw to iClicker Cloud</a>	..... 11
<a href="#">Presented issues at times when syncing student accounts with Canvas</a>	
<a href="#">Interrupted class occasionally with technical glitches</a>	
<a href="#">Required developing multiple workflows to accommodate its versatility</a>	
<a href="#">Added an online option that led some students to participate less</a>	
<a href="#">Came with a learning curve for less experienced instructors</a>	
<a href="#">Created for one course a more distracting classroom environment</a>	
<a href="#">Limited the use of exit poll feature</a>	
<a href="#">Student overall positive response to using iClicker Cloud</a>	..... 15
<a href="#">Benefits students saw to iClicker Cloud</a>	..... 15
<a href="#">Removed the cost and stress associated with physical remotes</a>	
<a href="#">Created more engaging class sessions</a>	
<a href="#">Felt easy for students to use</a>	

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<a href="#">Expanded students' ability to participate</a>	
<a href="#">Offered useful features for students</a>	
<a href="#">Drawbacks students saw to iClicker Cloud</a>	..... 17
<a href="#">Presented technical issues that sometimes impacted marks</a>	
<a href="#">Caused frustration if students disagreed with instructor's implementation</a>	
<a href="#">Raised concern for a student with an accommodation need</a>	
<a href="#">Recommendations</a>	..... 18
1) <a href="#">Address trouble areas in LT Hub documentation</a>	..... 18
2) <a href="#">Continue to investigate technical issues and workarounds</a>	..... 19
3) <a href="#">Encourage instructors to consider the student experience</a>	..... 20
4) <a href="#">Create space for instructors to share experiences and best practices</a>	..... 21
<a href="#">Appendices</a>	..... 22
<a href="#">Appendix A - Instruments</a>	..... 22
<a href="#">A.1) Instructor interview questions</a>	
<a href="#">A.2) Student survey questions</a>	
<a href="#">Appendix B - Additional Data</a>	..... 24
<b>Note:</b> 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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## Goal

iClicker Cloud is an online student response system (SRS) that allows instructors to collect and grade responses to in-class questions. Students answer these questions individually, using their own computer or mobile device. Instructors receive the responses instantly, and they can use these results to inform their teaching and/or share outcomes with the class. Results can also automatically count toward student grades, if instructors use Canvas.

The inclusion of a SRS like iClicker Cloud can offer several benefits in courses, depending on how instructors deploy it:

- Checking student understanding of course topics.
- Giving students practice in answering course-related questions.
- Getting student opinions about course topics or logistics.
- Generating student discussion during class.
- Keeping students engaged during lectures.

iClicker Cloud was [one of the three SRSs recommended](#) by the 2020 UBC SRS Working Group. Given the urgent need to roll out an online SRS at the time, iClicker Cloud underwent no formal pilot in 2020.

A followup “pilot” of iClicker Cloud was done in the 2021/22 academic year by consulting UBC instructors and students in a handful of courses. This report will summarize those findings, with the aim of informing next steps for iClicker Cloud at UBC.

## Methodology

Seven instructors provided feedback on iClicker Cloud: four from the Faculty of Science, two from the Sauder School of Business, and one from the Faculty of Arts<sup>1</sup>. The instructor feedback was given in one-on-one virtual interviews (see [Appendix A.1](#) for the 13 questions used) with the evaluator, after the instructors had used the tool for a term or more.

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<sup>1</sup> More instructors from Arts were sought, but no others who were contacted felt that they had the time or experience to provide feedback.

From six courses taught by these instructors, 99 students gave feedback through an anonymous, online survey (see [Appendix A.2](#) for the eight questions used) at the end of the relevant term. Of those responding, approximately 49% were from the Faculty of Science, 34% from the Sauder School of Business, and 16% from the Faculty of Arts.

Additional student data related to a few Faculty of Science courses was also provided by one instructor.

## Contexts of feedback

Instructor	Course(s) & Students	iClicker Cloud Context
<b>Instructor 1</b>  Faculty of Science	First-year course <hr/> ~260 students <hr/> Fully online format	<ul style="list-style-type: none"> <li>Since the course was fully online, two active-learning sessions were held a week (different from lecture), where “muddiest point” questions were presented with iClicker Cloud. These questions were determined by asking for student feedback the previous week. Based on the feedback, the instructor created 5-8 multiple-choice questions for the session. Each time a question was posed, students would first discuss it in groups, then they would answer. Finally, the instructor would give the right answer. Two optional bonus points were possible for each question: one point for participation and one point for the correct answer.</li> </ul>
<b>Instructor 2</b>  Faculty of Science	First-year course <hr/> ~140 students <hr/> Fully online format	<ul style="list-style-type: none"> <li>In this course, iClicker Cloud questions were presented during the online lectures. Students answered 2-10 multiple-choice questions individually each session, to help the instructor gauge their understanding of course content. Over the duration of the course, up to 3% of each student’s mark was earned through iClicker Cloud (i.e., every lecture had one point students earned by participating). By answering correctly, students could also earn up to 2% worth of bonus marks.</li> </ul>

<p><b>Instructor 3</b></p> <p>Faculty of Science</p>	<p>Fourth-year course</p> <hr/> <p>~100 students</p> <hr/> <p>Blended format</p>	<ul style="list-style-type: none"> <li>This course was primarily taught in person, with streaming online, so iClicker Cloud questions were available to students participating in the classroom or from home. iClicker Cloud was used for 3-5 questions per lecture to provide a “self-check” and promote discussion. Students (in the in-person environment) would discuss each question first, then answer individually. The instructor also posted these same questions as a quiz in Canvas, to accommodate any students who could not attend lectures (e.g., those in other time zones). All students needed to complete this quiz asynchronously, due an hour after the lecture. Around 90 questions were posed throughout the term. So long as students got at least 50 right, they received the 10% set aside for these activities.</li> </ul>
<p><b>Instructor 4</b></p> <p>Faculty of Science</p>	<p>Third-year course</p> <p>Fourth-year course</p> <hr/> <p>~180 students</p> <p>~60 students</p> <hr/> <p>Blended formats</p>	<ul style="list-style-type: none"> <li>The courses were presented in person as well as streaming online, so iClicker Cloud questions were available to students participating in the classroom or from home. iClicker Cloud questions were not used very often—about once a week or less—though multiple questions would appear per lecture. Participation points in general formed 2% of the final grade, and this percentage was where iClicker Cloud participation was incorporated. However, students could choose not to participate and use averages from course quizzes instead.</li> </ul>
<p><b>Instructor 5</b></p> <p>Sauder School of Business</p>	<p>Second-year courses (2)</p> <p>Third-year course</p> <p>Fourth-year course</p> <hr/> <p>~300 students, split into three sections</p> <p>~23 students</p> <p>~270 students, split into three sections</p>	<ul style="list-style-type: none"> <li>The lectures happened only in person, but the iClicker Cloud questions were available to students participating in the classroom or from home. Each lecture started with a 3-4 question iClicker Cloud “mini-quiz” on the prep material; additional questions posed throughout the lecture were more opinion-based. Students saw the outcomes of polls as well as the correct answers. iClicker</li> </ul>

