Report on Student Response Systems

Fall 2018

Submitted by:
University Council on Technology
Organized & Developed by the Sub-Committee on Clickers

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Sub-Committee on Clickers Purpose

The University Council on Technology was asked to investigate student response systems on campus. The Council was asked to determine needs, use cases and evaluate solutions so that a single vendor could be recommended for continued use, training and support. The impetus for this evaluation and recommendation was to help resolve the need for students to purchase more than one clicker technology in any given semester. There is also some dissatisfaction with the University recommended/supported solution (Turning Technologies) and faculty are asking to see alternatives. While this topic was added to the 2015-2016 UCT Priorities, the sub-committee on clickers was not established until October 2015 when this sub-committee began to develop their plan.

By the end of Spring 2017, the sub-committee developed a survey for faculty to determine the vendors used, purpose, frequency and important characteristics related to use, satisfaction of users and other pertinent information regarding the use of clickers at Kent State. The survey was distributed across all campuses and over 350 responses were analyzed. A demo and evaluation of the top three vendors (as identified by the Spring survey) for faculty, staff and students was organized for early Spring 2018. The demo provided an opportunity for participants to compare ease of use and applicability of the systems, interact with vendors and provide feedback about their experience. After continued review of results, the sub-committee deemed it necessary to further investigate other vendors and organize a demonstration for all other vendors that could meet Kent State faculty needs. A second demo with different vendors was organized for Fall 2018. The structure and feedback forms remained the same across the two demonstrations. The results from all demos, Spring 2017 survey along with other artifacts received throughout the process were considered when drafting possible solutions.

This report was generated by the sub-committee and presented to the University Council on Technology at large. It includes summaries from the survey responses, the demonstrations, comparison of vendor characteristics, and an overall ranking of the vendors based on all of the feedback. The report was approved and then sent to Provost Diacon and Vice President Rathje. The sub-committee also attempted to evaluate current usage on campus but information was not comparable. It also became apparent in comments that most used is not necessarily best and that all vendors had plans for piloting and rolling out their system no matter current usage. It is our belief that value added is minimal for further demonstrations. **Many faculty have voiced their desire to have answers, rather than continued prolonged uncertainty regarding vendor usage at Kent and students purchasing subscriptions to a few vendors. The University Council on Technology hopes the amount of information within the report provides enough information for the university to make an informed decision regarding student response systems at Kent State University**.

Spring 2017 Survey Summary

General Structure & Details

Conversations about the use of student response systems (SRS), such as Clickers, Plickers or TopHat, have been increasing across Kent campuses. There appeared to be negative perception of Turning Technologies and a grass-roots population using TopHat. A sub-committee of the University Council of Technology, Clicker Sub-Committee, used a university-wide survey to determine the current usage and perceptions of SRS at Kent.

The survey asked if faculty use (or have used) student response systems (Clickers, TopHat, etc.) in any of their classes, followed by a series of questions related to their initial response. For example, if a faculty member said they did not use them, the next question asked about their lack of interest. Faculty who answered "no but possibly in the future" were prompted to identify barriers to use. If a faculty member said yes, they then were asked to indicate which systems they used and their perception of the systems in addition to important considerations related to SRS. All faculty were asked to indicate considerations that were important to them when considering SRS; these options ranged from Blackboard compatibility, ease of use, types of responses, types of devices and cost. Faculty were also asked to provide their name if they would like to participate in the discussion of SRSs on Kent's Campuses.

In less than one month, 365 faculty responded, with 321 providing more details about their usage. Approximately half of the respondents indicated non-usage of SRS while over 31% use or have used a SRS. Respondents indicated which systems they have used and their satisfaction of them. The Top 3 used were Turning Technologies, TopHat and Kahoot. While Turning Technologies was the most used system (64 users), it had one of the lowest satisfaction ratings of the twelve different systems (10th). Respondents also provided comments about their satisfaction and indicated how they used SRS. Summaries of survey responses can be found in the next few pages.

Fifty faculty members indicated they would like to be part of the discussion moving forward concerning possibly recommendations from the university regarding student response systems. Many indicated they would like to talk with the representatives from a few of the companies that provide student response systems (vendors). Two demonstrations were organized and feedback from participants of the demonstration and evaluations were obtained.

General Survey Results

This section provides summarized data from the survey. The results shown below are representative of the responses and are intended to provide a snapshot into the usage of Student Response Systems on the Kent Campuses.

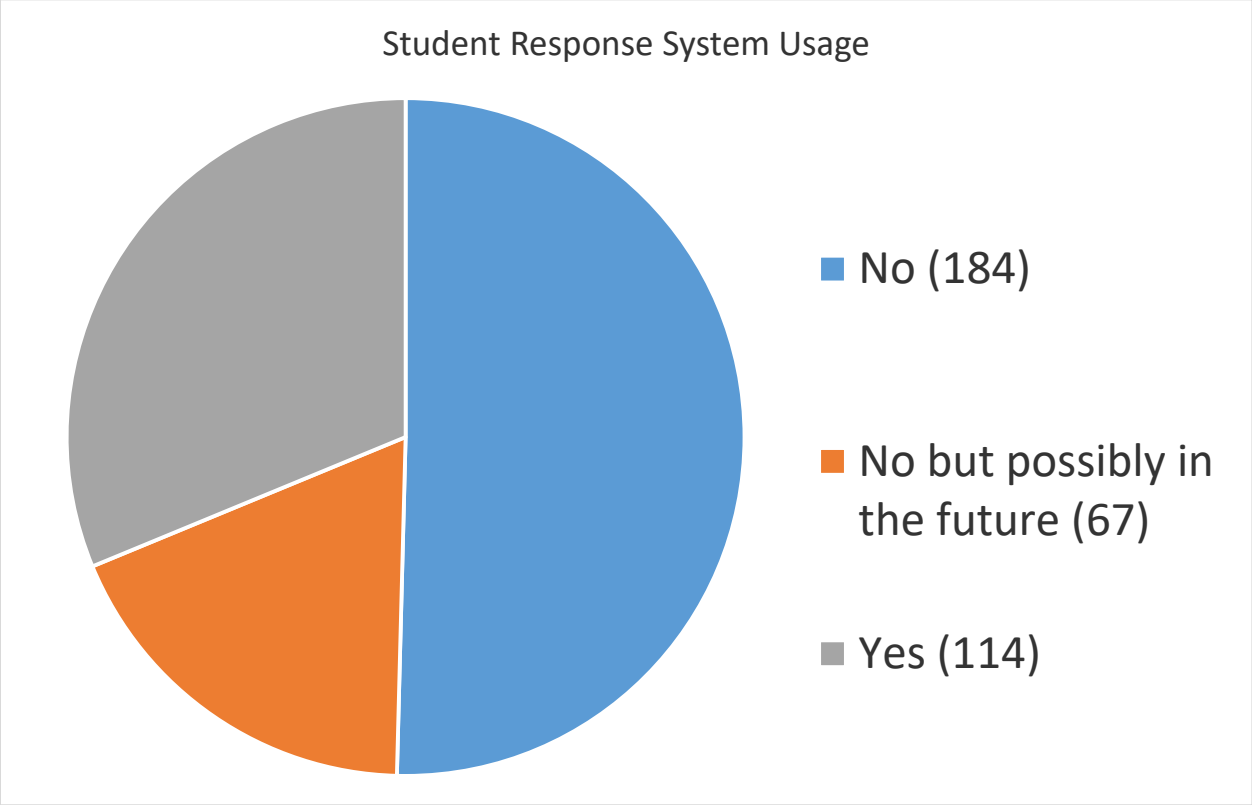

Diagram 1: This pie chart represents the responses to the question asked of all faculty "Do you use (or have you used) student response systems (clickers) in any of your classes?". 365 faculty responded to this question with 88% providing more information than just a choosing of no, no but possibly in the future or yes. Note: there were faculty who indicated no but described prior use of clickers.

Faculty were able to provide their contact information if they wanted to be part of further discussion regarding Student Responses Systems on the Kent Campuses. More than half of the Kent campuses are represented and some of the specific units with faculty interested are Fashion, Business, Political Science, English, Nursing, Physics, Biology and Math. Representatives (possibly undergraduate coordinators) from each department will also be invited to the continued discussion regarding Student Response Systems.

Spring Survey Results: Faculty Who Use SRS

Of the 365 faculty who responded, 114 indicated they do use or have used student response systems. Of those 114, 108 provided comments regarding their non-use.

Faculty were asked what the purposes of the student response system were, how frequently they used the systems, and which systems they do or have used. For each system they indicated, they were asked their satisfaction level; if they identified anything other than neutral they were then prompted to explain their choice. They were also asked which characteristics were important when considering a student response systems; faculty could mark other and type a response, indicate class size, appropriate cost to students, user interface ease, ability to use a device separate from computers and phones, check various grading capabilities, types of questions that could be asked, and compatibility with PowerPoint, Blackboard, texting-only phone, laptops, smart phones. Lastly, faculty were asked if they were willing to be part of a continuing discussion regarding student response systems. Quotes from questions can be found below.

- Most faculty (72%) use a single student response system; others have used up to 5 different systems.
- 49% (53) mentioned cost as either a reason for dissatisfaction of a system or an important characteristics of a system (meaning low cost).
    - More than 50% of those respondents state an appropriate cost for students is less than $20
- Approximately 36% (39) of those who responded wanted to be part of continuing discussions.

