

# **Click it to check it: An instructional design module to assist university faculty in using Socrative as a smart student response system for student assessment.**

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**Abstract:** Instructors in higher education are more challenged than ever before to keep up with the rapid growth of technology that is transforming the educational environment. The new era of technological advancement has brought new possibilities to enhance teaching and learning in ways that never existed a decade ago. Faculty face various time-consuming demands such as developing lesson plans, maintaining research agendas, creating student assessment materials, and learning new technologies to expand their teaching horizons. Receiving immediate feedback about instruction and providing instant feedback to students can be challenging tasks. Thus, the purpose of this instructional design project was to evaluate the effectiveness of a learning module in instructing university faculty on how to use Socrative as a smart student response system for student assessment. The module was developed using Weebly website creator, and was based on the ADDIE system approach, Vygotsky's social-constructivist theoretical framework, and self-directed learning theory. Professors and teaching assistants completed an online module that included a pre-survey, post-test, and post-survey. The study findings revealed a slight change in participants' attitudes and comfort regarding the use of new technologies for student assessment particularly Socrative. The learning module was created to support faculty in implementing new technologies for student assessment to facilitate student learning and instructor feedback. This research project not only aimed to equip university faculty with the necessary skills to use a 21st century technology tool such as Socrative, but also to meet the needs of digital natives.

## **Introduction**

The integration of technology in teaching and learning is no longer an option to meet the needs of digital natives, it is a necessity. The twenty first century's technological era has brought new creative ways to assist educators in transitioning from the traditional approach to teaching and learning to an enhanced technologically based learning environment. This increasing demand to integrate new technologies in education has led many instructors in secondary and higher education to implement new technological

applications to support their teaching practices including the student response systems (SRS) also known as clickers ( see figure 1 below).



**Figure 1:** Student response systems (SRS)/ Clickers.

Teaching in higher education, in particular, requires managing various time-consuming demands including instant feedback. Not only does immediate feedback support instructors in improving their instruction, but it also supports students' overall learning. Through instant feedback, faculty can adjust instruction and improve teaching. However, considering the time consuming demands faculty faces daily, receiving immediate feedback about instruction as well as providing instant feedback to students might be challenging tasks considering the number of students enrolled, the instructor's busy schedule, and the number of classes being taught by the instructor. Instant feedback is a critical component in the learning process as it supports the learner's progress and provides feedback to instructors as well (Bartsch & Murphy 2011).

To accommodate this increasing need to provide and receive immediate feedback, faculty in higher education is implementing student response systems (see figure 2 below).



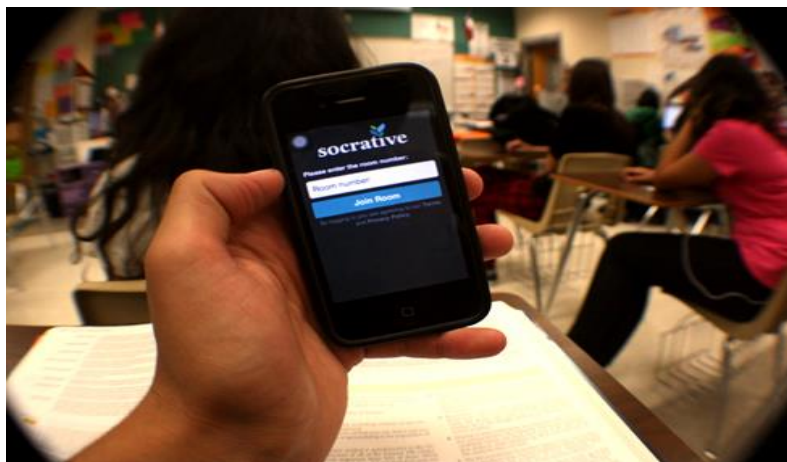
**Figure 2:** Clickers being used in a college amphitheater.

Student response systems (SRS) are an evolving in-class student polling technology that consists of wireless handheld devices and a receiver. This technology is designed to

assess students, provide instant feedback, and create an engaging and inviting learning environment that is meant to maximize active learning within the classroom, especially in large enrollment lectures. The student response systems provide faculty with the opportunity to receive immediate feedback from students so that they can appropriately adjust instructions. The Center for Instructional Support (CIS) at UH Manoa provides SRS equipment to faculty. However, these devices have gone mostly unused by the faculty in the recent years. It is believed that instructor's lack of familiarity with this technology, busy schedules, lack of training, the cost of the clickers, technical issues, and the functionality of physical clickers might be factors for those systems not being implemented.

According to Kay, Lesage and Knaack's (2010) research study, challenges of using clickers included the dependence on technology when students didn't bring their clicker device, decreased learning performance when response systems were used in summative assessment, and technology malfunction when the system didn't function properly. Besides the challenges of the implementation of clickers, faculty often has little time to attend face-to-face training sessions to familiarize themselves with implementing new technologies in teaching. Online training not only provides the opportunity for faculty to learn about new technologies independently, but also accommodates their busy schedule. The online module might be an effective alternative to face-to-face training and a convenient tool to support faculty in broadening their teaching abilities. Therefore, the purpose of this instructional design project was to develop and evaluate a web-based learning module for university faculty on how to learn to use Socrative as a smart student response system for student assessment at UH Manoa.

With the emergence of new technologies, new possibilities arise. Socrative, for instance, is a new revolutionary approach to student response systems. Unlike physical clickers, Socrative is a web-based response system that requires no software to load and no set up to be done. All that is needed is a device with a web browser and an internet connection. Socrative supports bring your own device (BYOD) theory, allows instructors to adjust their instruction based on student feedback, and provides instant feedback to students as well (Bingham, 2012). (See figure 3 below).



**Figure 3:** Socrative mobile app being used by a college student in class.

Faculty and students alike can use their own web-browsing devices (e.g. smartphones, iPods, iPads) to use the software. Socrative is seen as an effective replacement to physical response systems as it provides feedback in real time, both, in and out of the classroom.

## **Literature Review**

Physical response systems are believed to improve students' learning through increasing engagement and instructor feedback. In Bartsch & Murphy's 2011 research study, data were collected from quizzes during different 10-minute lectures, with and without the use of student response systems, to measure the effects of using clickers on students' engagement and performance. Participants who were given student response systems scored significantly higher than students who didn't use student response systems in a surprise quiz during lecture. Moreover, Patterson, Kilpatrick & Woebkenberg's 2010 study concluded that the immediate feedback of student response systems increased students' in-class involvement, engagement, and participation. The students identified the benefits of anonymity of responses and immediate feedback as facilitators to understanding complex concepts. Kenwright's 2009 article suggests that one of the best applications of using clickers appears to be the immediate feedback provided to the instructor and the students (Kenwright 2009).

Further research studies support SRS positive impacts on learning. Bachman and Bachman's 2011 study found student response systems to increase students' participation, attentiveness, performance, and the learning experience. Data were collected from students test scores, grades and surveys in an architecture class to measure the effects of SRS on students' learning. SRS were found to increase class participation, students' involvement, attendance, and eventually students' performance. Participants felt that student response systems were helpful in keeping them feeling mentally engaged, academically responsible and accountable.

While student response systems are believed to have positive impacts on learning, previous studies reported challenges that come with the implementation of this innovative technology. According to Kay, Lesage and Knaack's 2010 research study, challenges of using clickers included the dependence on technology when students didn't bring their clicker device, decreased learning performance when response systems were used in summative assessment, and technology malfunction when the system didn't function properly (Kay, Lesage & Knaack 2010). In another research study conducted to examine the effects of student response systems on students' engagement and performance, reports included students' frustration when technological problems arose with the use of student response systems (Patterson, Kilpatrick & Woebkenberg 2010).