	<p>~29 students</p> <hr/> <p>Blended formats</p>	<p>Cloud questions formed 5-10% of the “<i>active learning</i>” grade in the courses. Each question allowed students to receive up to two points: one for answering and one for the correct answer. The two lowest lecture totals for each individual over the duration of the course were dropped.</p>
<p><b>Instructor 6</b></p> <p>Sauder School of Business</p>	<p>Second-year course</p> <hr/> <p>~120 students, split into two sections</p> <hr/> <p>Blended, then in-person format</p>	<ul style="list-style-type: none"> <li>• After the mandated online portion of the course was over, lectures happened only in person. iClicker Cloud was used for 1-4 questions per session to meet a variety of goals: encourage timely attendance, check for understanding, poll for opinions, and prompt discussions. Students typically discussed each question before answering it individually, and time for discussion of the answer was provided after the outcomes were shared. If students answered every question for the lecture, they received a point for the day, regardless of whether they were right or wrong. At the end of the term, how much students participated factored into 5% of the course mark.</li> </ul>
<p><b>Instructor 7</b></p> <p>Faculty of Arts</p>	<p>Fourth-year course</p> <hr/> <p>~50 students, split into two sections</p> <hr/> <p>In-person format</p>	<ul style="list-style-type: none"> <li>• After the mandated online portion of the course was over, this instructor incorporated iClicker Cloud questions 3-10 times per lecture. The questions were primarily aimed at checking student understanding of pre-readings and the previous lecture. As this instructor was new to using iClicker generally, no course marks were assigned to student participation yet.</li> </ul>

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## Findings

### Instructor overall positive response to using iClicker Cloud

Instructors generally reported a positive experience: one instructor rated the experience as 'neutral', two as 'somewhat positive, and four as 'very positive'.

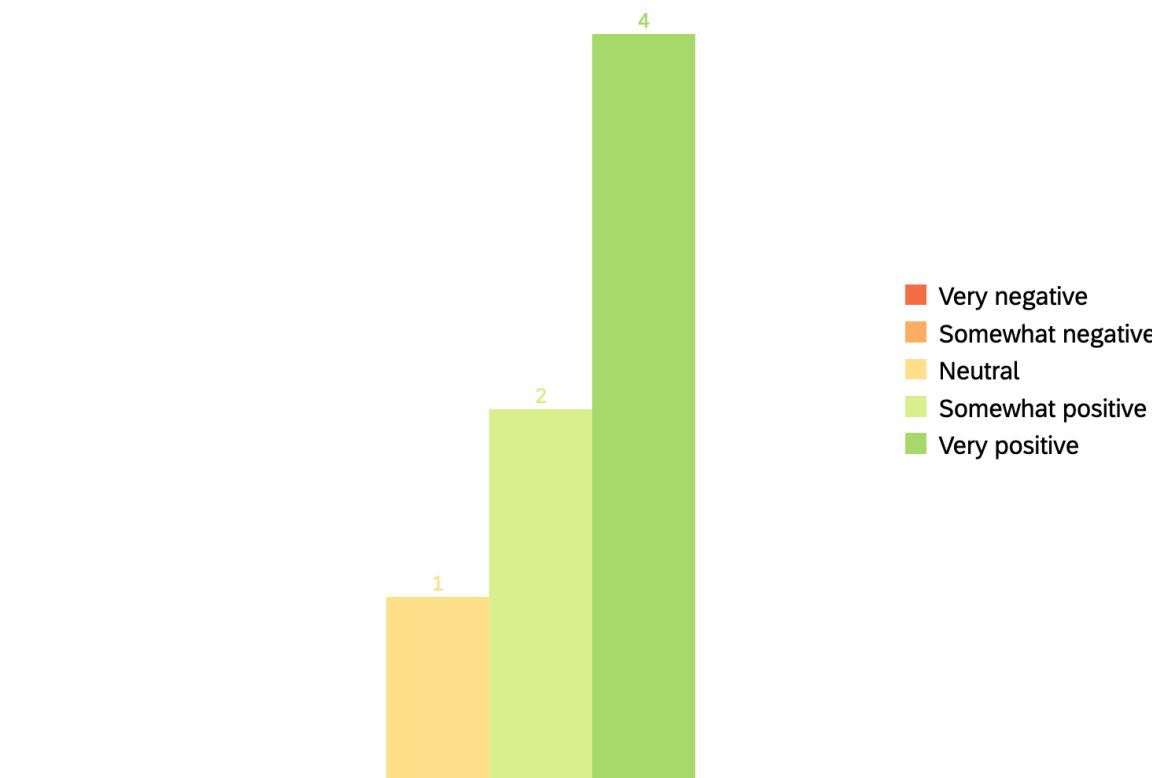


Chart 1: Instructor responses to overall experience with iClicker Cloud (Appendix A.1, Q5)

### Instructor motivations for using iClicker Cloud

#### Checking for student understanding of course content

Most instructors wanted to use a SRS to check how well students understood the content and *"get a sense what are students thinking about a particular topic"*. Knowing where student understanding was more or less clear allowed the instructors to teach more adaptively, pivoting to cover gaps or common misconceptions arising as they taught.

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## Keeping students engaged during lectures

Additionally, most instructors discussed the importance of using active learning in lectures, particularly in larger courses where it can be hard to make everyone feel involved.

Questions posed through a SRS let each student individually respond, which is *“way better than just one or two people putting up their hands”*. It also means instructors can give each student *“moments of cognitive dissonance”* to help them feel more invested in the topic—*“it makes their brain ready, especially if they don't answer correctly”*.

## Distributing more grade weight to lower-stakes activity

One instructor specifically highlighted the benefit of synchronous question activities helping to *“stretch the overall marking scheme”*. Rather than stress students by heavily weighting exams, this instructor saw value in distributing that weight to lower-stakes activities happening on a more regular basis.