Table 1: Important Characteristics of Student Response Systems as Indicated by Users

Less Important	Moderately Important	Very Important
• Drawing or attachment responses • Device separate from computer/phone • Compatibility with texting-only phones • Short answer responses	• Appropriate for my class size • Grading linked with Blackboard • Compatibility with Blackboard	• Grading linked with Blackboard • Anonymous responses • Compatibility with PowerPoint • Compatibility with smart phones and laptops • Ease of user interface • Multiple choice or T/F responses • Acceptable cost

Table 1: This table summarizes the faculty responses to the question asking faculty to indicate which characteristics are important to them when considering a student response system. If more than 50% of faculty checked the box, it has be labeled as "Very Important". If greater than approximately 1/3 of the faculty indicated it as a concern, it was labelled "Moderately important". If less than 1/3 of faculty indicated it as a consideration that is important, it was labelled as "Less Important".

Faculty use of student Responses systems. 101 faculty indicated the purposes of student response systems in their classroom. Below you can see the frequency of purposes indicated and quotes from faculty as they describe their "Other uses".

- 93% (94/101): Gauge student learning
- 55.45 (56/101): Attendance
- 24.7% (25/101): Check for pre-class work completion
- 22.8% (23/101): End of class round-up
- 29.7% (30/101): Other (please indicate):
    - Exam practice/review, quiz
    - Increase engagement: *"to increase interactive learning experience for students", "attempting to engage students that won't speak up in large class", get answers to private questions in my human sexuality course anonymously to make information relevant"*
    - Previous class connection: *"Recapping last class lessons" "highlight important concepts from previous lecture"*
    - Discussion: *"facilitate discussion and engagement, provides an opportunity for all students to have a voice", "problem-based learning, discussion prompting (a la Eric Mazur's example)"*
    - Miscellaneous : *"in a group project", "classroom experiments"*

Diagram 2: Faculty indicated if they use student response systems a "few times a semester", "once each class", "every few classes", "2-3 times each class" or "every 5 to 10 minutes +".

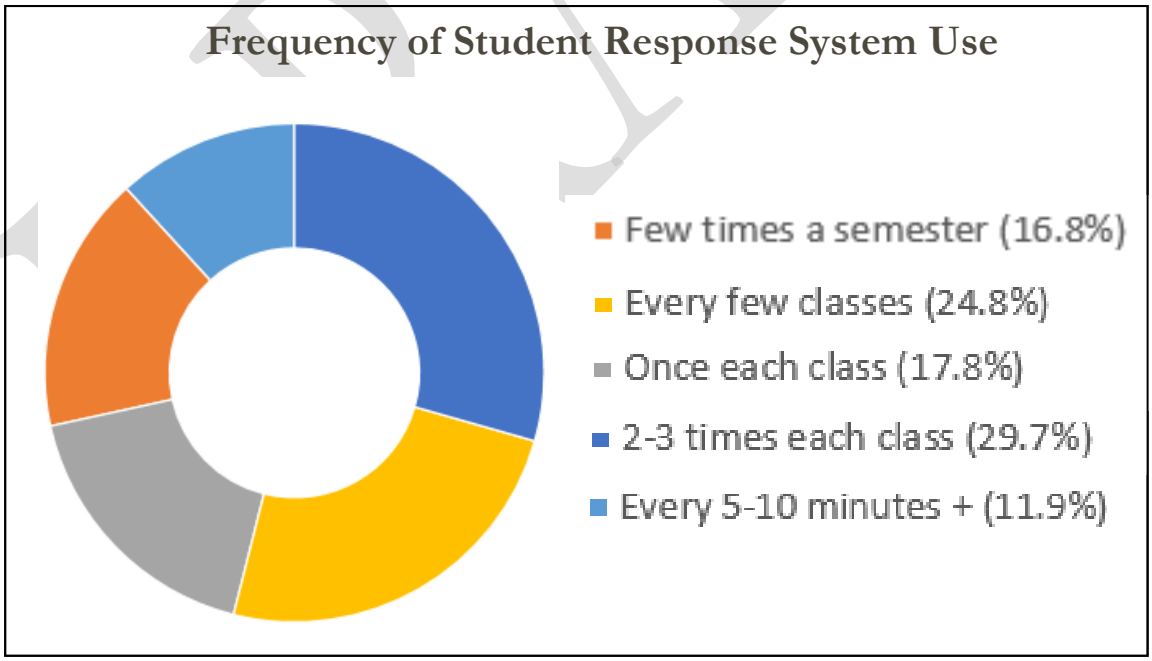

Diagram 2: This chart indicates the frequency of student response system use in the classroom. 72% of respondents use student response systems at least once per class and over 40% of them use it more than once each class. For heavy users, their responses to the explanations of their satisfaction ratings were further analyzed.

Table 2: Student Response Systems Usage & Satisfaction

Name	How Many Use the System	Average Satisfaction (Very Satisfied = 5, Very Dissatisfied = 1)
Turning Technologies	59.2% (64)	3.06
TopHat	19.4% (21)	3.52
Kahoot	13.9% (15)	4.33
Polleverywhere	11.1% (12)	4.17
I>clickers	10.2% (11)	3.18
Blackboard Poll	8.3% (9)	3.00
Google forms	7.4% (8)	4.38
Plickers	7.4% (8)	4.5
Socrative	3.7% (4)	4.5
Learning Catalytics	2.8% (3)	2.33
Quizdom	1.9% (2)	3.50
I-response	1.9% (2)	3.50

Highly Satisfied
Satisfied
Generally Neutral or Dissatisfied

Table 2 indicates which systems faculty use, how many use them, the satisfaction for each system and some representative quotes for each system. They are organized from highest to lowest usage. Satisfaction ratings are color coded based on natural breaks in the ratings; >4 are green, 3.5-4.0 are yellow and <3.5 are red. Note: color coding for Socrative, Learning Catalytics, Quizdom, and i-Response should be understood with caution; less than 5 respondents provided satisfaction ratings. Common themes in responses and representative quotes from each theme can be seen on the next page, page 7, for each system in which heavy users explained their satisfaction rating.

Specific Considerations

- The Top 5 rated student response systems (shaded green) all offer free services to students and instructors.
- Turning Technologies is the most used system but has one of the lowest ratings of any of the systems.
- There was misalignment between satisfaction ratings and comments.
    - Many times, explanations for a positive satisfaction rating for Turning Technology included complaints specific to Turning
    - negative satisfaction ratings for TopHat were not directly related to the specific system but to systems in general; i.e. added costs to students
- A table summarizing the open ended responses regarding satisfaction level explanations can be found on page 7, and characteristics of the above systems (with costs to students) can be found on page 8.
- **Faculty have very specific reasons they have chosen to use and discontinue use of student response systems. They provided significant, detailed feedback on the different systems in their general comments and explanations of satisfaction with systems.**
- **Moving forward we recommend inviting those interested along with departmental representatives to continue investigation with the Top 4-5 systems used on the Kent Campuses.**

Table 3: Summary of Open-ended Responses from Spring Survey

System Name	Positive	Negative	Summary/Insights
Turning Technologies (64 users) Average rating: 3.06	• Great support • Easy to use • Variety of self-paced options • App allows students to use smart phones • Reliable: "when it works, it's great" • Does the job/what I need it to • Provided great data	• Not much support/difficult finding support • Steep learning curve/hard to use • Moments of significant frustration • Limited capabilities • Technology issues: time consuming fixes, App-related, grade and response retrieval • Costly licenses (unexpected & "huge hassle") • "Frequent system changes"/"unnecessary upgrades"; inconvenient, costly & time consuming • Vendor got more benefit than students	Most of the positive satisfaction ratings were contradicted by the negative explanations/comments. Note: many of the negative comments were expressed by "satisfied" respondents.
TopHat (21 users) Average rating: 3.52	• User friendly, simple to use, everything is in one place, convenient, versatile • Use of cell phones, tablets or computers • "...multiple aspects through 1 interface (attendance, questions, discussion, homework...)" • Able to draw on lectures	• Price • Smartphone or mobile device expected (Note: this is incorrect) • Customer service can be over solicitous	The main negative comments were related to price with two others you can view to the left. The positive comments were overwhelmingly positive and there were not many with mixed responses.
Kahoot (15 users) Average rating: 4.33	• "It's free, it's fun, it's easy to use" • Motivating: it adds a layer of competition on top of the assessment	• Questions & answers are limited in length	Those who use this free system are very pleased; only one noted a limitation.
Polleverywhere (12 users) Average rating: 4.17	• Ease of use; quick and easy • Can use texting only phones • Free for <40 students	• Technical difficulties • No math symbol/equation formatting	Faculty appear to only use the free option of this software. Most faculty commented of ease of use and free cost.
I>clickers (11 users) Average rating: 3.18	• Easy to use	• Too expensive • Cumbersome • Didn't work right with Blackboard	A limited number of users and many who indicated neutral opinions, the few comments are depicted to the left.
Google forms (8 users) Average rating: 4.38	• Ease of use, cost (free) • Reusing assessments • Multiple question types • Students names collected automatically	N/A	Faculty who use Google Forms generally like it as a student response system.
Plickers (8 users) Average rating: 4.5	• No hardware or software requirements for students • Free • Easy to understand/use • Students enjoy it • Allows for anonymity (or not) & instant results	• Depends on size of classroom (doesn't work consistently)	Most of the faculty like Plickers as they are free and simple to use.
Socrative (4 users)	• Easy to use (faculty) & easy access (students) • Free (for less than 50 students) • Doesn't require students to log in • Ability to reuse assessments • Provides good teacher feedback	N/A	Faculty who have used the software (seemingly the free version only) have liked the software.
Learning Catalytics (3 users)	• Free with MLP access code	• Students connections problems	Not many survey participants used Learning Catalytics.