Despite the challenges that may come with the implementation of SRS, other research studies reviewed have reported no impact on learning, engagement or performance as a result of using student response systems (SRS). For instance, Blood's 2012 study, which was conducted to investigate the effects of student response system use on short-term, intermediate, and long-term retention of facts during lecture style instruction in an undergraduate teacher preparation course, showed no association between student

response systems and improved engagement in class sessions (Blood 2012). Student response systems did not improve learning outcomes as measured by objective testing in Patterson, Kilpatrick & Woebkenberg’s 2010 research study. While these latter two studies may call into question the positive impact of student response systems on teaching and learning, the majority of recent studies have reported an increase in students’ engagement, performance and learning outcomes with the use of student response systems.

### Project Design

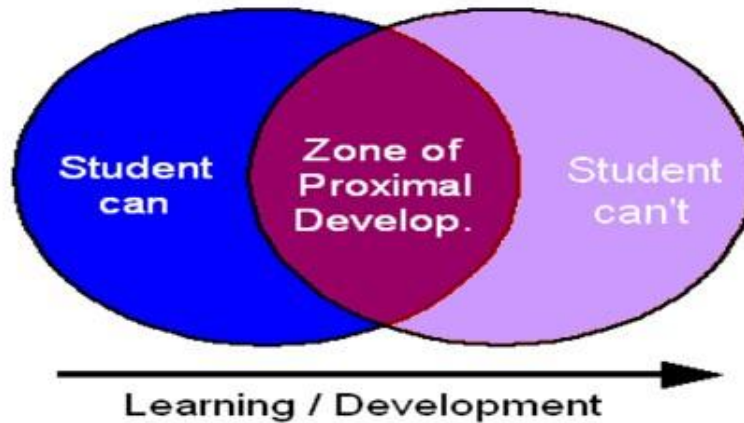
To support the university faculty members in implementing new technologies to assess students, a comprehensive asynchronous online learning module was developed using theories and suggestions from literature. The learning module was created by Weebly and based on the ADDIE systems approach (Branch 2009). An instructional analysis was conducted and instructional goals and performance objectives were developed (table 1).

**Table 1:** Instructional goals and performance objectives.

The instructional goals	Performance objectives
<ol style="list-style-type: none"> <li>1. University faculty will be able to use a 2.0 web tool to assess students’ performance.</li> <li>2. University faculty will be able to use Socrative platform to provide &amp; receive immediate feedback.</li> <li>3. University faculty will be able to integrate technology in teaching and learning.</li> </ol>	<ol style="list-style-type: none"> <li>1. Register, Create, and log in to Socrative account.</li> <li>2. Create and edit quizzes using Socrative web tool.</li> <li>3. Perform data analysis through viewing live results spreadsheet and analyzing student responses.</li> <li>4. Perform data transfer via google drive, email, and download.</li> <li>5. Perform other Socrative tasks such as managing quizzes and performing exit ticket and space race activities.</li> <li>6. Provide students with instant feedback via live results report.</li> </ol>

The learning module was developed using Vygotsky’s social-constructivist theoretical framework to support building knowledge and skills through social interaction within a supportive group or community (Lefoe, Olney, Wright, & Herrington 2009). (See figure 4 below).

## Vygotsky's social constructivist theory



**Figure 4:** Vygotsky's social constructivist theory/ Zone of proximal development.

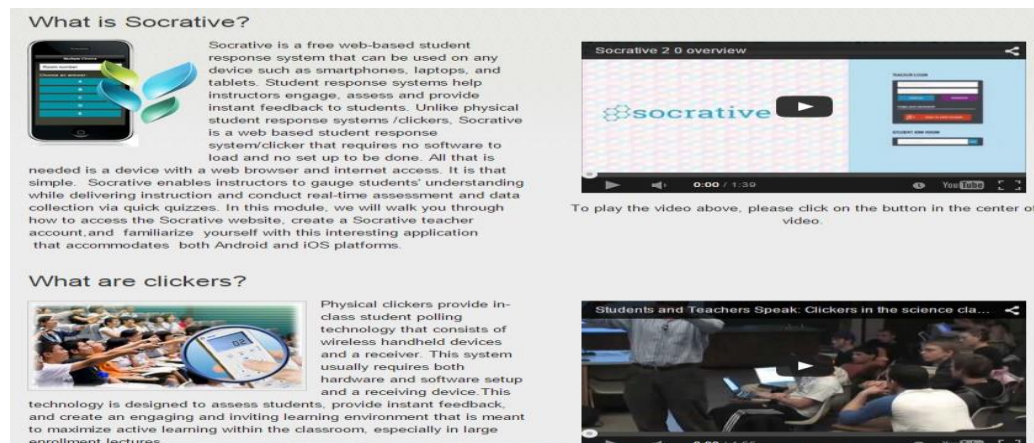
The second lesson in the module incorporates Vygotsky's theory as participants practiced with a partner implementing the Socrative quiz they created. Faculty took the role of an instructor or a student when practicing the Socrative quizzes. The learning module included three lessons to assist faculty in using Socrative for student assessment as shown in (figure 5 below). The first lesson provided information on how to register, create, and log in to the Socrative teacher account. The second lesson included information on how to create and edit quizzes. The third lesson included information on how to analyze data, generate reports and transfer results online.



**Figure 5:** The learning module lessons.

The self-directed learning theory was taken into account when developing the learning module to enable adult learners to take control of their own learning. The learning module was also designed to include space repetition theory to allow enough time for the information acquired to move from short-term to long-term memory (Forni & Holcombe 2013). Faculty were given a one week period to complete the learning module.

To create effective e-learning modules that are fully accessible to all users, the instructional learning module accommodated the needs of people with disabilities (Thompson 2013). For instance, one strategy was to describe videos by creating a script that included brief descriptions of important visual content for people unable to see the videos. Moreover, the instructional learning module accommodated different learning styles by including multiple means of representation including text, images and videos as well as including small chunks of information in three lessons rather than big training modules (Horton 2012) as noted in (figure 6 below).



**Figure 6:** The use of multiple means of representation.

Light color background theme with dark text colors was used for instructional effectiveness (Khlaisang 2010). These suggestions from the literature were considered when developing the Socrative learning module. To incorporate these theories into the learning module, different software were used as design tools in the development of the instructional module. As stated above, the learning module was created using Weebly, a website creator. Photofiltre software, for instance, was used to adjust the module screenshots and produce new images while Imovie software was used to design some of the video tutorials used in the learning module. Other video tutorials were linked to the learning module via Youtube. The learning module surveys and tests were initially designed in the first design phase via Google docs, however, they were later excluded due to Weebly limited free pack options. The Weebly platform was used to design and embed the learning module tests and surveys.