## Benefits instructors saw to iClicker Cloud

### Lowered the barrier to entry by letting students use their own devices

The previous SRS at UBC was iClicker Classic, a system similar to iClicker Cloud but one that required students to buy and use a dedicated physical remote (‘clicker’) to participate. Most instructors were aware of this previous requirement and felt removing it benefitted both themselves and the students.

For the students, not having to buy a remote *“makes things simpler and cheaper”* for them and meant that *“they could start right away”* answering iClicker Cloud questions from the first lecture. For the instructors, they did not have to spend the *“energy and time to deal with physical clickers”*—making sure everyone had one each lecture—or worry about connecting their laptops to the physical iClicker base in each classroom.

### Offered flexibility in how instructors built and ran questions

Most instructors also appreciated the flexibility offered by iClicker Cloud. Flexibility referred to how iClicker Cloud questions were both built and run. In building the questions,



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instructors liked not being limited to a multiple-choice format<sup>2</sup>—*“that makes it easier for us to understand what we maybe didn’t anticipate”* in terms of how students might (wrongly) answer a question.

In running the questions, many instructors found it convenient how iClicker Cloud *“allows you to use what’s actually on your screen”*<sup>3</sup> rather than forcing them to be in an application interface. This approach meant instructors did not have to design their teaching around the tool or duplicate questions in multiple places; rather, *“you just show something in your PowerPoint and then students answer”*. It also allowed for on-the-fly questions, so *“it’s easier to start polling that doesn’t necessarily have to be planned”* but was based on the moment.

### Expanded SRS use into online and blended learning environments

Unlike its iClicker Classic predecessor, iClicker Cloud works online and therefore could be used for fully online or blended classrooms. Most instructors commented positively on this new versatility, appreciating that *“[students] don’t have to be in the room”*. Online answering also increased the inclusivity of courses, because it *“allowed everyone to participate”* regardless of their circumstances, like having to self-isolate or miss physical class for other personal reasons (e.g., taking a family member to the doctor).

### Seemed to help students learn the course content

Most instructors felt that their use of iClicker Cloud helped student learning<sup>4</sup>. Learning seemed to benefit for a number of reasons: question time for the students a) created a pause point to *“[slow] me down from giving them a whole blurb of information”* at once, b) *“wakes them up”* from a passive learning state, c) gave instructors *“feedback as to if [students] are understanding this stuff”*, and d) helped instructors *“guide my class toward the right thing”* based on the responses or *“springboard into something”* if more explanation was needed.

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<sup>2</sup> iClicker Cloud allows five question formats: multiple choice, short answer, numeric, target (i.e., image hotspot), and multiple answer.

<sup>3</sup> Once opened, iClicker Cloud is controlled by a small toolbar that sits on top of the screen. Instructors can use their desktop and other applications as they normally would when running a class.

<sup>4</sup> These observations in particular may reflect a benefit of a SRS generally rather than iClicker Cloud.

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Instructor 1 also shared student data from an annual survey run in first-year Faculty of Science courses. One of the survey questions asked students to rate the importance of clickers in influencing their academic performance in the course. Of the students responding in three courses, half or more—approximately 56%, 64%, and 50% respectively—rated their use as ‘extremely important’ or ‘important’ to their performance.

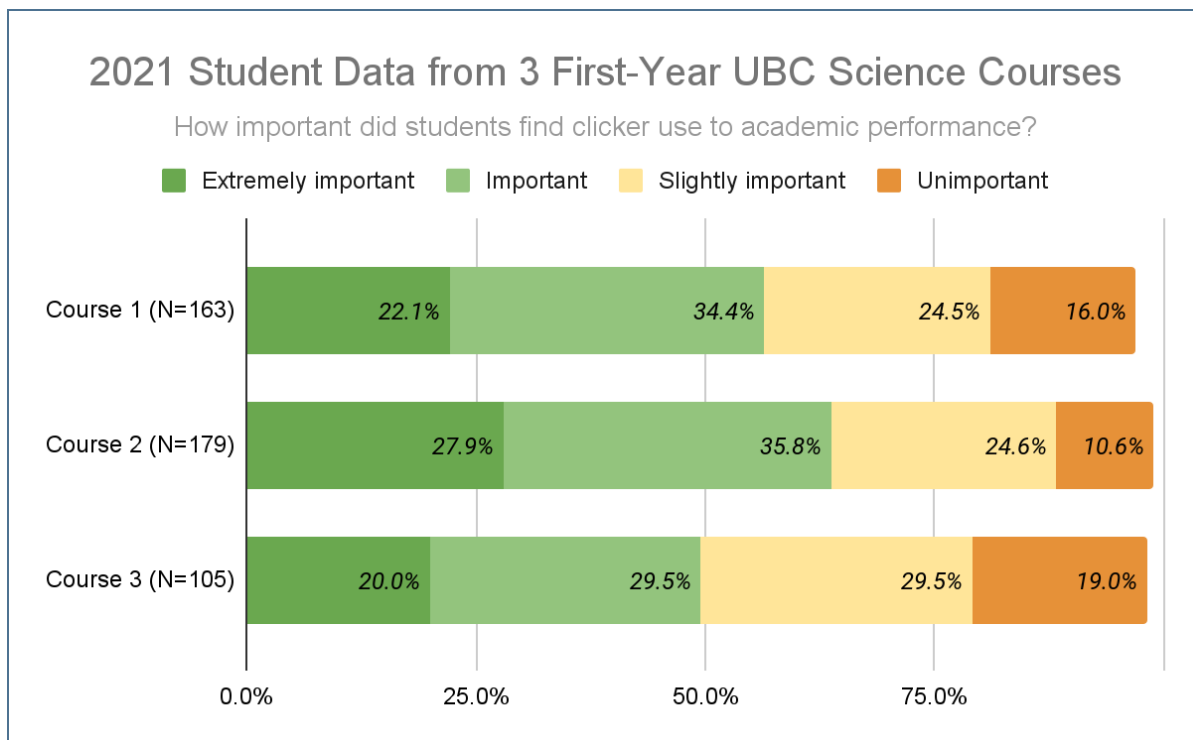


Chart 2: Student ratings of clicker importance to their academic performance

Another instructor reported anecdotally that, in writing about their learning each week, students said *“the iClicker questions make the points more clear”*.

### Provided students a reportedly positive experience

Several instructors had also heard from students that they *“enjoy the break from somebody lecturing at them”* that the questions provided. One instructor felt it was clear that *“my classroom is having fun”* during these questions. And iClicker Cloud seemed straightforward to set up on personal devices—*“students got it working right away”*. It offered the new benefit of using questions for studying outside of class, too, if the instructor allowed this.