Table 3 depicts faculty open responses to explanations of their satisfaction ratings of systems they used; colors respond to satisfaction ratings (green – highly satisfied, yellow – satisfied, red – generally neutral or dissatisfied, no color for those with less than 5 ratings). The above comments are representative of those who use the systems at least once per class. Note: Qwizdom and I-response were not used at least once per class and there were no descriptive explanations of satisfaction ratings for low users. Heavy users of Blackboard Poll did not provide an explanation of their satisfaction ratings. Low users liked the ease of use, its integration with Blackboard and cost ($0) with one noting unable to figure out "use for my purpose."

Demonstration Evaluation Summary

This section provides summarized data from the demonstrations held in Spring 2018 and Fall 2018. The results shown below are representative of the responses and are intended to supplement the information obtained from the Spring Survey and other knowledge regarding the vendors.

Demonstration Structure

Faculty, staff and students were encouraged to attend through a series of emails, Flashline, EInside news, posters around campus and word of mouth. Participants were asked to RSVP and could attend a morning or afternoon session face-to-face or virtually. For those who were unable to make it but expressed interested, a recording of the session and all accompanying information was emailed to them shortly after the demonstration. Participants were provided with a summary table comparing various traits across the vendors present, the evaluation feedback form and connection information for each of the vendors. Some vendors handed out additional information sheets/packets and memorabilia to those physically present. Questions for vendors were obtained via the virtual chat function or written on index cards throughout the presentation, organized and then addressed following the 20 minute demonstration. There were 10 minutes designated after each demonstration for vendor specific questions, if all questions were answered, vendors were permitted to continue to showcase their software with immediate interrupts for questions.

Vendors were given 20 minutes to demonstrate their system. They were asked to include set up of a course/folder, creating a question, implementing a question, obtaining responses from audience during the demonstration and getting the responses/grades into Blackboard. Vendors were asked to address a list of other 12 concerns throughout (i.e. reliability, learning curve, support, onboarding and other elements apparent in the rubric). Vendors were also provided the evaluation form the demonstration participants would use to provide feedback.

The evaluation form asked participants to indicate if each vendor did not meet their needs (inadequate), meet their needs (acceptable) or exceeds their needs (exemplary) for the following 9 criteria and provide any notes or comments for each vendor. The 9 criteria reflected traits identified as important by faculty from the Spring 2017 Survey and were identify by the sub-committee as important elements any participant could reflect on.

1) Ease of setting-up course
2) Question format options (MC, T/F, anonymous)
3) Ease of making questions
4) Ease of implementing questions in class
5) Ease of use (as student)
6) Ease of visualizing responses
7) Measures for addressing student system misuse (cheating, not on location…)
8) Usefulness of data (analytics) generated
9) Ease of integration with BlackBoard

The evaluation also asked to rank each vender for each of the 9 criteria, 1 as best and 3 as worst. Participants were then asked to choose one vendor that least suits their needs and describe why, one that best suits their needs and why, if there was anything else they would like the sub-committee to consider and finally a space for participants to identify themselves as a heavy user or "champion" of a vendor and provide their email address for continued follow-up.

Overall Demonstration Summaries

The Spring demonstration included the top 3 vendors identified by the Spring 2017 survey. After the completion of the initial demonstration, the sub-committee determined it best to have a second demonstration and invite other vendors that could meet faculty needs. Other at-cost vendors (Socrative & Quizdom) were not invited to campus as their capabilities did not meet the needs of the majority of Kent State faculty. H-itt was not identified by the Spring 2017 survey but was invited as they had a physical clicker device and were included in evaluations by other universities going through a similar evaluation.

	Spring Demonstration	Fall Demonstration
Date	Friday, February 2nd, 2018	Friday, October 5th, 2018
Location	Governance Chambers, KSC	BSA117
Vendors Present	Polleverywhere, TopHat & Turning Technologies	iClicker, Learning Catalytics & H-itt
# of RSVPs	91	26
# unable to attend	17	3
# attended in-person	23	6
# attended virtually	16	3
# of people who viewed recorded session	23	2
# of responses to online feedback form	12	1
# of responses to paper feedback form	22	3

Demonstration & Evaluation Participation

Participant notes / comment and their delegation of which vendor best and least suites their needs were most helpful feedback. The 1-3 ranking of the vendors was not consistent, a trend was not present, and many respondents did not use the 1, 2, 3 ranking (e.g. chose two vendors as #1, leaving many spaces blank or marking the same number across the row). The determination of meeting needs/not meeting needs for each vendor was useful for viewing general trends. All vendors, except H-itt, generally met or exceeds the needs of faculty. A few participants noted vendors without a physical device or a specific plug-in for PowerPoint or Google Slides deemed other vendors as not meeting needs.

Many participants choose not to turn in the survey or complete parts of the survey. The feedback provided detailed information as to how participants felt regarding the 9 criteria set out and the general comments and explanations as to least/best suits needs was useful. These results in addition to reviewing the capabilities of each vendor, the characteristics identified as important by the Spring 2017 survey and other artifacts were used in ranking the vendors across the demonstrations.

Spring Demonstration Results

While participants were asked to state if each vendor met needs across the 13 criteria, all vendors generally met faculty needs. Some faculty indicated very strong tendencies toward or away from certain vendors due to reasons outside of the demonstration, desiring to having a physical device or due to an incorrect understanding of the technology).

	Top Hat (TH)	Turning Technologies (TT)	Poll Everywhere
Least Suits Needs	9	4	8
Explanations (least)	• Too much student monitoring • Interface less user-friendly, clunky • Great features (but) most confusing in the presentation • Flaky response from website & app • Don't want a floating toolbar • Want it integrated with PPT, loss of animation during upload	• Not happy with suite of options and methods of responding • Best elements are "in-development" • Very disappointed w/ emphasis on future improvements, need for software, change management	• Only function is asking questions, TH does a lot more • Seems "basic" • Wonder whether faculty tools and testing would be utilized • No out-of-class options • Seems like lots of steps for presentation of question • Not as versatile as TH • No physical clicker
Best Suits Needs	9	9	11
Explanations (best)	• Heat spot image clicking feature • Lockdown feature for quizzing (3) • Many useful tools • Full integration • Ease of use • Best security feature • Ease • Off-line option for wifi	• Would be fine with anything but TopHat • Local, automatic sync, flashcards • It's what I use now • Ease of integration with BB and current teaching materials • Collective positives interacting with the product during demo • Like anywhere polling for random questions and pics that you can pull up	• Would be fine with anything but TopHat • Easy to use • Not dependent on computer or software to run it • Overall best elements from TH & TT • Very easy to use as a student • Integrates with google slides • Low cost for students • Easy to use • Already available in BB

Note: note all evaluations were complete (12 non-responses for least suits & 7 non-responses for best suits)

	TopHat	Turning Technologies	Poll Everywhere
Positive comments	• Neat textbook features • Easy to set-up • Presentation tool is very convenient • Secure attendance is ideal for my very large +150 students • No experience with vendor. Testing options seem very secure • Interesting tools • Authoring tool is easy, flexible, popular with students • Off-line mode if Wi-Fi crashes • One-on-one training • Flashline credentials is great • I do love this product. I have been using it for 2 years, therefore I am a bit biased. • Like there are other features besides asking questions. • Students are able to follow along on their devices • Ability to draw on slides (saves drawings for students)	• Offers on-site paid intern for semester long support • Complete package – full functionally PPT add on, local-software • Like anywhere polling function (e.g. questions into videos) • Most collective positives during demon • Excited about upcoming features • Ease of integration with BB • Flashcard capability • Dashboard seems organized	• Always gone out of their way to make sure any questions I had were answered or issues resolved (current user) • Great pricing (2) – free option, cheapest for student • Great options, I may experiment using this in my class • No additional devise is needed • Integrates with google slides • Easy to use • Very cool to integrate "hot spot" polling – unique • No reliant on client software or device • I know faculty who have successfully implemented in class • I have successfully used PE and really love it • Found it useful but could not figure out how to integrate into existing PPT
Negative comments (concerns)	• Appears more complicated (more steps to implement) • clunky (2) • difficult to use on-the-fly • Couldn't get my device to work or presented info too fast before I could submit (3) • Difficult to access slides (as a student with experience using TH) • Doesn't integrate with google slides (*incorrect)* • Must present within TopHat – no good • I need the product entirely integrated into PPT, I cannot upload slides and I don't want a floating toolbar	• I don't want to hear what's coming, TT has a history of rolling out applications that aren't well communicated or supported. Very concerned about changes and "university control" of what version TP 8 or web is supported. • Somewhat concerned about up-time, usability – had issues in past • Limited usefulness outside classroom • Interface feels clunky	• Relies on Wi-Fi and (student) device dependent • Concerned with students using phones inappropriately • Seems limited to classroom participation uses (*Polleverywhere has asynchronous options)* • I need a self-paced option (*Polleverywhere has this)*
Other comments	• Administration / support • Very persistent in contacting us faculty (annoying) • I would like it to be more cost friendly for my students • Wasn't sure about the price • Real time feedback is extremely important • Cloud-based	• Enterprise solutions are going to make some faculty unhappy • It would be great if Kent supported latest version • It's what I use now	• Did not get a good sense of how easy it worked with PPT • Don't know how to actually integrate with Blackboard • Presentation too short • Not sure course was set up in demo
General Concerns	• Cost to students, trouble getting a complete feel for vendors, 20 minute challenge to vendors, good to know which technology is most used currently (switching tech/resources is a big undertaking for individual instructors)		

Fall Demonstration Results

While participants were asked to state if each vendor met needs across the 13 criteria, participants regularly stated that H-itt did not meet there needs. Some faculty indicated very strong tendencies toward or away from certain vendors due to reasons outside of the demonstration, desiring to having a physical device or due to an incorrect understanding of the technology.