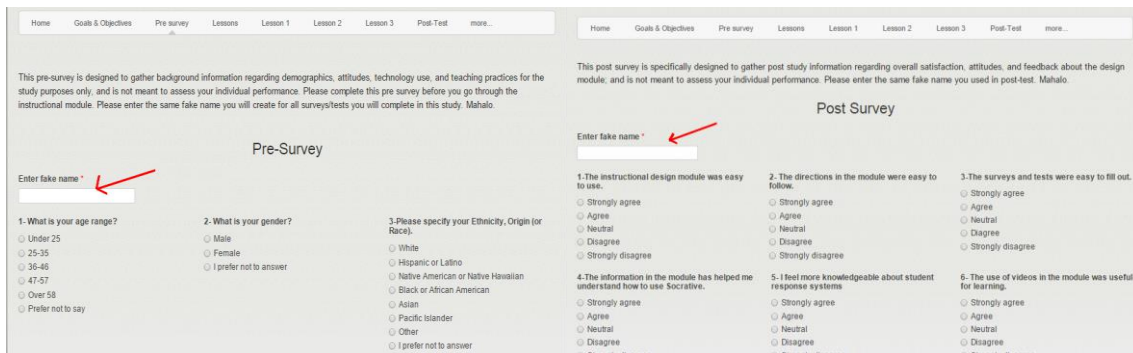
## Methodology

The recruitment process involved reaching out to the participants in person and online. The online recruitment included identifying the university faculty through searching the UH online database. The faculty was contacted via email with the recruitment flyer attached (See Appendix A) that contained the link to the online module. In-person recruitment included posting the recruitment flyer on the announcement boards and answering questions about the project to prospective participants. Key benefits of this research study were explained to interested faculty and an overview of the study was provided. The initial recruitment targeted the English Department faculty at UH Manoa

and was later extended to other departments within the UH Manoa community. A total number of eighteen participants participated in this research study, yet, only twelve of them completed the learning module surveys and tests. The participants included professors, lecturers, and teaching assistants who teach at undergraduate and graduate levels in various departments at UH Manoa. Participants ranged in professional ranking from newly hired to tenured faculty, varied in age from 26 to 70 years, and included both males and females. Participants also varied in terms of familiarity with technology and its use in the classroom.

Interested faculty completed the learning module asynchronously and independently. Minimal assistance was provided in-person to two participants who experienced technical issues. Participation in this study involved four tasks; completing a pre-survey, reviewing a web-based instructional module, and completing a post-test and a post-survey. After accessing the online module and indicating consent (See Appendix B), participants completed the pre-survey that included fourteen questions regarding demographics, technology use, comfort, attitudes and present teaching practices (See Appendix C). Participants then reviewed the learning module (website) that consisted of three lessons. The first lesson provided information on how to register, create, and log in to the Socrative teacher account. The second lesson included information on how to create and edit quizzes. The third lesson included information on how to analyze data, generate reports and transfer results online. Finally, participants completed a post-test that included sixteen questions about post knowledge (See Appendix D) and a post survey that included eighteen questions to gather information regarding satisfaction, comfort, attitudes, and feedback about module design (See Appendix E).

A fake name was used for matching the participants' pre- and post-information. Participants were instructed to use the same fake name on each pre- and post-survey and tests completed for data matching purposes. Participants were not identified directly or indirectly and didn't use any identifying personal information in the surveys or test responses. No one, not even the researcher, had access to identify the participants' personal information. The surveys and tests were completely anonymous. Participants only needed a fake username to complete the surveys and tests as shown in figure 7. Instructions on how to create a fake username were provided in the online consent form.



**Figure 7:** The pre- and post-surveys fake name.

Pre- and post-data were collected via online surveys and tests. After the participants completed the module, pre- and post-data were received via email. Data from surveys and tests were analyzed and compared using the Microsoft excel. The initial data analysis included decoding the participants responses based on the type of scale used in each question using Microsoft Excel. For instance, Likert agreement scale was coded five for strongly agree to one for strongly disagree. Each participant's response was initiated a code from 5 to 1 (See Appendix F). An overall mean average score was developed based on pre- and post-responses for each construct. Pre- and post-data were later compared based on participant comfort, likelihood, and age range. Graphic charts and other visuals were used to display results.

Participants took approximately one to two hours to go through the module and complete the surveys and tests. However, participants were given a one-week period to complete the study based on the space repetition theory. The questions in the module included multiple choice, yes and no, open ended, and various Likert-type questions. The Likert-type responses were based on agreement, likelihood, and comfort scales. Data from pre- and post-survey responses regarding comfort and attitudes were compared to measure faculty's overall comfort using technology and their attitudes towards using new technologies for student assessment particularly Socrative 2.0. Data from pre- and post-survey responses were also used to analyze faculty' comfort using technology and likelihood to use Socrative based on the participants' age range. Data regarding preference in learning new information were also assessed (See Appendix G).

The purpose of comparing pre- and post-attitude responses was to measure faculty's willingness to implement new technologies in teaching and learning after completing the module and their attitudes towards the current assessment tools used. Data were compared and analyzed to evaluate the effectiveness of the learning module in changing faculty's attitudes towards using new technologies in teaching. The pre- and post-surveys and tests were based on the performance objectives and what learners needed to know to successfully implement Socrative. Data from post survey responses regarding satisfaction, quality of information, engagement and module ease of use and design were analyzed to examine the faculty overall satisfaction regarding the module. Other items in the pre- and post-surveys such as demographic information, teaching practices and faculty learning preferences were analyzed and added to the results and discussion sections.

## **Results**

A total number of eighteen participants reviewed the instructional learning module content and completed the pre-survey, yet, only twelve of them completed the study including the post-test and post-survey. Only the data from the twelve who completed the module are included in the analysis. The participants included professors, lecturers, and teaching assistants who teach at undergraduate and graduate levels in various departments at UH Manoa. Participants ranged in professional ranking from newly hired to tenured faculty, varied in age from 26 to 70 years, and included both males and females. Participants also varied in terms of familiarity with technology and its use in the

classroom. Table 2 shows the age range of the participants, their educational level, computer literacy and gender.

**Table 2:** Participants age, gender, educational level, and computer literacy.

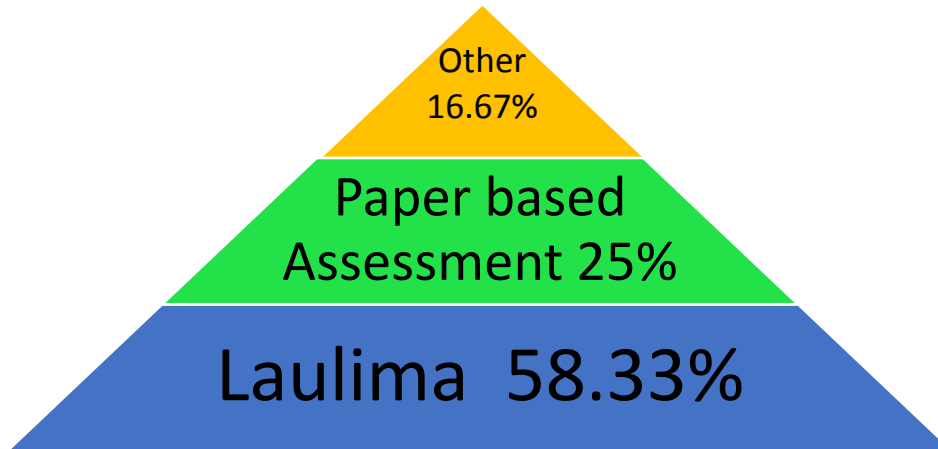
Characteristic	Number	Percentage
<b>Age</b>		
25-35	2	16.67%
36-46	1	8.33%
47-57	6	50%
58+	3	25%
<b>Gender</b>		
Male	7	58.34%
Female	5	41.66%
<b>Educational Level</b>		
Bachelor's degree	1	8.34%
Master's degree	3	25%
PhD	8	66.66%
<b>Computer Literacy</b>		
Average	9	75%
Expert	3	25%

As noted above, a total of twelve participants completed the research study. Seven of them were males (58.3%) and five were females (41.6%). Half of the participants (50%) were in the 47 to 57 age range with (25%) of senior faculty over the age of 58 years old. The other (25%) of the participating faculty were in the 25 to 46 years old age range. Regarding the participants race, four participants were White, three native Hawaiians, three Asians, and two of the participants preferred not to answer (See Appendix H).