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## Synched grades automatically with Canvas

Finally, a couple of instructors noted that *"the biggest benefit is it's syncing"*, meaning iClicker Cloud grades can be set up to pass automatically into the Canvas gradebook. Therefore, instructors who graded with Canvas did not have to manually add in outcomes from iClicker Cloud, *"all I do is sync to one [gradebook] column on Canvas"*.

## Drawbacks instructors saw to iClicker Cloud

### Presented issues at times when syncing student accounts with Canvas

Although instructors varied in how onerous the issues felt, most described problems getting the students to correctly sync their iClicker Cloud account with their Canvas account. When this syncing is not set up correctly, grades cannot be passed into the Canvas gradebook for the student. If multiple student accounts do not sync, *"this is administratively such a heavy load"*, especially in large courses.

It was unclear to instructors how often the problem was due to students not following the setup instructions properly<sup>5</sup> and how often it was the fault of iClicker Cloud. It was clear that students most often ran into issues if they ended up with multiple iClicker Cloud accounts<sup>6</sup> or if they joined the wrong section of a multi-section course.

Another possible syncing issue was that students marked with an excused absence in the iClicker Cloud interface still received a score of zero in the Canvas gradebook for that lecture session. So instructors would have to remember to manually adjust any excused students' marks in Canvas. This extra work was unwelcome, since the excused absences take time to enter in iClicker Cloud—*"it's a bit of an administrative nightmare"* (again, especially in large courses).

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<sup>5</sup> Students must join each course that uses iClicker Cloud using an 'iClicker Sync' link for that course in Canvas. If they try to join the course in iClicker Cloud directly, the syncing will not be enabled. However, some students said they had followed these instructions and were still not able to sync.

<sup>6</sup> Instructors can fix this issue themselves, by [merging multiple student accounts](#) in iClicker Cloud. However, based on the interviews, this functionality was not obvious to instructors.

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## Interrupted class occasionally with technical glitches

Instructors reported being generally satisfied with the performance of iClicker Cloud—*“there were a few technical glitches, but they weren't as bad as when we had physical clickers”*. However, some instructors did encounter momentary interruptions.

As with the syncing issues, it was not always clear what caused crashes. Particularly when instructors were running multiple applications simultaneously (e.g., Zoom, iClicker Cloud, PowerPoint), it was hard to pinpoint a culprit. But typically, glitches were resolved by restarting, resetting the internet connection, and/or upgrading the application(s).

Harder to resolve was when the students reported technical issues on their end during a synchronous session. These issues reportedly occurred a minority of the time, but placed extra burden on some instructors in deciding whether to wait for students to troubleshoot or to record students as being excused due to reported connection problems.

## Required developing multiple workflows to accommodate its versatility

As noted, instructors appreciated the ability to use iClicker Cloud online and in person. However, this versatility also meant they had to set up multiple workflows, at least during the 2021/22 academic terms<sup>7</sup>. Depending on their experience and personal preferences, some instructors struggled more with using iClicker Cloud at home (e.g., how best to use it with Zoom web-conferencing?) and others struggled more on campus (e.g., how best to use it without two monitors? while streaming with the video service Panopto?).

More concerning, one instructor could not figure out how to limit iClicker Cloud participation to the physical classroom, once in-person lectures resumed. The number of students responding online was sometimes higher than the number present in the classroom, even though the instructor had tried to modify the settings to disable online-only participation. Ultimately, this instructor felt the versatility *“opened up new*

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<sup>7</sup> Both terms during the pilot required accommodating self-isolation restrictions and/or mandatory remote teaching in response to COVID-19. So these instructors faced unavoidable disruptions to fully in-person teaching.

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*cheating*” that was harder to track down. Knowing with certainty a) what settings needed to be modified and b) what students see with those settings enabled would have helped.

### **Added an online option that led some students to participate less**

Some instructors noticed that, in the online environment, students at times participated less in the learning activities around iClicker Cloud. In one course, students would sometimes refuse to enter breakout rooms to discuss topics with peers and only respond to the iClicker Cloud question that was given afterward. In other courses, students would not join the lecture for the course and only respond to iClicker Cloud questions as they came up.

Although these were not issues with iClicker Cloud specifically, some instructors wondered if there was any way to improve on this engagement.

### **Came with a learning curve for less experienced instructors**

A couple of instructors with less iClicker Classic experience and/or more experience with another SRS noted a slight learning curve to iClicker Cloud—*“it’s hard to figure out where to do the things that we need”*, at least at the start. Additionally, it was unclear to a few how the Canvas integration worked initially.

However, most instructors still rated the tool’s eventual ease-of-use well, feeling that Clicker Cloud was learnable over time: two instructors found it later on ‘more easy than confusing’ and five instructors found it ‘very easy’.