	iClicker	Learning Catalytics	H-iTT
Least Suits Needs	0	1	3
Explanations (least)	N/A	• Great platform for Socrative pedagogy where the professor has a lot of support (TAs) but not practical without a physical device	• 2 files (Acquisition & Analyzer) • Not smooth integration
Best Suits Needs	3	0	0
Explanations (best)	• Map/figure / website function • CSV report format • I prefer a company not part of a large publisher. Also iClicker seemed better for flexible use "on the fly" • Both clicker and BYOD possible • Two options for gradebook connection (one column % value of overall points vs. individual changeable ones) • Easy way to detect and send warnings to students based on attendance and/or performance • Simple for students to use • Students can see their questions/history in response/attendance	• Free with flashbook + Pearson product	N/A

Note: one respondent didn't feel it fair to choose between iClicker and Learning Catalytics siting they wanted to test iClicker out since they had only used Learning Catalytics in past.

	iClicker	Learning Catalytics	H-iTT
Positive Comments	• iClicker mentioned changing bandwidth for less "traffic" during congested activity time • GPS location available for attendance • can be used with PowerPoint / word • word clouds • Self-paced/asynchronous option is useful • Can choose to share or not share questions/answer or not • Can preload content or use on-the-fly • Transitioning from Turning Point would be easy – no need to redo slides	• currently uses Learning Catalytics & it works • Seat map & ability to group students based on responses and answers puts this above Polleverywhere • Almost 250,000 questions available to choose from in addition to creating your own • I get it/still don't get it/I don't understand and send message option very easy for students & automatically build into design • Explanations for answers possible with self-paced testing/quizzing option • Choose to deliver or not deliver questions to students (can review future questions while current questions are being asked) • Has an easy to use math palette	• Can change timer mid-count up
Negative Comments	• only allows asynchronous MC quizzing • Can't change timer set for questions mid-timer	• Pearson tech help is helpful but not necessarily with Learning Catalytics (from experience) • "too involved" – a lot of unnecessary clicks while setting up and running session • Equation editor only Latex (others would be helpful) (*note other vendors do not even offer an equation editor)*	• Limited to 10 questions • Very inappropriate session IDs generated (words related to violence, race…) • Not sure if you can change what students see
Other Comments	Students already made investment in TP (costs of changing vendors is concerning)		

Vendor Characteristic Charts

Each vendor was asked to provide information regarding the capability of their system. During demonstrations, participants were provided with the charts in order to easily compare across vendors. Each chart is made specifically for each demonstration (First one from Spring event, second from Fall event) and includes the most up-to-date information regarding each system's capabilities. Note there are other charts in the appendix; these include all vendors identified in the Spring Survey and were not updated with information provided by vendors at the demonstrations. Links to charts can be found on final page of report.

All systems integrate with Blackboard and PowerPoint (toolbar within PowerPoint). All companies provide synchronous or asynchronous questioning.

Name of Vendor	Device Used	Question Formats	Response Visualization Options	Current Pricing for Students (recommended vendor)	Forecasted Pricing per Student (University license)	Grading options	Analytics	Support	Highlighted Difference
Polleverywhere	SMS text, web browser, app	MC, T/F, Y/N, clickable images, open ended, rank order, Q&A (upvote or downvote) competitions/group voting, sorting, hot spot	Graphs, donut charts, word clouds, heat maps, images	*Free option – up to 40 students* $14 per year for students (or $349 for instructor – use with as many classes as they want)	$2.83 per year	Anonymous, and/or automatic, Participation, performance, attendance, correctness	**Who:** individual student, course, department, college or university - flexible **What:** Usage, types of devices, results by participant and/or question, gradebook, segmentation, pivot table, survey	**For Whom:** administration, faculty & students **How:** phone, email & online documents for students, email, phone, videos and webinars for others **Turnaround times:** emails & tickets – 1 hour, call wait times – 15 minutes, 12 hours/day support	Unlimited questions with up to 40 responses per question is free
Turning Technologies	Physical device (clickers), web browser, app	MC, T/F, Short answer, numeric, essay, Likert scale, hot spot, peer instruction, gamification, demographics or grouping	Individual, multiple graph types, word clouds, hot spot, correct answer indicators, responses, mean/median/mode (numeric response), responses sent to cell phones	*$18 a semester, $25 a year, $49 for 5 years Clicker: additional $20+	$3.84 per year Clicker: $32.34	Anonymous, weighted, participation, performance, attendance, correctness	**Who:** Individual student, Course, department, college or university based – flexible **What:** student and instructor usage, types of devices used; difficulty/discrimination index, competitive, comparative, results by question or participant	**Where**: On campus (intern) or remote **For Whom:** faculty and students-13 hrs/day **How:** training, live chat, ticket, email **Turnaround time:** Emails-12 hours, ticket-24 hours, Call-<2 min wait & Students-13 hrs/day call	Student collaboration tools (flashcards) & secure polling coming soon. Multimedia support.
TopHat	Physical device (clickers), web browser, SMS text, app	MC, T/F, word answer, numeric, fill in the blank, clickable image (hot spot), matching, group work, sorting, long answers learning	Individual, graph, images, word clouds, heat maps, question reports, correct answers, responses & switch between options with one click	*$20 a semester or $30 a year with lifetime cap of $60 Clicker: additional $20+	$4 or $5.30 per year (depending on services chosen) Clicker: $20	Anonymous, weighted, geosensing (absent or present based on location), participation, correctness (or combination of participant & correctness)	**Who:** Individual student, course, department, college or university based --flexible **What:** student, instructor or department usage, results by question or participant, location, types of content activated	**Where**: On-campus or remote **For Whom**: Administration, faculty & student **How**: training, online live chat, interactive guides, YouTube videos, support tickets, calls **Turnaround times:** Ticket – 4 hrs, Students – 12 hrs/day	Lock-out browser with proctor report, Authoring tool and Low cost & editable books & resources integrated into system. Tournaments coming back.

Note: Turning Technology price quotes from vendor may not reflect KSU bookstore pricing.

All systems integrate with Blackboard, compatible with PowerPoint, provide synchronous and asynchronous questioning and prices are subject to negotiation.

Vendor	Device Used	Question Formats	Response Visualization Options	Current Pricing for Students (recommended vendor)	Forecasted Pricing per Student (University license)	Grading options	Analytics	Support	Highlighted Difference
iClicker	Physical clickers, web browser, mobile app	MC, numeric, short answer, word cloud, target (heat map), exit poll and asynchronous multiple choice quizzing.	Instructor View: Bar graph, Best response, Word Cloud, Image based Target question Student View: their response, class summary, and correct "graded" response	iClicker remotes: $33.99 – 39.99 Remotes with 5 year access to Reef: $39.99 – 44.99 Reef Access Subscription: 6 mon - $10.99, 1 year $17.99, 2 year $24.99, 5 year $31.99. (6 mon - $5 or 1 year - $10 with Macmillan product)	$6 per license for 1 year commitment $3 per license for 4 year commitment	Participation and Performance based scoring (correct & weighted)	Institutional, Instructor and student (students can also receive analytics on their responses)	**Instructor & Admin Support**: Client Relationship Specialist assigned to school, online/chat/call via Online Support portal, in-person workshop. **Student Support**: Online Support portal (24/7), phone and chat. Live tech support, Monday - Thursday 9AM-11PM, Friday 9AM - 6PM. **Turnaround time:** Email within 4 hours, most calls within 4 minutes (during peak)	• Simple and intuitive design to minimize learning curve for instructors and students. • Students can reliably use own device or iClicker remote in same course, no set up required. • Polling works with any presentation software (on-the-fly possible) • Student Study Guide, flashcards and Practice Tests • GPS location used for attendance.
Learning Catalytics - Pearson	Web-enabled device	MC, many choice, ranking, region, confidence, data collection, direction, numeric, highlighting, open-ended, short answer, long answer, image upload, sketching, word cloud	% correct, graph, pie chart	$12 per semester $20 per year (Free within Pearson product that includes e-text)	As low as $9.40 per semester $16.00 per year (Free with Pearson Product that includes e-text)	Automatic, seat mapping, self-paced, weighting, Participation vs. Correct	Class based, individual students	**Instructor**: On campus support, email, phone, online tutorials, videos, guides, and webinars. **Student** - 24/7 Technical support via phone and online form submission. Online tutorials & support documents, All support is 24/7 **Turnaround time:** 88% of calls answered within 1 minute 90% of issues resolved within 24 hours.	• 18 question types • Automatic grouping based on location/answer • Reaction option for students even when not delivering a question • Private messaging to instructor saved in session
H-ITT	Physical device or web-enabled device	Physical: MC, T/F, Y/N/A Web-enabled: MC, T/F, Y/N/A, (20 character limit) fill-in-the-blank, numeric	bar graph, (horizontal or vertical) and optional correct answer	Physical device: $50 MSRP, Subscription (web-enabled-only): $17.70 per semester or $25 annually	Physical device: $50 MSRP, Subscription (web-enabled only): $17.70 per semester or $25 annually	Automatic, attendance, points awarded (based on correctness globally or by individual questions)	**Who:** individual student, course,- flexible **What:** Usage, results for participant by question, flexible gradebook, survey	**For Whom:** administration, faculty, students **How/mechanism:** phone, email, online documents, videos, individual webinars 8 AM to 5PM M-F EST **Turnaround Times:** 24 hour max call wait times, 2 min type /day support	• Ability to poll multiple sites simultaneously • Polling on any platforms: PowerPoint, PDFs, websites, interactive white boards, text… etc. (On-the-fly questioning possible)

General Recommendations & Considerations

In an effort to help reduce the costs of materials purchased by students and provide students an environment that is cohesive across most classes, **one** single student response system is recommended for the university. Due to response in surveys, demonstrations and emails from faculty, staff and students, it was determined that minimal value is added with continued demonstrations and evaluation. This report provides an abundance of information and faculty have expressed concern regarding continued delays.