The participants' computer literacy was within the average range. The majority of the participants (75%) reported an average use of computers that included sending emails, using software programs and creating Word/PowerPoint documents. The rest of the participants (25%) reported that they possessed advanced computer skills and considered themselves computer experts. The type of mobile devices used by faculty were diverse. Three participants only used laptops and smartphones, three other participants used both laptop and desktop, two participants only used a laptop, while two other participants used a laptop, desktop, and smartphone. Only one participant reported a current use of smartphone and desktop, while another participant used a combination of mobile devices including laptop, smartphone, tablet and desktop for various purposes (See Appendix I). All of the participants (100%) held college degrees, which was expected based on the nature of this research study. An overwhelming percent (66.6%) of the participating faculty possessed PhD degrees with only (25%) of them holding Masters' degrees, and only (8.3%) a Bachelor's degree.

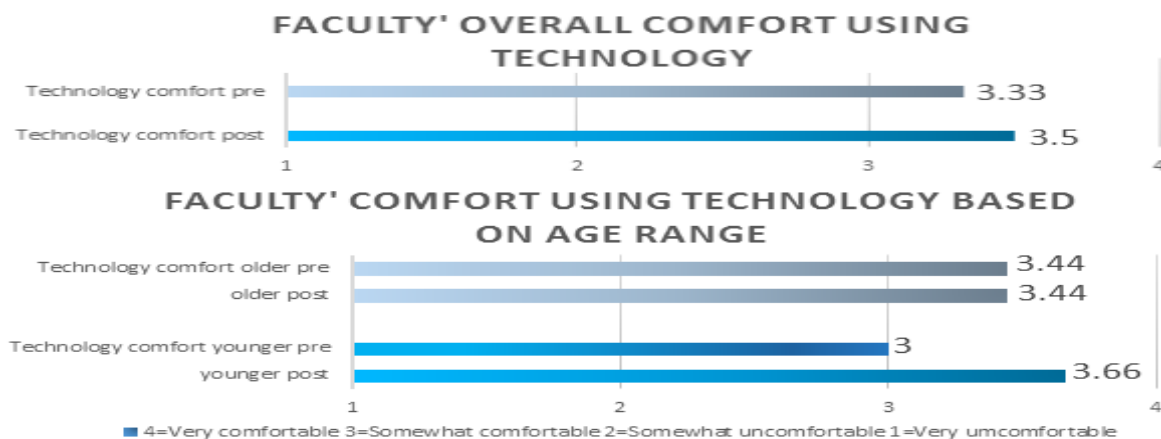
In regards to the current technology tools used by faculty, Lulima is the most used technology tool at UH Manoa to create assessment materials to assess students as stated in (figure 8 below). (58.3%) of the participants reported that they use Lulima to create tests and surveys for student assessment. Faculty can create online tests, quizzes and

surveys for their students through Laulima; which is also used to provide feedback to students through grades and additional comments. About 25% of the participants reported that they don't use any technologies for student assessment and that they prefer the paper based assessment, whereas, a few (16.7%) participants used other assessment tools such as clickers and ProctorU.



**Figure 8:** Current assessment tools used by faculty.

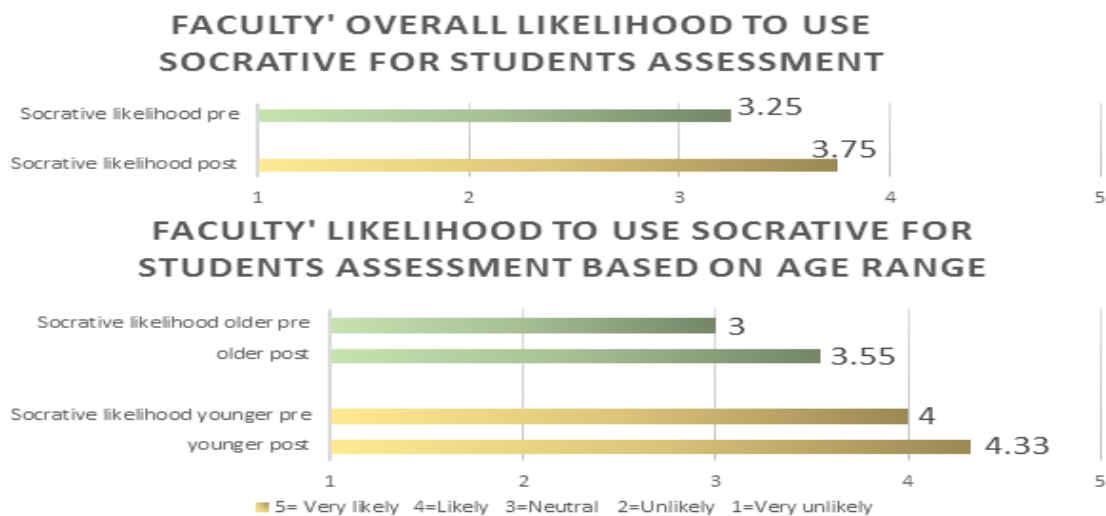
When participants were asked how long they have been teaching in college, six of them reported that they have been teaching in college more than 10 years, five participants have been teaching in college between 1 to 5 years and only one participant reported that their college teaching experience ranged from 6 to 9 years (See Appendix J). Most of the participants used technology often in teaching. When participants were asked to rate their level of experience using student response systems, they reported that they had heard of clickers before but they don't actually use it. Data from pre- and post-survey responses were compared to measure faculty's overall comfort using technology and their attitudes towards using new technologies for student's assessment particularly Socrative 2.0. Data from pre- and post-survey responses were also analyzed based on the participants' age range. Figure 9 below shows a comparison of faculty's comfort level based on age range with their overall comfort level in using technology in pre- and post- surveys.



**Figure 9:** Faculty's overall comfort level compared to their age range.

The participants were asked to rate their comfort level using technology in teaching using the 4 point Likert scale in pre-and post-surveys. Whereas the 5 point Likert scale was used to measure faculty likelihood to use Socrative for students' assessment. The initial results reported a slight increase in mean scores (3.3 to 3.5) in faculty comfort in using technology in teaching as shown above in figure 9. However, when pre- and post-data were analyzed based on the participants age range, the findings showed no significant improvement in older faculty's comfort level, which remained the same throughout the study (mean=3.4) compared to younger faculty comfort level that improved after completing the study. Younger faculty provided a rating of comfortable (mean=3) in pre-survey to very comfortable (mean=3.6) in post-survey as noted in figure 9 above.

As stated above, data from pre- and post-survey responses were analyzed to assess the faculty's overall likelihood to use Socrative for student assessment. The pre- and post-survey responses were also analyzed based on the participants' age range in regards to their likelihood to use Socrative. Figure 10 below shows the faculty's overall likelihood to use Socrative for student assessment compared to their likelihood level to use Socrative based on their age range.