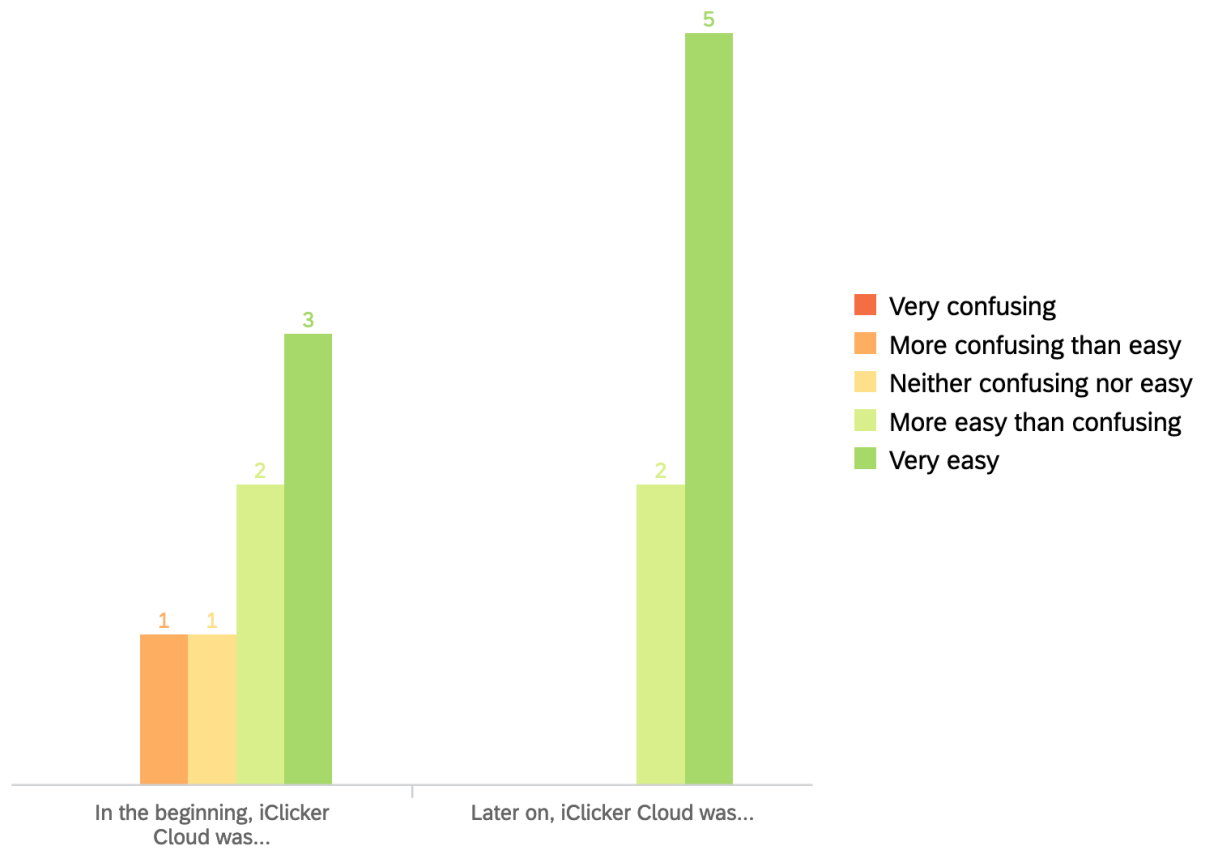


Chart 3: Instructor responses to how easy or confusing iClicker Cloud was (Appendix A.1, Q9)

### Created for one course a more distracting classroom environment

One instructor raised an issue with the change in iClicker Cloud that requires students to use their own devices instead of a dedicated remote. Typically in this instructor’s courses, students are not allowed to use anything electronic other than a tablet to write on. After changing these rules to accommodate iClicker Cloud, this instructor felt *“I’m battling the phones more because they’re permitted to have them handy”*.

This instructor also worried that the distracted students impacted more than their own learning, since *“it’s also distracting the neighbours to have the devices around”*.

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## Limited the use of exit poll feature

Finally, one instructor struggled with limits to using the exit poll feature<sup>8</sup> in iClicker Cloud. UBC cannot currently make this feature available without disclosing personally identifiable information about students (i.e., email addresses). So instructors who wish to use exit polls have to wait for support staff to send them the student feedback after every class.

## Student overall positive response to using iClicker Cloud

Students generally reported a positive experience with iClicker Cloud: 2% rated their experience as 'very negative', 4% as 'somewhat negative', 17% as 'neutral', 27% as 'somewhat positive', and 50% as 'very positive'.

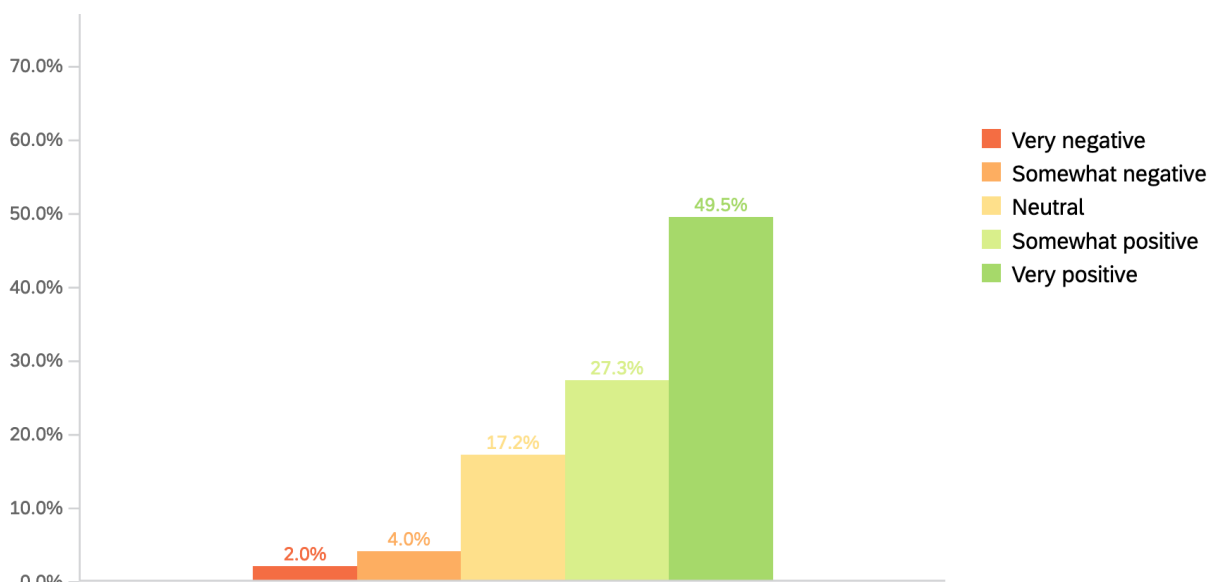


Chart 4: Student responses to overall experience with iClicker Cloud (N=99, Appendix A.2, Q2)

## Benefits students saw to iClicker Cloud

### Removed the cost and stress associated with physical remotes

The top benefit students raised about iClicker Cloud was the ability to use their own devices rather than be limited to a dedicated remote. This flexibility was valued by many for two

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<sup>8</sup> Exit polls allow instructors to gather post-class feedback from students to gauge their understanding of the lecture session. Student responses to the polls are accessed through a spreadsheet downloaded from iClicker Cloud.

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main reasons. First and foremost, *"it is free"*. Second, it eliminated the stress of remembering to bring and maintain a remote for class—*"I never had to worry about the battery dying or missing the lecture code when setting it up"*.

### Created more engaging class sessions

Another benefit many students saw to iClicker Cloud was how *"it keeps me engaged with the material being taught"*. For some, this engagement was simply fun—*"it is my favourite part of class"*. Others saw direct value to their learning, enjoying the questions as a *"way to constantly test your knowledge of material in class"*.

### Felt easy for students to use

Many students reported iClicker Cloud was *"simple and intuitive to use"* and appreciated not having to download an app to participate. A few students said that getting set up was a bit challenging, but that their experience became easier over time.