The recommendation is guided by the feedback from discussions, emails, demonstrations and the Spring Survey results. Voices of faculty participants, staff and student feedback, sub-committee and those from the University Council of Technology have been included. The recommendation also considers the capabilities and added benefits of systems, cost to students, current usage, likelihood of student devices, company's historical patterns, support from vendors for students/staff/faculty, and accessibility.

Possible solutions for Faculty Senate and Office of the Provost and Vice President of IS

1. Open choice: faculty select their own provider, incurring multiple charges for students and lack of unified support, training, or ability to negotiate lower prices for students
2. Identify 2 recommended providers and allow Colleges, Departments and Schools to coordinate usage; negotiating costs are weakened, support is spread thin & hard to maintain, and students will still likely incur multiple costs because they take courses across colleges (e.g.: Kent Core courses vs. major courses)
3. KSU recommended provider with a negotiated contract: this would be the only vendor supported through the Learning Management System, only (at cost) vendor supported by staff at university, decreasing costs to students and allowing for more cohesive experience across courses
4. University mandated provider: University-wide license where all students have access to a system (costs rolled into X). Half of our peer institutions have chosen to do this – we recommend there be a serious review and reflection regarding previous attempts at doing so and the repercussions of ineffective roll-out

We recommend there be:

- Training available for faculty interested in using the SRS
    - Center for Teaching & Learning: basics and general pedagogy related workshops
    - Information Technology: Integration with Learning Management System
    - System's Company Support: Technology help, setting system up & monitor usage
- Readily available resources faculty & students (tutorials provided by company, technology help, resources for implementation).
- Communication to vendors regarding decision and acceptable conduct moving forward
- Use of vendors' experience with (re)introducing their product to entire university
    - Start small (pilot or testing period with feedback)
    - Detailed timeline for adoption (training, support, assessment, evaluation)
- A published comparison chart of free solutions to help inform choice of system decisions
    - Faculty should have the option of not adding costs to students when other options are available. (e.g faculty currently using Learning Catalytics shouldn't have to have students pay additional for iClickers or another at-cost software)
- On-going regular usage and satisfaction evaluations to ensure everyone's needs are being met
- Price fixing for at least 5 years

A university-wide supported system helps decrease the cost burden to students, reduce disruption between classes having a variety of SRSs, and increase access and use for faculty across campuses.

System Considerations

Systems were evaluated across four main themes

- Functionality
- Support
- Affordability
- Accessibility

Themes was determined by the sub-committee and aligned with KSU faculty comments regarding important characteristics of a SRS, other institutions' reviews' evaluative criteria and suggestions based on their experience, and other considerations brought up by University Council on Technology members. It was assumed companies followed federal law but it is recommended that security of student data is reviewed prior to a final decision. Current usage and experiences of those engaging with companies were also considered; company patterns of interactions/changes/marketing/support, and interactions with IT staff, faculty and students. Please see last pages of report for more usage details and links for peer institution review process details. More information about important characteristics identified by KSU faculty in the Spring Survey Responses (Users & Potential Users) and the Demonstration Survey Response Summaries.

Functionality: Functionality criteria included system capabilities, ease of use, and reliability of the system. Vendors that did not meet the basic needs of faculty were not invited for demonstrations. All systems provide a wide-range of question types and response visualization options, synchronous and asynchronous capabilities, could be used with PowerPoint (and other presenting software), and can generate a variety of analytics. Some faculty preferred a PowerPoint plug-in as where others wanted a floating toolbar that could work across systems. Systems differentiated the types and ease of obtaining analytics for faculty, students and administration but all but one met the basic needs of those who evaluated the systems. The devices used differed across the vendors, some offering physical devices as where others required a smart phone or a texting phone (see top of next page for more details). All but one system (not recommended) was relatively similar regarding ease of use and sync capabilities with a Learning Management System, though demonstrations provided some differentiating opinions. Reliability of the systems were considered but evaluation was limited to demonstration feedback and insight from other universities as network analysis across campus was not completed (Wi-Fi and cell phone signal in all classroom across all campuses). It is recommended that an analysis takes place to ensure those choosing the BYOD option are able to use the system. You can find more information regarding functionality of each system throughout the demonstration summaries and on the links for demonstration artifacts on the last pages of the report.

Support: Support is a key element for all stakeholders – administration, staff, faculty, and students. Systems were evaluated not only what type of support is available, but also when it is available and if addresses the basic concerns and challenges stakeholders typically face. Insight from other institutions about reliability and speed of responses and fixing of problems was also considered. Support varied across vendors but all recommended vendors met minimal standards for student and faculty support; short response time, reasonable hours and online resources for all.

Affordability: Vendors provided forecasted prices for two possible options, A) they were the sole recommended vendor at KSU and B) University-wide license (using the number of 39,367 students). The costs for each were relatively comparable and all vendors noted that prices were negotiable. Therefore, costs were not largely taken into consideration in the rankings of the vendors. It was clear that a University-license would significantly decrease the cost to students. Forecasted prices can be found on vendor charts on page 16 and linked on the last pages of this report.

Accessibility: All vendors completed the requested documents (ICT accessibility form and VPAT) and were evaluated by KSU student accessibility services. Vendors were also given the opportunity to provide updated plans for meeting accessibility standards set out by the accessibility policy here at Kent State University. Vendors were considered recommended if they had intentions, plans, and means of meeting KSU accessibility standards. Please note there are specific notes for each vendor whether changes would (or would not) need to be made prior to KSU designating them as a vendor. The accessibility report can be found through a link on the last page of this report.

Overall Vendor Rankings

Important Note: Physical devices were not identified as an important characteristic by survey respondents. A physical device drastically increases the cost for students when most students already have a usable device (Wi-Fi enabled device). A few faculty feel very strongly about needing a separate physical device; noting concerns over Wi-Fi connectivity in rooms and not wanting students to use devices for off-task activities. Without a physical device, many courses may need drastic pedagogical reform to be able to effectively use/continue to use a response system. Research suggests if course is designed aligning with best practices, off-task usage is minimal and a separate physical device is not necessary. Some faculty are not swayed by the publications suggesting it can work in their class, case studies of it working in similar courses or by conversations with faculty who have found success using BYOD options. Peer institutions have found that resistant faculty have often "bought-in" after a BYOD option was implementing; they are also finding that students are leading a push for BYOD when physical devices are available at the institution. A vendor offering a physical device is ranked as most recommended as it accommodates all faculty desires (rather than just the major).

Vendor recommendations are in order of most recommended to least based on demonstration feedback, survey feedback, and consideration of other artifacts. The results suggest that the University move away from Turning Technologies as the recommended vendor. Results can be reviewed throughout this report and a comparison chart of the companies can be found on page 9. Information regarding current usage, accessibility, and historical company patterns and current engagement with faculty and staff were also considered. All recommended vendors are willing to negotiate prices, contracts and have research-supported plans of successful implementation and solutions for moving away from Turning; many offered free semester pilots and trials to ensure implementation is successful.

Recommended
iClickers
Learning Catalytics
Polleverywhere

Recommended with Changes
TopHat
Turning Technologies (with caution)

Not Recommended
H-iTT

iClickers

Recommended - physical device available - meets/exceeds faculty needs - accessible

- Company meets/exceeds faculty needs regarding important characteristics faculty identified, provide support for faculty and solutions for faculty transitioning from other systems.
- Spring survey feedback was minimal regarding iClickers and negative feedback focused mostly on cost and not working with Blackboard; reflecting a concern across all vendors and a problem with any vendor that is not recommended by the university (BB reference).
- Added benefits from company include minimal cost when subscription bundled with purchase of Macmillan product, two options for syncing with gradebook, and ability to preload content or work "on-the-fly".

Learning Catalytics

Recommended - physical device NOT available - meets/exceeds faculty needs - accessible

- Built-in features align well with research: Easy to use/click buttons for "I don't understand" and "I have a question", automatically grouping of students based on answers/location in room, and metacognition based questions (I get it now, I still don't get it…)
- Spring survey did not provide much feedback regarding Learning Catalytics; support for faculty seem vast but unsure of breakdown between supports for Pearson products in general vs. specialized support for software. One demonstration participant noted "extra clicks" to set up session.
- Added benefits from company include free system usage with Pearson products, question banks available to choose from, and equation editor built in for student responses

Polleverywhere

Recommended - physical device NOT available - meets/exceeds faculty needs - accessible

- System has less capabilities than Learning Catalytics, is seemingly more simplistic, but very easy to use. Asynchronous testing feature is limited and was not clearly explained during demo
- Spring survey results suggested current users are highly satisfied with support, capabilities and flexibility of product.
- Added benefits from company include free system usage for polls including 40 or less responses per question.

TopHat

Would recommend with changes - physical device available - meets/exceeds faculty needs - accessible

- Physical device is not marketed widely but is available (company aligns with research)
- System has similar capabilities as other vendors with physical device; A few participants noted "clunkiness" of system (floating toolbar) and one student mentioned it can be hard to access uploaded slides. Faculty have expressed concerns over their current marketing techniques and company has ignored requests by KSU to stop contacting faculty directly.
- Would need to update changes regarding accessibility & have met goals set out for 2019 (please see Clicker ICT accessibility review and final recommendations document or contact SAS for further explanation).
- Added benefits from the company include offline mode (data is still recorded if Wi-Fi crashes), lockdown browser feature, low cost and free online textbooks, question banks and other resources for faculty to use.