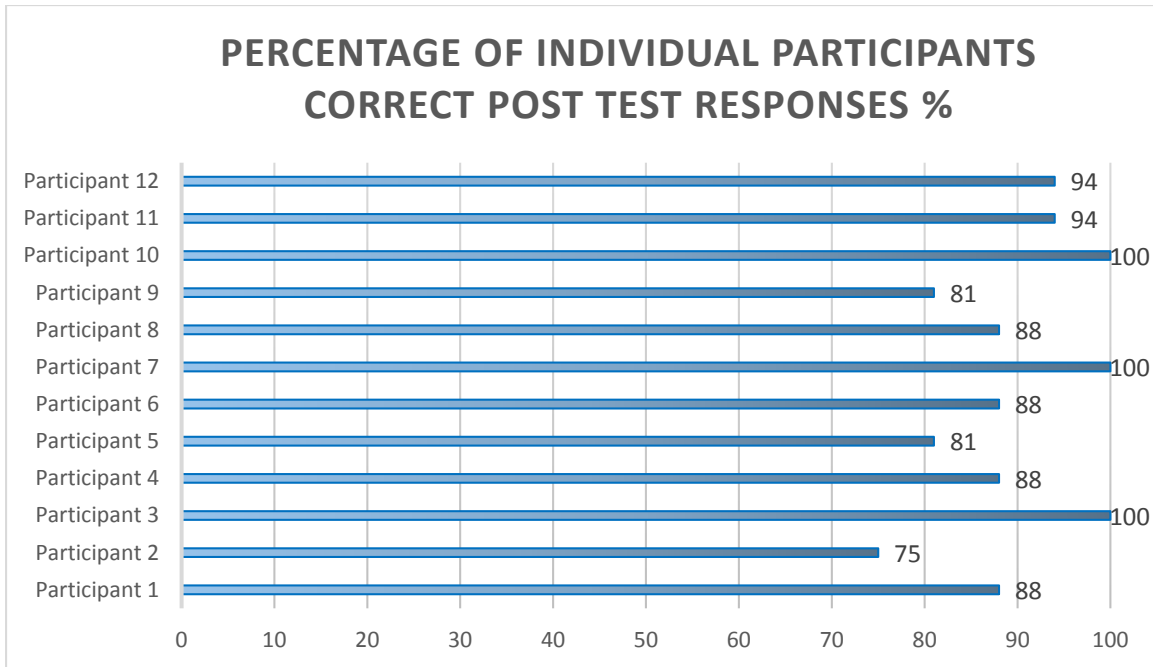


**Figure 10:** Faculty's overall likelihood to use Socrative compared to their age range.

The participants were asked to rate their likelihood to use Socrative for students' assessment using the 5 point Likert scale in pre- and post-surveys questions. The initial results reported a slight increase from neutral (3.2) to likely (3.7) in regards to overall faculty' likelihood to use Socrative for students' assessment as shown above in figure 10. However, when pre- and post-data were analyzed based on the participants age range, the findings showed a significant difference in faculty likelihood and attitudes towards using Socrative as a new technology for student assessment. The findings revealed that younger faculty was more willing to use Socrative (mean of 4) compared to older faculty with a neutral rating (3) in the beginning of the study. Nevertheless, there was a slight improvement in older faculty likelihood to use Socrative after completing the study from

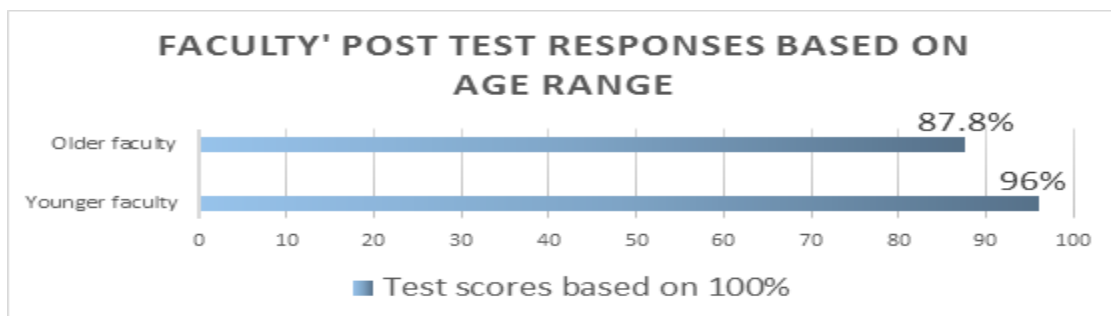
neutral (3) to likely (3.5). The younger faculty likelihood to use Socrative slightly improved (from 4 to 4.3) after completing the study as noted in (figure 10 above).

Figure 11 shows the post test scores of each individual participant. The overall average participants score in the post-test was (89.8% out of 100%). The initial findings revealed that all participants answered 9 questions correctly out of 16 questions total in the post test. Yet, more than half of the participants answered question 13 incorrectly with low average score of 49%.



**Figure 11:** Individual participants' post-test responses.

The initial post-test mean scores showed that the participants received high post-test scores overall; however, when post-test data were analyzed based on the participants' age range, the findings showed a difference in faculty's post-test responses. Younger faculty scored higher with an average test score of (96% out of 100%) compared to older faculty' scores that averaged (87.8% out of 100%) as shown in (figure 12 below).



**Figure 12:** The percentages of faculty's post-test responses based on age range.

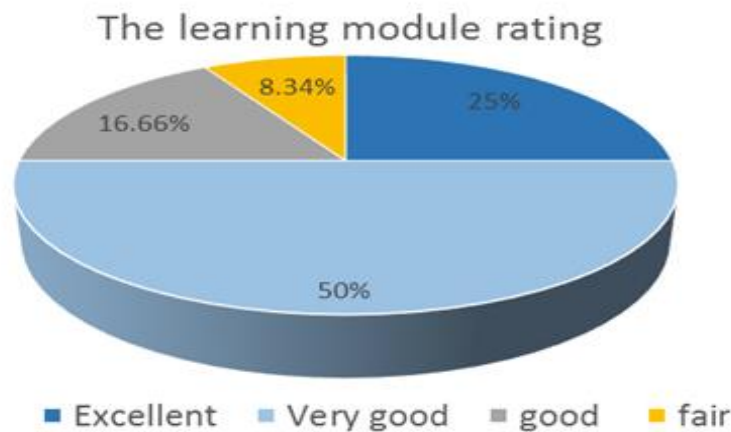
The initial results regarding the module constructs show that most of the participants agreed that the learning module was easy to use, informative, and engaging as noted in table 3 below. The learning quality construct rating was higher with an average of (4.2) agree compared to the ease of use construct mean (4.1). The participants reported that the learning module provided quality information that helped them learn about Socrative. Even though more than half of the participants 66.6% reported that the learning module was engaging, the engagement construct was rated lower than the other constructs with an average rating of (3.7).

**Table 3:** The participants overall rating of the module constructs.

Constructs/Likert Scale	Rating	Average
<b>Ease of Use</b>	<b>4.11</b>	
Module was easy to use		4.00
Directions are easy to follow		3.83
Surveys/tests are easy to fill out		4.50
<b>Learning Quality</b>	<b>4.24</b>	
Module has helped me understand how to use Socrative		4.16
I feel more knowledgeable about student response systems		4.33
The use of videos in the module was useful for learning.		4.25
<b>Engagement</b>	<b>3.71</b>	
The length of each section in the module was manageable.		3.66
The use of technology made learning more interesting		3.83
I felt that the learning module was engaging.		3.66

5= Strongly agree 4=Agree 3=Neutral 2=Disagree 1=strongly disagree

Overall, most of the participants were satisfied with the learning module as shown on figure 13 below. Half of the participants 50% reported that the learning module was very good, 25% indicated that it was excellent, 16.6% reported that it was good, and only 8.3% of the participants rated the learning module as fair.