Similar sentiments can be seen in the question on ease-of-use. The number of students rating iClicker Cloud's usability as 'more easy than confusing' or 'very easy' jumped from 71% initially to 83% later on.

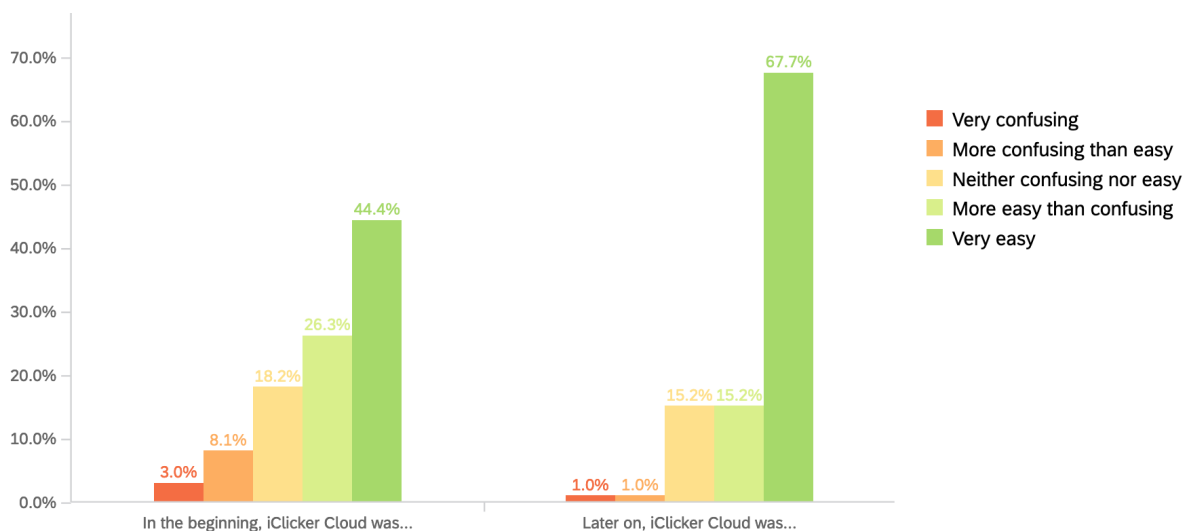


Chart 4: Student responses to how easy or confusing iClicker Cloud was (N=99, Appendix A.2, Q5)



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## Expanded students' ability to participate

Several students highlighted how, unlike its predecessor, iClicker Cloud *"made learning available from any location"*. These students appreciated not having to be in class to participate, since they were prevented at times from coming to campus this past year.

## Offered useful features for students

Finally, students pointed to three specific features they liked about iClicker Cloud. It 1) allowed for answering anonymously, 2) shared the outcomes of questions with everyone—which for one remote student *"helps me feel like a person engaging with their peers during lectures"*—and 3) enabled later reviewing of the questions answered in class<sup>9</sup>.

## Drawbacks students saw to iClicker Cloud

### Presented technical issues that sometimes impacted marks

The biggest problem students discussed was encountering technical issues. These issues were particularly concerning to students when marks were on the line.

Issues generally fell into three buckets:

- **Students were unable to join the iClicker Cloud sessions immediately.** The button for joining does not always appear right away<sup>10</sup>, so for some it *"takes a while to allow you to get into class"* at the beginning.
- **Students were unable to successfully submit answers before time ran out.** Since iClicker Cloud questions are typically shown for a short, set period of time, students must be ready to respond within that window. However, students sometimes missed the window because of
  - delayed video-streaming of the online lecture (*"the question was over by the time I heard it"*);

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<sup>9</sup> All of these features do depend on instructor settings in iClicker Cloud.

<sup>10</sup> This issue is known and included in the UBC iClicker Cloud student guide.

- slow or unstable internet connections; or
- personal devices requiring a poorly timed log in/unlock or update.
- **iClicker Cloud did not record a students' participation for a session**—"*sometimes I had already selected my answer but it appeared as no response*". This issue could be related to any of the issues in the bullet point above, to iClicker Cloud not syncing student accounts correctly with Canvas, or to a separate bug entirely.

### Caused frustration if students disagreed with instructor's implementation

Unsurprisingly given the reported challenges, some students also reported frustration around stricter policies surrounding the use of iClicker Cloud. These students wanted instructors to understand their technical struggles and do one or more of the following:

- Provide more time for answering questions.
- Build in more leniency to the marking scheme.
- Revisit the design and integration of the questions themselves.

### Raised concern for a student with an accommodation need

One student had an (unspecified) accommodation need and did not feel iClicker Cloud was "*something [that] can be tailored to students who have accommodations*". Use of the tool for this student was "*extremely stressful*" as a result.

## Recommendations

Based on this pilot's outcomes, below are recommendations for how iClicker Cloud could best be used at UBC to maximize its perceived benefits and minimize its perceived shortcomings.

1) Address trouble areas in LT Hub documentation	
May address	<ul style="list-style-type: none"> <li>● Issues at times when syncing student accounts with Canvas</li> <li>● Multiple workflows needed to accommodate versatility of use</li> <li>● Learning curve for less experienced instructors</li> <li>● Technical issues that impacted student marks</li> </ul>

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The Learning Technology (LT) Hub instructor and student tool guides for iClicker Cloud should be updated to ensure trouble areas are being addressed directly. These updates could include the following:

- What technical requirements are necessary or recommended (e.g., bandwidth) for students
- How students can try to resolve Canvas syncing problems themselves
- Where students can go for help meeting their accommodation needs
- How instructors can merge multiple iClicker Cloud student accounts
- What is the best setup for instructors at home vs. on campus
- What settings instructors need to limit to in-person participation
- How instructors can check defaults of their grading

The last point was advised by one instructor who felt that the default grading was not necessarily intuitive. This instructor stressed that others should check if iClicker Cloud is *“scoring it the way you want”* well in advance of a live course.

<b>2) Continue to investigate technical issues and workarounds</b>	
<b>May address</b>	<ul style="list-style-type: none"><li>• Issues at times when syncing student accounts with Canvas</li><li>• Occasional technical glitches interrupted class</li><li>• Limitation on exit poll feature</li><li>• Technical issues that impacted student marks</li></ul>

iClicker Cloud has a new way to do grade syncing called “Roster & Grade Sync”. It may potentially fix issues with syncing between iClicker Cloud and Canvas. The LT Hub should continue testing this option and, if it works, update the Privacy Impact Assessment to cover this option.