Turning Technologies – University's currently recommended vendor

Would recommend with changes - physical device available - meets/exceeds faculty needs - accessible

- There is a history of software update problems, not producing what was advertised as "coming soon", implementation problems, lack of support from company, and faculty-users that are very dissatisfied with them (part of the reason the charge to evaluate clickers was made; dissatisfaction very apparent in Spring Survey results).
- Note from IS staff: It is necessary to have a full-time dedicated individual on campus to support their product. Although this seems like a good support tool, other vendors do not offer this due to their product be more user friendly and it not being needed. *This note was similar to those mentioned by other universities
- System has similar capabilities as other vendors but demonstration participants noted that their best elements/features are "in-development".
- Accessible but additional work necessary to make more accessible (please see Clicker ICT accessibility review and final recommendations document or contact Jason Piatt for further explanation).
- It is recognized that switching vendors would not be an easy process but due to other systems' capabilities and history of faculty dissatisfaction and company patterns, it is the "least recommended" vendor. Other vendors have described easy transition methods (e.g. usage of previously designed Turning presentations without completely remaking them).

H-iTT

Would not recommend - physical device available – does not meet faculty needs – not accessible

- Does not meet needs of faculty (demo feedback)
  - Complicated two program system (one for obtaining feedback, one for analysis/review)
  - Possible security concerns regarding where data is saved
  - Lack of sync with learning management system
- Not accessible (please see Clicker ICT accessibility review and final recommendations document for more details)

Appendices

Spring Survey Results: Non-users

Of the 365 faculty who responded, 184 indicated they have not or do not use Student Response Systems. Of those 184, 150 provided comments regarding their non-use.

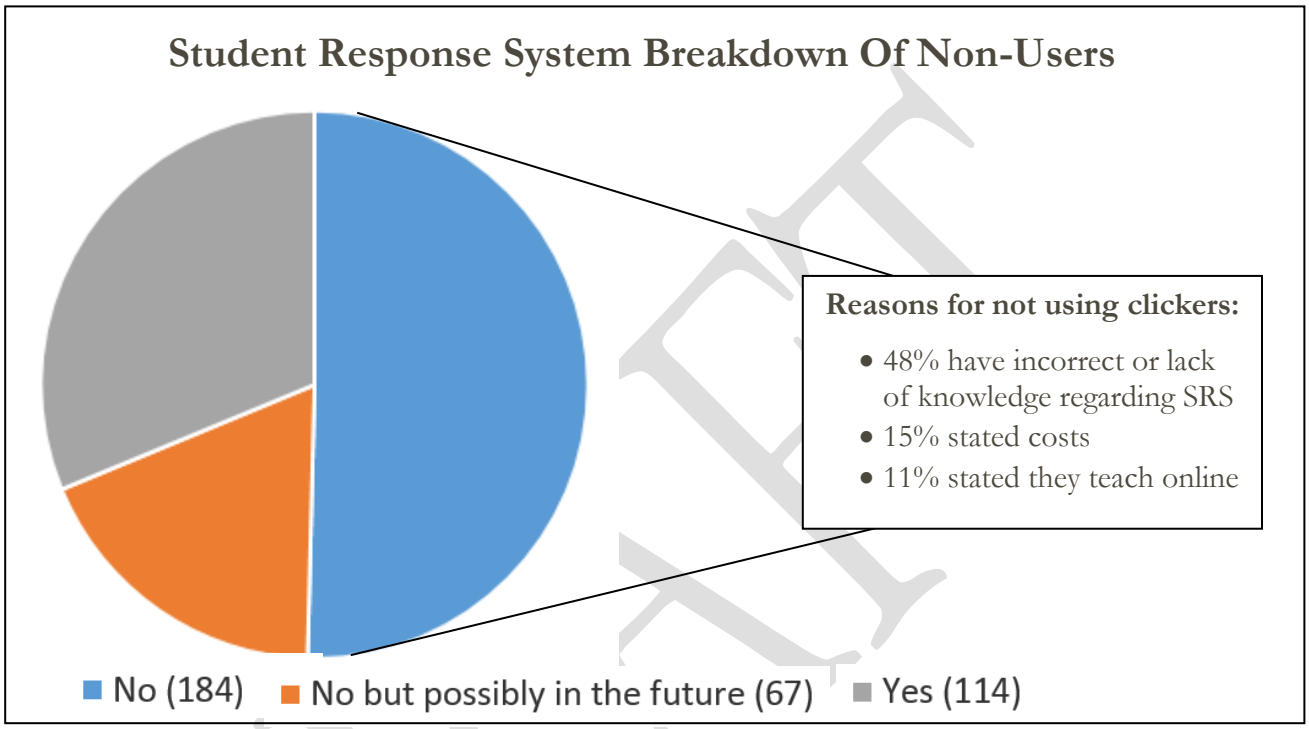

Diagram 2: This chart provides more information about the faculty who responded no. Faculty were asked why they were uninterested and what characteristics they might consider if they were to consider using a student response system. Faculty could indicate class size, appropriate cost to students, user interface ease, ability to use a device separate from computers and phones, check various grading capabilities, types of questions that could be asked, and compatibility with PowerPoint, Blackboard, texting-only phone, laptops, smart phones. Faculty were also asked what might pique their interest in using student responses systems. Within these responses, 70 faculty thought Student Response Systems were not for their subjects, didn't know what they were or had other misconceptions or incorrect knowledge about their usage. 22 faculty stated costs were a concern (see quotes below for specific examples) and 17 faculty indicated they teach online classes only.

Quotes from faculty who indicated they do not use Student Response Systems.

"Why are you currently uninterested in using student response systems in your classroom?"

- *"Colleagues who have used them… involved lost data… may be working at the Kent campus, but not at my campus. I will not invest time and effort into a system until I know it works"*
- *"I also feel that academic freedom should allow me to decide how to teach and assess a class"*
- *"I talk to my students; and they talk to me"*
- *"the infection of technology in the classroom is transforming human beings into robots"*
- *"It has been a disaster. This is one of the most over-sold product I have ever encountered. For the real benefits of student engagement are off-set by the frustrations due to technical glitches. Administration soliciting and then ignoring faculty feedback on specifics has created a culture of hostility both on the part of the students and the faculty. No allowance was made to off set faculty investment in developing clicker based materials. Costs to the students is not considered, especially in light of the failures of the devices to function properly. Increased noise and distractions are clear negatives and the students are hostile to the use of clickers to take attendance. Students do not perceive this as a "Conversational Framework", only another gimmick that divides their attentions. "Is this going to be on the test?". Good question."*
- *"there are other—free—ways of engaging students. If I can save them money, I will. A good teach will find the best solution to suit their pedagogical strategies. Imposing something on me, as an education with the terminal degree, is questionable – I can't believe we ever required clickers in any course!"*

'What might pique your interest in using student response systems?"

- *"demo the product"*
- *"If I were to be convinced it is not just another classroom gimmick"*
- *"information on their success"*
- *"If I knew how they worked and that they synced with KSU systems"*
- *"easy feedback"*
- *"not much/nothing"*
- *"If I had the time"*
- *"Free to students"*

Spring Survey Results: Possible Users

Of the 365 faculty who responded, 67 indicated they do not use student response systems but may in the future. Of those 67, 59 provided comments regarding their non-use.

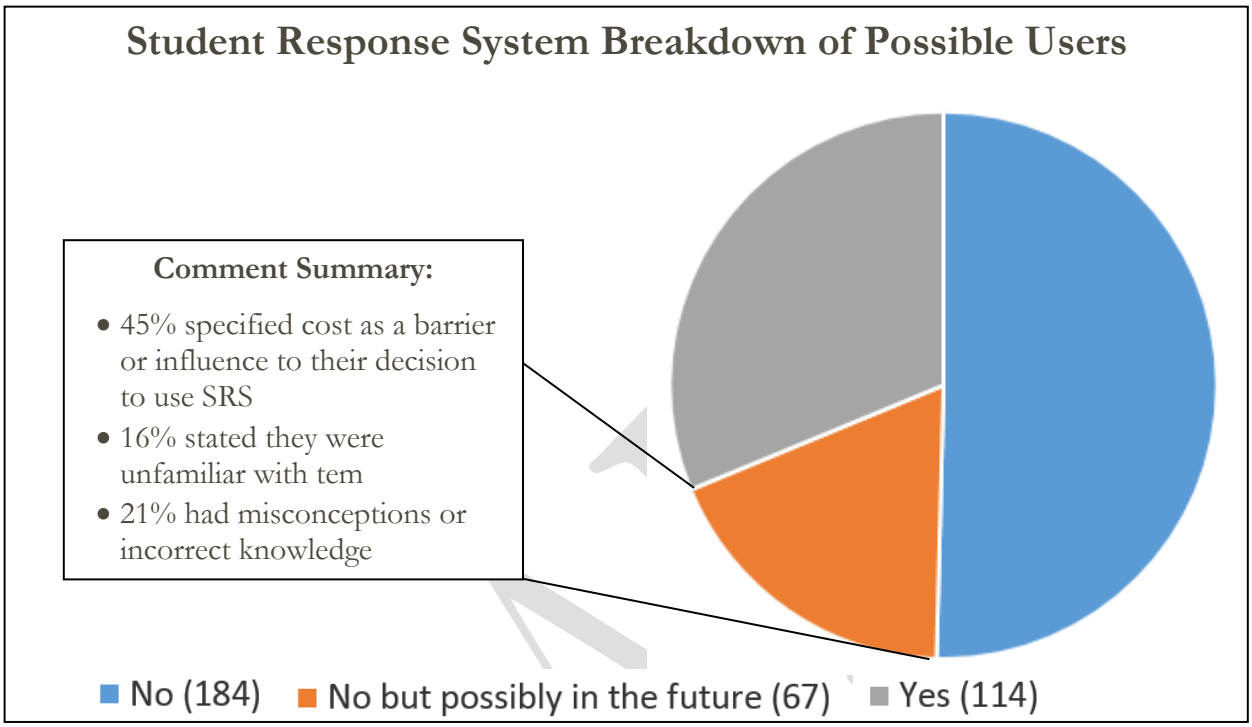

Diagram 3: This chart provides more information about the faculty who responded "no, but possibly in the future". Faculty were asked what some barriers to their use of student response systems in their classroom. They were also asked which characteristics were important when considering a student response systems; faculty could mark other and type a response, indicate class size, appropriate cost to students, user interface ease, ability to use a device separate from computers and phones, check various grading capabilities, types of questions that could be asked, and compatibility with PowerPoint, Blackboard, texting-only phone, laptops, smart phones. Faculty were also asked what would influence their decision to implement a student response systems and if they were willing to be part of a continuing discussion regarding student response systems. Quotes from questions can be found below. Approximately 32% (19) of those who responded wanted to be part of continuing discussions.