**Figure 13:** The learning module rating.

## **Discussion**

Based on this research study's findings, younger faculty scored higher, were more comfortable and more willing to use new technologies for assessment compared to older faculty. Younger faculty high post-test scores and overall performance throughout this research study supports these findings. It is believed that younger faculty openness to use new technologies, their comfort using technology, and their familiarity with online learning might have had a positive impact on their performance.

Although the older faculty technology comfort didn't change throughout the research project as shown in pre- and post-data comparison, some of the older faculty members were willing to incorporate and integrate Socrative in student assessment.

It is believed that older faculty comfort using technology and willingness to use Socrative might have been influenced by the training delivery mode and faculty learning styles. It was apparent that older faculty had different learning preferences. Some older faculty preferred face-to-face training and suggested setting up a workshop to learn about Socrative; other older faculty, however, reported an interest in synchronous online learning. It is possible that the asynchronous delivery method of this research project might have affected the older faculty comfort and attitudes since the learning module was completely asynchronous. Some of the comments received from older faculty support this argument.

## **Conclusion**

Overall, the project was primarily geared towards introducing new assessment technologies to faculty to enhance teaching and learning through immediate feedback. This project was also sought to support faculty in transitioning their teaching approach to a 21st century technologically based learning environment. Based on the research findings, the learning module was not only effective in improving faculty comfort using technology and willingness to use new technologies for assessment, but also effective in instructing faculty on how to use Socrative based on test scores. Yet, future research studies are needed to examine the impacts of training delivery modes/types on faculty comfort, attitudes, and likelihood to implement new technologies in teaching and learning. This project was meant to provide training to all faculty members within the UH community on how to integrate emerging technologies in teaching. This learning module provided faculty with a convenient learning opportunity to not only embrace a new era of technologies to enhance teaching and learning, but also to broaden their horizons to meet the needs of digital natives.

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## Appendix A Recruitment Flyer

The University of Hawaii at Manoa is conducting a research study



*Using Socrative as a smart response system to assist university faculty in student assessment*

*Are you a professor or a teaching assistant in the English department at UH Manoa who is eager to use technology to assess students*

If the answer is... **YES**

Mr. Youssef Hadiri would like to invite you to participate in a research study

**-The purpose** of this study is to develop and evaluate a web-based training module for university faculty to learn how to use Socrative as a smart response system for student assessment

The study will take place at The University of Hawaii at Manoa' Sinclair library--  
The results of the study are confidential and will not be available to the public

**To learn more about the study**

**Please contact Youssef Hadiri at** [hadiri@hawaii.edu](mailto:hadiri@hawaii.edu)

**Module link:** <http://socrative-for-higher-education.weebly.com>

## **Appendix B**

### **Consent to Participate in the Research Study**

#### **Consent to participate in a research project**

##### **Using Socrative as a smart student response system for student assessment**

My name is Youssef Hadiri and I am a graduate student in the Department of Learning Design and Technology at the University of Hawai'i at Manoa. As a partial fulfillment of my Master's program, I am conducting a research project.

The purpose of this research project is to develop and evaluate a web-based learning module for university faculty to learn how to use Socrative as a smart student response system for student assessment in the English department at UH Manoa. A student response system is a wireless system that consists of handheld devices known as clickers and a receiver that electronically stores students' responses. The instructors use the student response system to evaluate students' understanding and provide them with instant feedback. Unlike the physical student response system; Socrative is a 2.0 web-based smart student response system that requires no software to load and no set up to be done. All that is needed is a device with a web browser and internet connection. The ultimate goal of this research project is to help university faculty use a 21<sup>st</sup> century technology tool to assess students and provide instant feedback with the intent to improve the learning process.

Participation in this project is voluntary. You have been asked to participate in this study because you are at least 18 years old, you are a university faculty member or a teaching assistant at the English department at UH Mānoa, and you own a laptop or an iPhone. This project requires you to have access to a laptop or an iPhone as it will be used to access the learning module materials online. The study is to take approximately two hours during a one-week period.

#### **Project Description – Activities and Time Commitment**

Participation in this study will involve four tasks; completing a pre survey, reviewing an instructional module on a website, and completing a post test and a post survey. Participants will start with the pre survey that includes questions regarding demographics, attitudes and present practices. Participants will then go through an online learning module (website) that consists of three sections. The first section provides information on how to register, create, and log in to the Socrative teacher account. The second section includes information on how to create and edit quizzes. The third section includes information on how to analyze data, generate reports and transfer results online. Finally, participants will complete a post-test and a post survey to complete the study.

Socrative is a free 2.0 web tool. Both, you and your students can use it anytime anywhere. The online learning module will take about two hours to complete. You may use the module as a guide to help you learn more about this 2.0 web tool. At the end of the study, you will be asked to complete a post-test and survey that includes questions about your overall satisfaction with the

module, post knowledge about Socrative, and feedback on the module design. You will be asked to complete the post-test and survey at the end of the week. Information regarding deadlines will be posted in the module.

**Benefits and Risks:**

The benefits of participating in this research project include learning how to use an innovative 2.0 web-based technology in your classroom, and how to visualize your students' understanding through viewing quiz results in real time. There is a minimal risk to you in participating in this project. The surveys and tests in the module are not meant to assess your individual performance, but to evaluate the effectiveness of the instructional module (website).

**Voluntary Participation:**

Participation in this research study is voluntary. As a participant, you have full authority to discontinue your participation in this project at any time, by notifying the researcher. There will be no penalty or loss of benefits. If you do agree to participate, you can stop at any time. If you feel uncomfortable answering any of the questions on the tests and surveys, you may skip those items. Please read the information in this consent form thoroughly before taking part in the research. You may print a copy of this consent form for your records and future reference.

**Confidentiality and Privacy:**

Your participation will be completely anonymous. When you visit the website, please review the online consent and proceed to the next page of the module by clicking the submit button at the bottom of the home page. After you click submit, you will be prompted to create and use a fake name/username for the pre and post surveys and tests, for matching purposes only. Please do not include any identifying personal information in your surveys/test responses. You will use a pseudonym (fake name) when completing the surveys and tests. You can create your fake username using your favorite computer brand combined with the name of your favorite pet. For example, HP for favorite computer brand and Lexi for pet name. Therefore, the pseudonym would be HPLexi. You would use the **same fake name** on each pre and post survey and test you complete. Using the fake name ensures the anonymity of your responses. No one, not even the researcher, will be able to link your responses to any identifying information.

**Right to Ask Questions:**

Please contact Youssef Hadiri (Researcher) at [hadiri@hawaii.edu](mailto:hadiri@hawaii.edu) or at (808) 485-9995 with questions or concerns about this study. For any other questions or concerns you may have, please contact my Advisor, Dr. Christine Irvine at [sorens@hawaii.edu](mailto:sorens@hawaii.edu) or at (808) 956-3910 . If you have questions about your rights as a research participant, you may contact the UH IRB Human Studies Program at (808) 956-5007 or [uhirb@hawaii.edu](mailto:uhirb@hawaii.edu).

## Appendix C

### Research Study Instruments/Pre-survey

#### Pre-Survey

Enter fake name \*

1- What is your age range?

- Under 25
- 25-35
- 36-48
- 47-57
- Over 58
- Prefer not to say

2- What is your gender?

- Male
- Female
- I prefer not to answer

3- Please specify your Ethnicity, Origin (or Race).