In general, it may be helpful for the LT Hub to conduct more testing around syncing student accounts and marking excused absences. Adding single sign-on is another area worth testing that may help.

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Additionally, as noted earlier, the current limitations with the iClicker Cloud exit poll feature cause significant delays. Finding a way for instructors to self-serve the poll spreadsheets would make this function usable. (For example, iClicker Cloud could remove email addresses from these reports as they have done for UBC with other reports.)

3) Encourage instructors to consider the student experience	
May address	<ul style="list-style-type: none"><li>• Student learning seemed to be helped by use</li><li>• Technical issues that impacted student marks</li><li>• Students feeling frustrated with implementation choices</li></ul>

In documentation and consultations, the LT Hub could encourage instructors to keep in mind the many factors that may impact student experience:

- As instructors themselves pointed out in interviews, **question design** is important—*“if you don't have proper content, the technology will only get you so far”*. Depending on their context, instructors may have access to suggested iClicker Cloud questions in their textbooks; this information could be highlighted.
- Another piece of advice from instructors was to consider **question frequency** during lecture. With too few questions, *“it becomes boring for students”*, yet with too many questions, it can be overwhelming. One instructor thought *“between 5-10 is a good number”* for a lecture, though this number depends on question complexity.
- Students would like instructors to be flexible with **question timing**, since they can encounter technical issues that delay their ability to respond. Particularly in fully online or hybrid learning environments, allowing more time for answers would help ease student stress.
- Finally, it may be advisable to discourage use when the **class size** becomes too small. As one instructor noted, for classes below 20 students, the lecture *“becomes a bit more personal”* and one should consider, *“does displaying what your neighbour said embarrass you more than help?”*

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#### 4) Create space for instructors to share experiences and best practices

<b>May address</b>	<ul style="list-style-type: none"><li>• Student learning seemed to be helped by use</li><li>• Multiple workflows needed to accommodate versatility of use</li><li>• Online option led some students to participate less</li><li>• More distracting environment with bring-your-own-device</li></ul>
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The LT Hub may further wish to set up a space for instructors to discuss SRS use generally, perhaps through a channel in Microsoft Teams and/or a community of practice.

This recommendation was also given by the UBC SRS Working Group and could provide instructors a way to exchange suggestions around question design, course integration, technical setups, student engagement, grading, and ways to navigate devices in the classroom.

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# Appendices

## Appendix A - Instruments

### A.1) Instructor interview questions

1. Which course(s) did you use iClicker Cloud in for this evaluation, and what was the final enrollment in each?
2. How did you use iClicker Cloud? Please describe the context (online, in person, both), what you had students do, and how activities were integrated in the course.
3. How did you train students (pedagogically / technically) to use iClicker Cloud?
4. How, if at all, did the outcomes of iClicker Cloud impact student grades?
5. Please rate your overall experience with iClicker Cloud.
  - a. Very negative
  - b. Somewhat negative
  - c. Neutral
  - d. Somewhat positive
  - e. Very positive
6. What, if any, were the benefits of using iClicker Cloud?
7. What, if any, were the drawbacks or limitations of using iClicker Cloud?
8. How did iClicker Cloud compare to any prior polling or student response systems you've used before (e.g., iClicker Classic, Zoom polling)?
9. How confusing or easy was iClicker Cloud to use at the following points? (Your answers can be the same, if that best reflects your experience.)
  - a. In the beginning, iClicker Cloud was... Very confusing / More confusing than easy / Neither confusing nor easy / More easy than confusing / Very easy
  - b. Later on, iClicker Cloud was... Very confusing / More confusing than easy / Neither confusing nor easy / More easy than confusing / Very easy
10. Please rate how much you disagree or agree with the following statements.
  - a. iClicker Cloud's capabilities met my requirements for this course: Strongly disagree / Disagree / Agree / Strongly agree
  - b. iClicker Cloud worked consistently, with minimal technical disruptions: Strongly disagree / Disagree / Agree / Strongly agree

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- c. iClicker Cloud enabled me to achieve something not possible with other available technology: Strongly disagree / Disagree / Agree / Strongly agree
  - d. I would use iClicker Cloud in my future courses: Strongly disagree / Disagree / Agree / Strongly agree
  - e. I would recommend iClicker Cloud to my colleagues: Strongly disagree / Disagree / Agree / Strongly agree
11. If you have comments about any of your choices, please share.
  12. Please select your preference for UBC's future support of student response systems.
    - a. UBC should support a different student response system.
    - b. UBC should continue supporting iClicker Cloud.
    - c. UBC should support both iClicker Cloud and a different student response system.
  13. Is there any other feedback you'd like to provide about using iClicker Cloud?

## A.2) Student survey questions

1. What course did you use iClicker Cloud in?
2. Please rate your overall experience with iClicker Cloud in this course.
  - a. Very negative
  - b. Somewhat negative
  - c. Neutral
  - d. Somewhat positive
  - e. Very positive
3. What, if anything, did you like about using iClicker Cloud in this course?
4. What, if anything, did you NOT like about using iClicker Cloud in this course?
5. How confusing or easy was iClicker Cloud to use at the following points? (Your answers can be the same, if that best reflects your experience.)
  - a. In the beginning, iClicker Cloud was... Very confusing / More confusing than easy / Neither confusing nor easy / More easy than confusing / Very easy
  - b. Later on, iClicker Cloud was... Very confusing / More confusing than easy / Neither confusing nor easy / More easy than confusing / Very easy
6. Please rate how much you disagree or agree with the following.
  - a. iClicker Cloud was useful to my learning in this course: Strongly disagree / Disagree / Agree / Strongly agree
  - b. iClicker Cloud worked consistently, with minimal technical disruptions:

- c. I would recommend that iClicker Cloud be used in this course in the future: Strongly disagree / Disagree / Agree / Strongly agree
  - d. I would recommend that iClicker Cloud be used in other courses at UBC: Strongly disagree / Disagree / Agree / Strongly agree
7. If you have comments about any of your choices, please share below.
  8. Is there any other feedback you'd like to give about using iClicker Cloud?