Table 1: Important Characteristics of Student Response Systems as Indicated by Possible Future Users

Less Important	Moderately Important	Very Important
• Device separate from computer/phone • Drawing or attachment responses	• Short answer responses • Acceptable cost • Compatibility with texting-only phones • Appropriate for my class size • Grading linked with Blackboard	• Grading linked with Blackboard • Anonymous responses • Compatibility with Blackboard • Compatibility with PowerPoint • Compatibility with smart phones and laptops • Ease of user interface • Multiple choice or T/F responses

Table 1: This table summarizes the faculty responses to the question asking faculty to indicate which characteristics are important to them when considering a student response system. If more than 50% of faculty checked the box, it has be labeled as "Very Important". If greater than approximately 1/3 of the faculty indicated it as a concern, it was labelled "Moderately important". If less than 1/3 of faculty indicated it as a consideration that is important, it was labelled as "Less Important".

Quotes from faculty who indicated they do not use Student Response Systems but may in the future.

"What are some barriers to your use of a student response system in your classroom?"

- *"Time to implement a system. Cost of the response system."*
- *"Feedback from colleagues that the gains were only minimal but valuable class time is consumed with clicker exercises. Also, I am not very familiar with the tools and so a significant time investment would be needed for me to effectively learn how to integrate such tools into my classes."*

"What would influence your decision to implement a classroom response system?"

- *"if it was at no extra cost for my course"*
- *"I can't use something that I don't have access to on a University computer."*
- *"useful, easily available to students"*
- *"It would have to be universally available in all class rooms since I teach in different rooms most semesters. It would have to be free to students and easy for students and faculty to use, e.g. an app that students download, with responses uploaded to a link that faculty would then bring up to show results. It needs to work by text or online via students' phones, and cannot involve separate devices that lock us into one service/product, and that students often forget to bring to class."*
- *"If it were REALLY easy to set up, and my students seemed to like it and found it easy to use."*
- *"Learning how it works and why it might benefit learning or teaching." "Training on best practices and process"*
- *"Observation of use and in person support"*

Explanations (Quotes) from Heavy Users of SRS

(These responses are summarized in Table 3 – Page 9 of this report)

- Turning Technologies
  - *"At the time I used clickers from turning technology there was great support"*
  - *"Turning Technologies has allowed me to do a variety of things including give quizzes that are self-paced. I have built my classes around this technology, so it would be a big deal for me to transition to another platform. However, now TT requires students to purchase costly licenses and the new software updates don't seem to make the system work better."*
  - *"Steep learning curve on the software. Also finding support was difficult"*
  - *"The licensing that was introduced fall 2016 was unexpected, costly for the students and a huge hassle!!"*
  - *"Even though the system, before its current upgrade, is limited, the new upgrades will allow me to incorporate more types of uses and questions into the class. I especially like that Turning Technologies now has an app that allows students to use their smart phones rather than the response card."*
  - *"There have been moments of significant frustration but their technology is very good when it's working and part of the problem is that our own IT department was not working closely with them even after I requested it so I can't totally blame turning technologies. They've also given us great pricing for next year and one of their top engineers came to my office and apparently has resulted technical problem."*
  - *"It used to be a good option, but the cost to students has become prohibitively expensive. Turning Tech keeps upgrading the hardware (unnecessarily) and software beyond my needs. They seem to think that justifies the inconvenience to me (having to deal with new system software, etc) and the outrageous cost to students."*
  - *"I haven't had an undergrad lecture course in awhile but Turning worked well back then."*
  - *"Seemed the vendor got more benefit than the students who paid for them"*
  - *"Systems seem to change frequently which requires re-learning almost every semester. Not always easy to do all that I want to do (repeat/revise questions)."*
  - *"Issues with App, price is expensive, changing technology made old clickers obsolete."*
  - *"Nothing extraordinary, but it accomplishes its purposes"*
  - *"Happy with the technology, but unhappy with the cost"*
  - *"I have tried three times to use the clickers in class hover; there has been technical difficulty that cannot be resolved. This semester I asked to use them and was told there is a free phone application that does the same thing :/"*
  - *"Does the job, without much distractions"*
  - *"Sometimes students have issues with their clickers which can be a bit time consuming to sort out".*
  - *"Easy to use, reliable"*
  - *"Limited capabilities"*
  - *"I'm copeing with ever shortening attention spans and thought this would help-not as much help as I thought --sometimes the technology doesn't work well"*
  - *"Provided great data"*
  - *"Clickers are expensive, can be lost and the program was hard to use. I was an early adopter and was profoundly disappointed." (*Note: user no longer uses Turning but has moved to Kahoot)
  - *"When the switch to up the Cloud was done there was a period of adjustment that took more time than expected. I have used these clickers for almost 6 years, and my data have shown there efficacy for improved performance."*
  - *"There is not much support for using clicker technology in the classroom."*

- TopHat
  - *"Convenient attendance for large class"*
  - *"Everything is in one place. I like that you can present lectures, write on those lectures and imbed questions and assessments."*
  - *"User friendly, simple to use."*
  - *"In large classes it is good to take attendance. It allows students to use their cell phones or tablets or computers to take in class quizzes and post answers to discussion questions, which keeps them engaged and interested"*
  - *"It is very versatile and the students do not need to purchase any additional equipment."*
  - *"Ease of use - but hated to add the price for the students"*
  - *"allows me to incorporate multiple aspects through 1 interface; attendance, questions, discussion, homework, etc"*
  - *"Integrated into lectures (but has limitations as well, students have to pay, and smartphone or mobile device expected)"*
  - *"Mostly like, some limitations, customer service can be over solicitous. Wish it was less expensive."*
  - *"I like being able to draw on my lectures and having it saved for the students. I like asking students questions throughout the lecture to get more involved. I also like using it for attendance."*
  - *Too expensive for what it entails."*
- Kahoot
  - *"It's the only system I've used but I love audience response options for class"*
  - *"motivating for students"*
  - *"It adds a layer of fun and competition on top of the assessment"*
  - *"It's free, it's fun, it's easy to use. The questions and answers must be limited in length, though."*
- Polleverywhere:
  - *"Cost, full-featured"*
  - *"I like that I can quickly and easily get student opinions and develop the conversation and I can reuse questions."*
  - *"Started using 2-3 times per class but had so many technical difficulties I abandoned it altogether"*
  - *"Easy to use, can be done with texting only (smart phone not expected)"*
- Blackboard Poll:
  - *"could not figure out how to use for my purpose"*
- Plickers
  - *"There's no requirements for software or hardware for the students. I bring the cards, they brad their number and everything else is on my phone/computer."*
  - *Doesn't work consistently, depends on the size of the classroom"*
- Google Forms:
  - *"ease of use with Google applications"*
  - "*Ease of use and did not cost anything"*
  - *"I have multiple question types, I can collect student names automatically, and I can reuse my assessments. Google forms also allows me to graph results."*
  - *"Only use as offline tool, not in class"*
- Socrative
  - "*I can use it as a formative assessment, it's free and doesn't require students to log in and I can reuse my assessments."*
  - "*Easy to use, can provide feedback*

Student Response Systems (with Fees) Faculty Indicated They Use

Name of Vendor	Device Used	Current Pricing	# of responses	Integrates with Blackboard Directly	Question Formats	PowerPoint Compatible	Response Visualization Options	Grading options	Support
Turning Technologies	Physical device (clickers), web browser, app	*$18 a semester, $25 a year, $49 for 5 years Clicker: additional $29+	Unlimited	Yes	MC, T/F, Short answer, numeric, essay, Likert scale, group learning, images…	Toolbar in PowerPoint	Individual, graph, images, word clouds	Anonymous, weighted, and/or automatic	Student & faculty
TopHat	Physical device (clickers), web browser, SMS text, app	*$18 a semester or $25 a year with lifetime cap of $57 Clicker: additional $25+	Unlimited	Yes	MC, T/F, short answer, numeric, clickable image, matching, YouTube videos, group learning, images…	Toolbar in PowerPoint	Individual, graph, images, word clouds, heat maps, question reports	Anonymous, weighted, and/or automatic, geosensing	Student & faculty
Polleverywhere	Web browser, SMS text or app	40 responses per poll for free, $14 per year per student if more	Unlimited	Yes	MC, T/F, clickable images, open ended, rank order, competitions…	Yes	Graphs, word clouds, heat maps, images	Anonymous, and/or automatic	Faculty (student = online documents)
I>Clickers	Physical device (clickers), web browser, app	$15 a semester or $24 a year, $48 for 4 years Clickers: $25+ (receiver cost $20-$125)	Unlimited	Yes	MC, numeric or short answer	Toolbar in PowerPoint	Graphs	Weighted, and/or automatic	Online support portal
Socrative	Web browser or app	50 responses per poll for free, $60 a year for faculty	50 max free, 150 max for pro-version	No	MC, T/F, short answer (image can be inserted), group learning	Yes	Graphs, word clouds, text walls	Anonymous, automatic	Faculty & student (tickets)
Qwizdom	Physical device (clickers), web browser or app	$50 per student (receiver cost $525 + licensing, $199 per 10 faculty)	999	Yes	MC, T/F, numeric, rating, demographic, sequencing	PowerPoint Plugin	Graph?	Anonymous, weighted, and/or automatic	No
Learning Catalytics	Web browser	$12 a semester, $20 per year	unlimited	No	MC, T/F, open-ended, image upload, group learning, sketching	No?	% correct, graph, pie chart	Automatic, seat mapping possible, self-paced, weighting	Online documents?