- White
- Hispanic or Latino
- Native American or Native Hawaiian
- Black or African American
- Asian
- Pacific Islander
- Other
- I prefer not to answer

4- What is your highest education level?

- Bachelors
- Masters
- Phd
- Other

5- How long have you been teaching at the college level?

- Less than 1 year
- 1-5 years
- 6-9 years
- More than 10 years

6- Please rate your level of experience using student response system/Clickers.

- Never heard of it
- I heard of it but I don't use it
- I use it sometimes
- I regularly use it

7- Which of the following do you currently use? (select all that apply)

- Laptop
- Smartphone
- Tablet
- Desktop computer

8- How computer literate you consider yourself?

- Novice- I don't know how to use a computer
- Beginner - I can log in to my account and send email
- Average - I can create word/PowerPoint documents, send emails, use software
- Expert - computer savvy

9- How often do you use technology in your classroom?

- Very often
- Often
- Seldom
- Never

10- Which of the following technologies you currently use to assess your students? (check all that apply)

- Lulima
- ProctorU
- Socrative
- Physical clickers
- Other
- I do not use any technologies for assessment

11- How comfortable are you using technology in the classroom?

- Very comfortable
- Somewhat comfortable
- Somewhat uncomfortable
- Very uncomfortable

12- How likely would you use Socrative in your classroom?

- Very likely
- Likely
- Neutral
- Unlikely
- Very unlikely

13- I prefer to learn new information in

- Face-to-face group settings
- Online
- One-on-one tutoring
- Not sure

14- Have you attended a technology-based training program, either online or face to face in the last year?

- Never
- Only once
- 3 to 5 times
- More than 5 times

## Appendix D Research Study Instruments/Post-test

### Post Test

Enter fake name here \*

1- A student response system (SRS) is ...

- A wireless response system
- A handheld device/clicker
- A receiver that electronically gathers student responses
- All of the above

4- To sign in to Socrative teacher account, instructors need

- Phone number and a password
- Username and a password
- Email address and a password
- Only an email address

7-Can a group of students participate in a Socrative quiz by taking turns using only one mobile device?

- Yes
- No

10- Can you create a Socrative quiz using both true/false and multiple choice?

- Yes
- No

13- To provide DETAILED instant feedback to the entire class right after each Socrative quiz, instructors need to

- View live results report data on Google drive
- Download and view live results report data on Excel sheet
- Email the report data to the teacher account.
- Click on view chart option

16-The overall purpose of Socrative is to

- Save instructors time when assessing students
- Assist instructors in modifying instruction through instant feedback
- Support students learning through instant feedback
- All of the above

2- Socrative is ...

- A wireless handheld device/clicker
- A web-based student response system
- An operating system software
- A response receiver

5- You can sign in to Socrative account using your Google account.

- True
- False

8-What type of quizzes can teachers create using Socrative?

- Only multiple choice
- Only open ended
- Multiple choice and open ended
- True/false and multiple choice
- All of the above

11- Can teachers check how many students responded while the quiz is still on progress?

- Yes
- No

14-Instructors can only email and download the live reports data?

- True
- False

3-To create a Socrative account, teachers will need

- Phone number and email address
- Full name and email address
- Full name and home Address
- Email and home address

6- What type of information do students need to participate in a Socrative quiz?

- Student account log in information
- Teacher account log in information
- Password
- Room number

9- Can teachers edit quizzes once they are saved?

- Yes
- No

12- Socrative live results can show up on any teacher device (ex: computer, iPhone, iPad, laptop)

- True
- False

15-If an instructor decides to view the report later, how can s/he retrieve that report?

# Appendix E

## Research Study Instruments/Post-survey

### Post Survey

Enter fake name \*

1-The instructional design module was easy to use.

- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly disagree

2- The directions in the module were easy to follow.

- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly disagree

3-The surveys and tests were easy to fill out.

- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly disagree

4-The information in the module has helped me understand how to use Socrative.

- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly disagree

5- I feel more knowledgeable about student response systems

- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly disagree

6- The use of videos in the module was useful for learning.

- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly disagree

7- How would you rate the instructional content of the module.

- Excellent
- Very good
- Good
- Fair
- Poor

8- The length of each section in the module was manageable.

- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly disagree

9- The use of technology made learning more interesting

- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly disagree

10- I felt that the learning module was engaging.

- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly disagree

11-Which of the following technologies will you use to assess your students? (Check all that apply)

- Lulima
- ProctorU
- Socrative
- Physical clickers
- I will not use any technologies for assessment
- Other

12-After completing the module, how comfortable are you using technology in the classroom?

- Very comfortable
- Somewhat comfortable
- Somewhat uncomfortable
- Very uncomfortable

13-After completing the module, how likely would you use Socrative in your classroom.

- Definitely
- Probably
- Neutral
- Probably not
- Definitely not

14- After completing the module, what are your impressions regarding learning new information online?

15- The design of the module was appealing to me.

- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly disagree

16- How would you rate the web-based learning module?

- Excellent
- Very good
- Good
- Fair
- Poor

17-What did you find particularly useful about the module?

18-What did you find particularly not useful about the module?

Any comments for improvements/overall experience

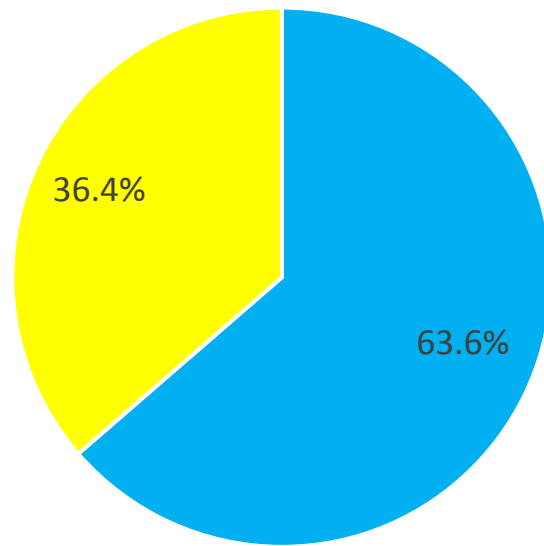
## Appendix F

### Decoding participants responses using Microsoft Excel

	A	B	C	D	E	F	G	H	I	J	K
Participant 1	3	3	3	3	3	3	2	4	2	2	
Participant 2	5	5	5	4	4	3	4	4	3	3	
Participant 3	4	4	4	4	4	5	4	4	5	4	
Participant 4	4	4	4	4	4	5	4	4	5	4	
Participant 5	5	4	5	5	4	4	4	4	5	4	
Participant 6	2	2	5	4	5	5	4	4	3	4	
Participant 7	5	4	5	4	4	5	3	4	4	4	
Participant 8	4	4	5	4	5	3	2	2	3	2	
Participant 9	2	4	4	5	5	3	3	2	2	4	
Participant 10	5	4	5	4	4	5	5	4	4	5	
Participant 11	4	4	4	5	5	5	5	4	5	4	
Participant 12	5	4	5	4	5	5	4	4	5	4	