## Appendix B - Additional Data

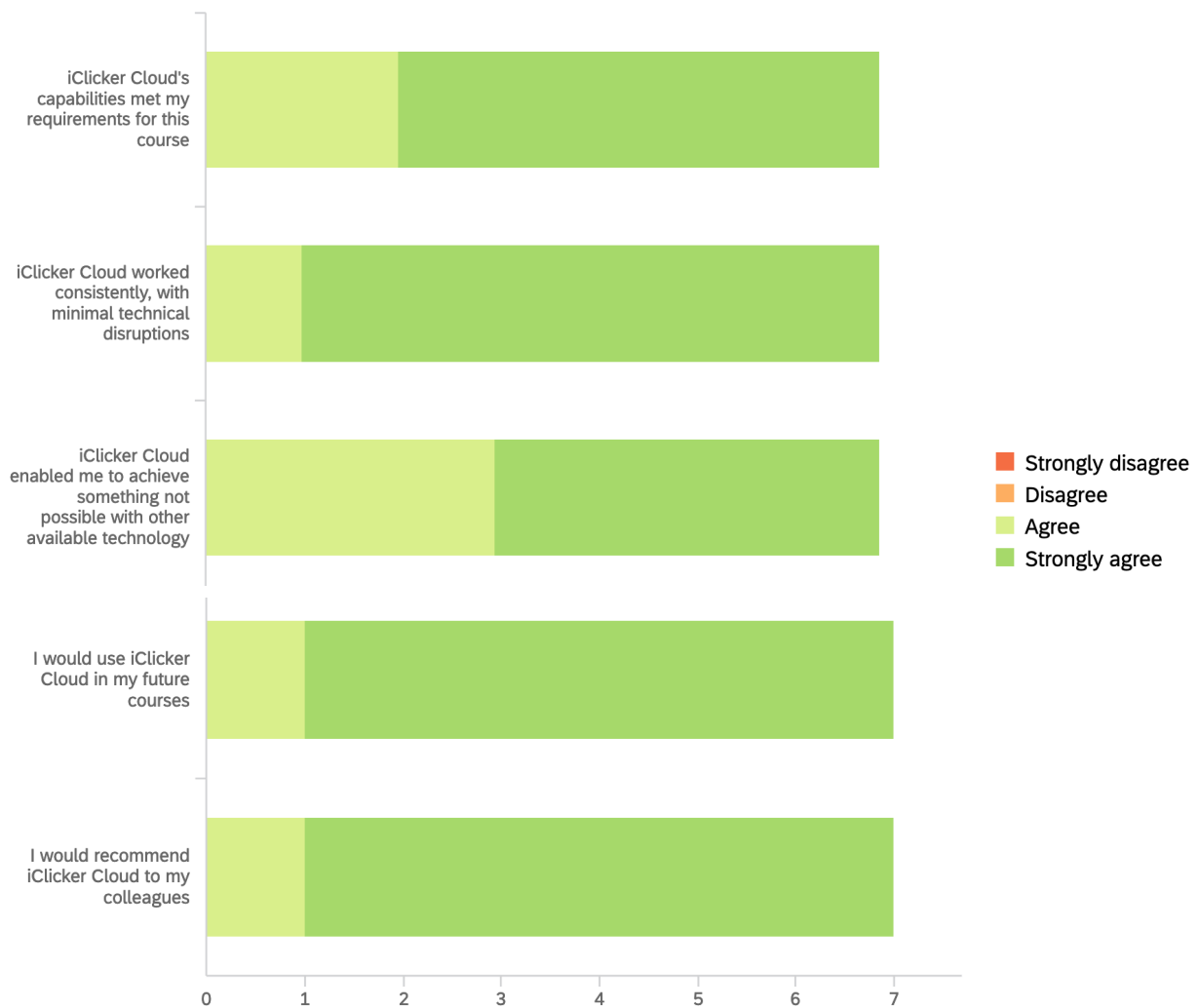


Chart 4: Instructor responses to iClicker Cloud statements (Appendix A.1, Q10)



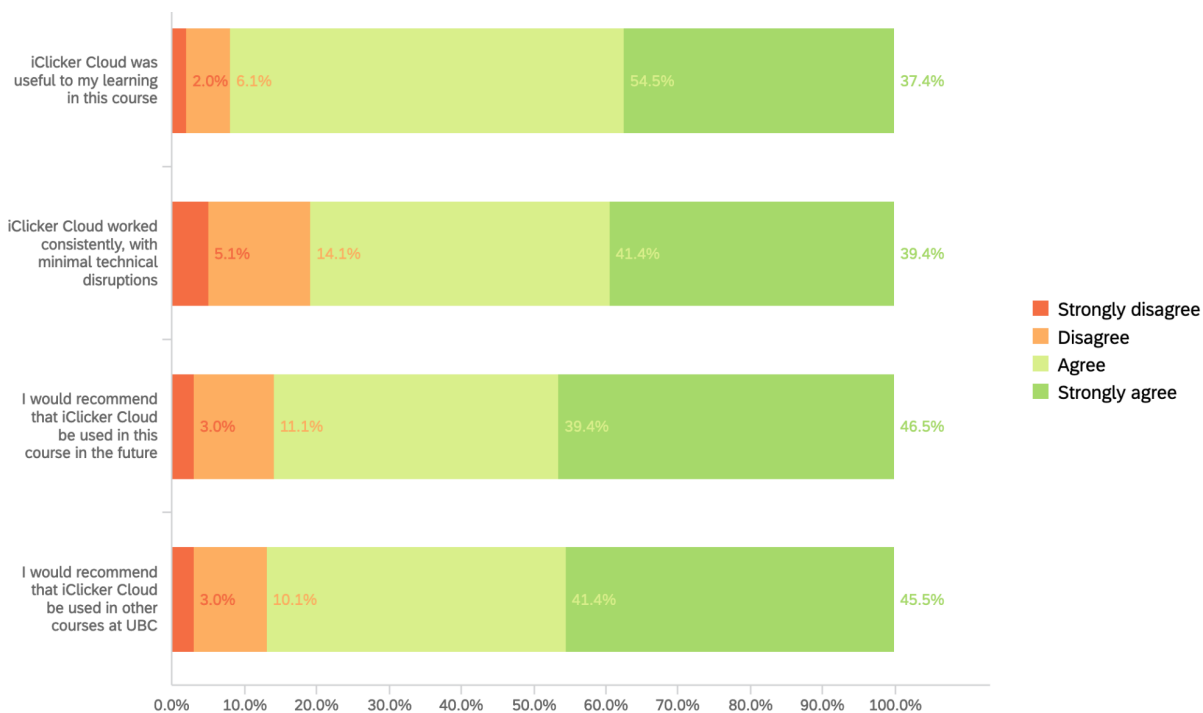


Chart 5: Student responses to iClicker Cloud statements (N=99, Appendix A.2, Q6)