Note: Turning Technology price quotes from vendor may not reflect KSU bookstore pricing.
*Turning Technology, TopHat and Polleverywhere are open to price negotiations.

FREE Student Response Systems Faculty Indicated They Use

Name of Vendor	Device Necessary	How responses are obtained	# of respondents	Question Formats	Response Visualization Options	Grading/Transfer Options
Kahoot	Any device with internet	Students type in pin in, can insert name, click/tap on answer	Unlimited	A,B,C,D type answers (multiple choice, T/F, questions related to images/graphs)	Individuals, graph	Copy & paste (answers to questions, time it took to answer question)
Plickers	QR code-like cards for each student (**free** printout by instructor or $20 for laminated set of 40) + Android or iOS device with camera	Card held in front of student, instructor scans audience with phone camera connected to software	63 with individual set; can use multiple sets (complicated)	A,B,C,D type answers (multiple choice, T/F, questions related to images/graphs)	Individuals, graph	Copy & paste (% correct responses OR answers to questions)
Google Forms	Web browser	Students access quiz via email, shared link, Blackboard, Facebook, twitter or via text. Answer and submit.	Unlimited	Short answer, paragraph, checkboxes, choose from list, scale, grid, date, time, MC, or numeric	Table, Graphs	Excel file can be modified to add weights to grades, copy & paste
I-response	iPad, iPhone or iPod Touch	Students connect to instructor-created network, log-in with classroom ID, click/tap answer on device, submit then log-back into session	Class size limited (or custom)	A,B,C,D type answers (multiple choice, T/F)	Individuals, graphs	Screen shot of student answers (# correct/wrong + %), email to self

Support for each of these systems consists mainly of YouTube videos with some having online documents to support faculty.

Clicker Demo & Evaluation Feedback Form

Please mark <u>one</u> column for each row to specify how the vendor meets your needs.

Vendor 1	**Does not meet my needs/inadequate**	**Meets my needs/acceptable**	**Exceeds my needs/exemplary**
Ease of setting-up course			
Question format options (MC, T/F, anonymous…)			
Ease of making questions			
Ease of implementing questions in class			
Ease of use (as student)			
Ease of visualizing responses			
Measures for addressing students system misuse (cheating, not on location…)			
Usefulness of data (analytics) generated			
Ease of integration with Blackboard			

Notes/comments:

Please mark <u>one</u> column for each row to specify how the vendor meets your needs.

Vendor 2	**Does not meet my needs/inadequate**	**Meets my needs/acceptable**	**Exceeds my needs/exemplary**
Ease of setting-up course			
Question format options (MC, T/F, anonymous…)			
Ease of making questions			
Ease of implementing questions in class			
Ease of use (as student)			
Ease of visualizing responses			
Measures for addressing students system misuse (cheating, not on location…)			
Usefulness of data (analytics) generated			
Ease of integration with Blackboard			

Notes/comments:

Please mark <u>one</u> column for each row to specify how the vendor meets your needs.

Vendor 3	**Does not meet my needs/inadequate**	**Meets my needs/acceptable**	**Exceeds my needs/exemplary**
Ease of setting-up course			
Question format options (MC, T/F, anonymous…)			
Ease of making questions			
Ease of implementing questions in class			
Ease of use (as student)			
Ease of visualizing responses			
Measures for addressing students system misuse (cheating, not on location…)			
Usefulness of data (analytics) generated			
Ease of integration with Blackboard			

Notes/comments:

Please rank each vendor for each criteria: 1 is the best, 3 is the worst.

	Vendor 1	Vendor 2	Vendor 3
Ease of setting-up course			
Question format options (MC, T/F, anonymous…)			
Ease of making questions			
Ease of implementing questions in class			
Ease of use (as student)			
Ease of visualizing responses			
Measures for addressing students system misuse (cheating, not on location…)			
Usefulness of data (analytics) generated			
Ease of integration with Blackboard			
Other (please indicate) -			

1) Please circle the one vendor that would **least suits** your needs

Vendor 1 Vendor 2 Vendor 3

Why does this vendor least suite your needs?

2) Please circle the one vendor that **best suits** your needs

Vendor 1 Vendor 2 Vendor 3

Why does this vendor best suite your needs?

3) If there is anything else you'd like us to consider concerning vendors, please let us know below.

4) If you identify yourself as a "champion" or heavy user, please provide your email address below.

_____@kent.edu Circle- Vendor 1 Vendor 2 Vendor 3

Other Artifacts & Data Regarding Vendors

Aside from the consideration of research on student response systems, other university evaluations and their vendor choice was considered mostly to ensure the process the sub-committee went through was appropriate and was as holistic as possible. Throughout the process of communicating with vendors, various artifacts were provided to the sub-committee. Demonstration recordings were provided to participants noting they were unable to attend and those who did not show up. PowerPoint slides from demonstrations, pamphlets provided to demonstration participants and other information regarding product usage were provided. Usage data from vendors was also obtained. Finally, each vendor completed an accessibility form and Student Accessibility Services reviewed their response and provided recommendations. Research regarding student response systems in the classroom was also considered.

Other University Evaluations & Changes Considered

Link to excel file depicting KSU peer institutions (and aspiring institutions) vendor choices, policies surrounding adoption (site license vs. one supported vendor) and some details regarding evaluation/adoption process.
https://docs.google.com/spreadsheets/d/1lf3p6hB08kXayzlw0f0ydmQIRbAoy2eeuFTIGVj0L7g/edit?usp=sharing

Link to webinar about a peer institution (U of North Texas) undergoing a review process of student responses systems and their subsequent transition from Turning Technologies to iClicker
https://learn.iclicker.com/ic-recording-181101-Dancing-Through-Change-How-To-Navigate-A-New-Student-Response-Implementation.html?mkt_tok=eyJpIjoiWWpNNFlXTm1NalkyTVdVeiIsInQiOiJjUTM2MFM0K3h3ZHl5MVB5NzhsSXdMbEJDejB0a2Q4Um9VMlwvaVwvcUpvK0FFR3FvazNpNUZFTmNsa1l6WHhRMFo4VUVsY1BLR3hxcWhoeEhjTTNIMytxU2E3blgzaVhIYXRXWDB2YXl5ZVFpUDd5dnlKdjN3YWhid3RNNEg4WElVIn0%253D

- Presenter noted in chat function that all students were given a university-wide license paid for "behind the scenes" to help decrease barriers to use and implementation of the system. Adoption of system went from 20 instructors to over 120 instructors in less than 2 years with more than half of the student population now utilizing the system (BYOD option only).

Demonstration Artifacts:

PowerPoint Slides and other artifacts provided by vendors at demonstrations can be on at the following link.
https://drive.google.com/drive/folders/11uRXdZjuFQYmtTll21_IEyQPNwORlBXn?usp=sharing

Spring Demonstration Comparison Chart - TopHat, Turning Technologies, Polleverywhere
https://drive.google.com/file/d/1rd_-Gd2wJs0Ft59QmoZFfKKEvTrw3Njx/view?usp=sharing

Spring Demonstration Recording - TopHat, Turning Technologies, Polleverywhere
https://video.kent.edu/media/Clicker+Demo+%26+Evaluation+-+2.9.2018/1_exwsjppj

Fall Demonstration Comparison Chart - iClickers, Learning Catalytics, H-itt
https://drive.google.com/file/d/1FBbFdpXb3TMPWhCIJuOLZm87O1A1T6V9/view?usp=sharing

Fall Demonstration Recording - iClickers, Learning Catalytics, H-itt
https://video.kent.edu/media/October+Clicker+Demo+%26+Evaluation+10.5.18/1_sd1ek49t

Usage Data:
Usage data provided was different across vendors and comparisons would not be appropriate. Current users on campus was considered in this report and its recommendations (vendors were upfront with how one might use other presentations/things developed for other vendors' systems and have transitioning mechanisms to implement should it be needed). Some companies were unable to differentiate between free and at-cost subscriptions, active-users and accounts no longer in use, and some of the information was so vastly different, comparisons were not useful. Usage data was not consistent across vendors and ranged from KSU email accounts (doesn't differentiate between free/at-cost users), enrollment using publisher each semester, number of accounts created since X, number of polls per user, number of active accounts (faculty & students), costs spent by students in the past year, ranges of responses each month, active courses, number of sign-ins. Comparing usage is not unfair since some companies respected the University recommendation and did not attempt to get faculty to use their products (e.g. iClickers). If you'd like to see this information, please contact Shelley Marshall.

Accessibility Report:
Each vendor invited to the demonstrations completed an accessibility form. Student Accessibility Services reviewed the responses and provided recommendations. They can be found at the following link: https://drive.google.com/file/d/1-UNoxDYLC8aPyR6H5R-98dHxSARyeWeD/view?usp=sharing

Research on Student Response Systems in the Classroom:

While the research on effective use of SRS in the classroom is vast, a few publications have been selected and their references placed on a documents. The references can be found below:

https://docs.google.com/document/d/1ch2AuDgahXbF8net5mzvdUfTJFE0XIAVTFkvPC_Ftfg/edit?usp=sharing