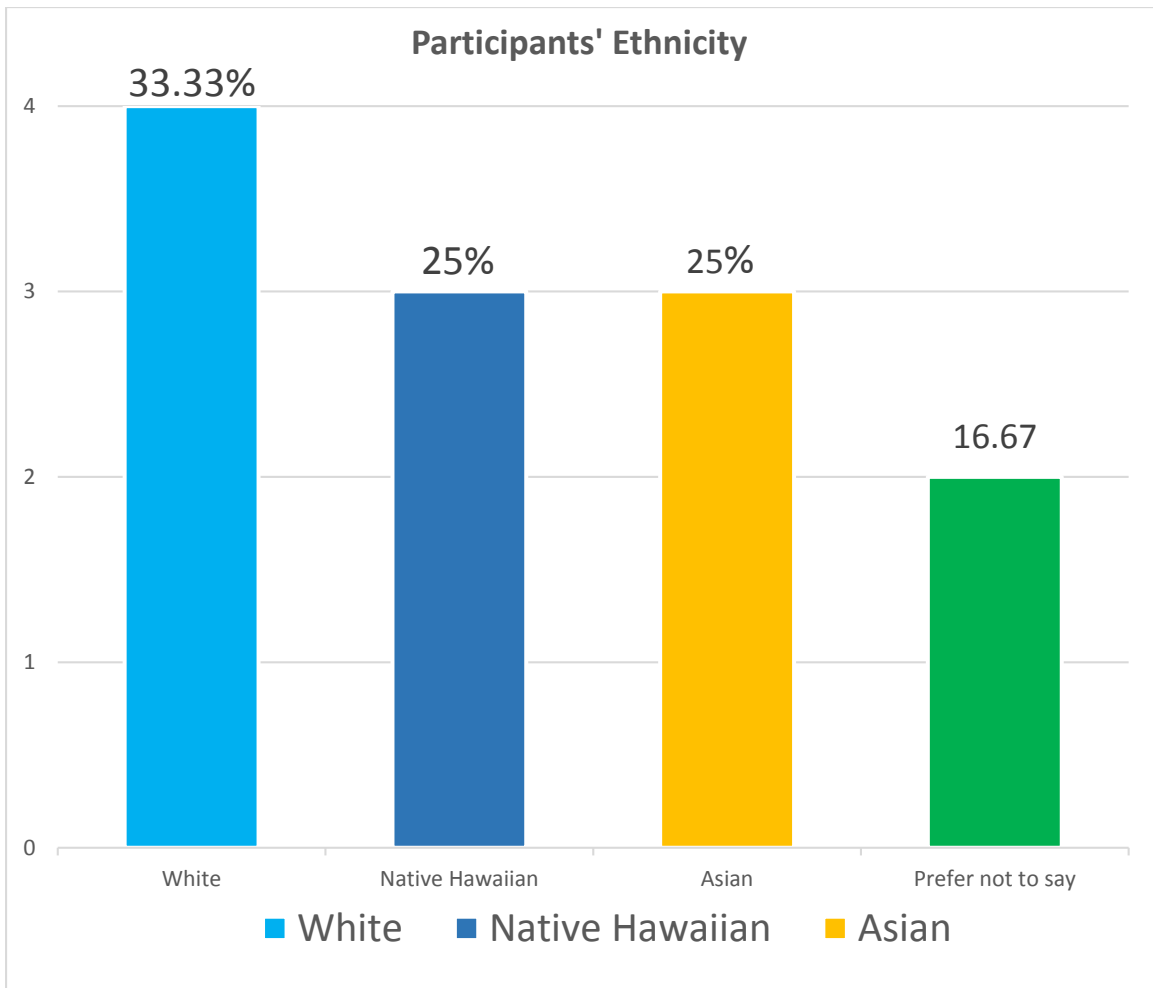
**Appendix G**  
**Faculty learning preferences**

**Faculty preferences learning new information**

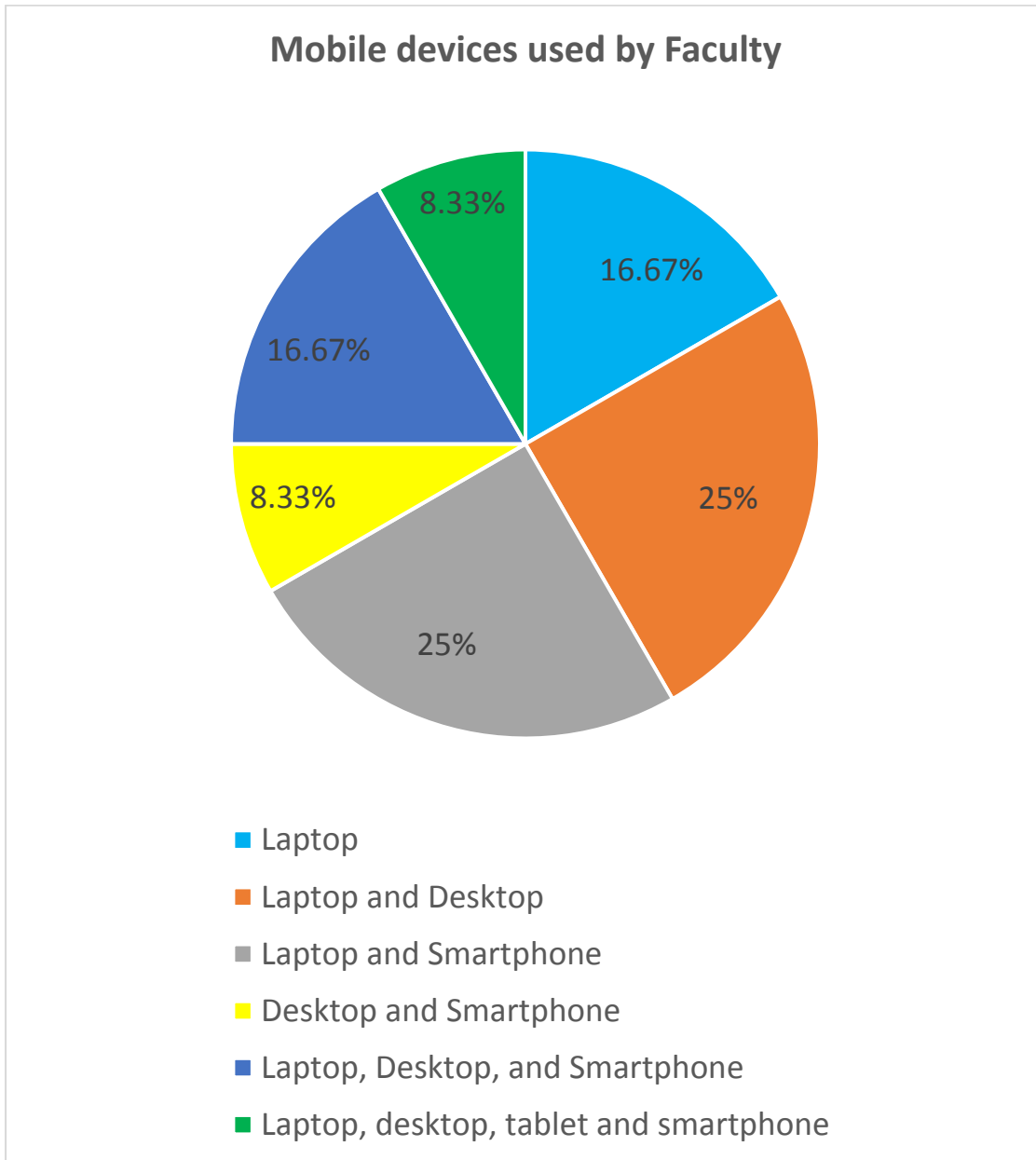


■ Face-to-face ■ Online

## Appendix H Participants Ethnicity



**Appendix I**  
**Mobile devices used by Faculty**



**Appendix J**  
**Faculty total years of teaching experience**

