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RIT/NTID

An International Symposium
Technology and Deaf Education

"Using Clickers to Enhance
Student Learning and Engagement"

Presenters:
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Charlotte Thoms
Michael Kane

Session M2E
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>> Good afternoon. Welcome to our session on using clickers to enhance student learning and engagement. I'm Linda. I work in the center of employment here, and we're delighted to welcome Hope Williams from our -- who is an instructional technology specialist here at NTID, and she also coordinates the program for student response system. Our captionist today is Tammy Milcowitz, and our interpreters are Julie and Reed Bernard case. As you probably know by now, the sessions are to last a half hour, questions for ten minutes, so we're going to do our best to get you out of here on time. And Hope, we're looking forward to your presentation.

>>HOPE WILLIAMS: Thanks, Linda.

All right. Good afternoon. Thanks for coming to the workshop today. My name is Hope Williams, as Linda said, and I have two co-presenters. They're trying to hide here, but Charlotte Thoms, associate professor in the business studies program, and Michael Kane, and the three of us have been working with student response systems for a few years now. So we're here just to give you an overview of student response systems and give you an opportunity to experiment with them if you haven't used them already.

And I'm just curious, how many of you have already used student response systems or clickers in classes? Just one? Okay. Well, the goals for today are, again, as I mentioned, just to give you an overview, and to talk about how we're using clickers here at RIT. And then we're going to talk about some teaching strategies, and we'll give Mike and Charlotte some time to share their experiences with you and how they're using clickers in their classes.

So hopefully, all of you have a clicker. If not, we have them up front here, but you should all have a keypad that you can use, and toward the end of the presentation, we'll have some questions that you can experiment with.

So I think, Charlotte, if you want to pass some to the back, there may be a couple of people in the back that don't have them.

Thank you.

You also have handouts. I have a copy of today's PowerPoint and an article that Charlotte and I co-authored on using student response systems.

And then there's also an article from the Educause initiative about clickers, so it's a very helpful series on seven things you should know about clickers.

And that one's been around a while, but it gives you a good summary of what clickers are and how it can be used.

So what are clickers.

As you see, clickers are keypads, and they're different models and different manufacturers, but we're using the turning point clickers here at NTID. We're also using a couple other brands, but for today we're using the

TurningPoint and they're basically electronic keypads that let you respond to questions that are posed by a presenter. And of course we have several different names. Over the years the names have changed, and you may see them referred to as student response systems or classroom response systems, audience response systems.

But they're basically keypads.

The ones we're using today are radio frequency, RF, so you don't need a line of sight. I can walk about the room. You can walk about the room. And you don't have to point at a particular location in order for your response to be registered. So they're quite handy.

Here at RIT, we were introduced to clickers about three years ago from the online learning department. They initiated a pilot with a few faculty members in their science program, and then about a couple years ago, Marsha Young and educational design resources, happens to be here in the purple, she introduced them to us at NTID, one of the colleges here, and we've been using them in the Business Studies Program and in the master of science and secondary education program, and also for several student programs in the summer, summer exploration programs.

So there are a few trail blazers. Charlotte and Mike, the first two faculty members here to use them.

But, you know, their use is expanding through different disciplines, and we're planning on using them in the math and science department this year.

So some of the strategies that have them employed basically, the reason for using clickers would be to poll your class or to engage in some type of discussion instead of just having a lecture where, you know, you just stand in front of the room for an hour and just lecture to your students.

You could pose some questions, and it gives them the opportunity to respond and nice feature of the clickers is it allows students to respond anonymously. So it allows for full participation, and it gives maybe some of your introverted students an opportunity to respond. In some classes there may be certain students who dominate the discussion, and this gives everyone an opportunity to respond, and you will see, in a few minutes, we'll do a quick demonstration and you'll see that the responses are tracked immediately, and they're graphed immediately, so it's very helpful to get that instant feedback during the class.

It also facilitates, you know, active learning and other techniques like think pair share. I know Charlotte is using those types of techniques in her classes to let the students break up in small groups and discuss their questions and solutions to problems that are posed. So there are several

benefits. You know, clickers can make your classes more

interactive. It's just an alternative to the traditional lecture.

And again, as I mentioned, it does foster full participation, and it enables a teacher, faculty member, to gauge comprehension, so you can see immediately by looking at the results of the graph, you can see if your students are understanding what is being presented, and you can use that as an opportunity to clarify any information immediately. So, you know, you don't have to wait until you distribute a test or the students get their homework graded. You can give them feedback immediately.

And it's also a way to see if your students are prepared. If you've assigned homework, you can start your class off by asking some questions using the clickers, and you can tell by the responses whether or not they actually did their homework, if -- you know, if they're not getting the correct answers, then perhaps they didn't really complete their assignments.

And again, it allows you to tailor your lecture. If you see that students aren't understanding what you're presenting or there's certain concepts that are being misinterpreted, you can change your lecture immediately and make accommodations. And clickers can also be used for collecting demographics. I could pose a question, you know, how many males do we have in the room, how many females, that type of thing. So that's helpful, too.

And the benefits to the students are very similar to what I've mentioned. It provides the students with an engaging learning experience so they're not just sitting there watching the PowerPoints.

You know, some people love PowerPoints, some people hate it. And I keep mentioning PowerPoint, but you don't have to use clickers with PowerPoint. This particular program does work with PowerPoint, but there are other brands that allow you to post questions on any screen, and you can overlay it over any program.

So it does provide engaging learning experience. And again, the full participation, a lot of students enjoy being able to respond, and they don't have to worry about being embarrassed if they get the wrong answer.

Enhances motivation to pay attention, and it supports acquisition and retention.

And, you know, there's certain theories like the learning pyramid that would suggest the more interaction you have,

the more retention you have for your content in your lectures. So if you can get into group discussions and hands-on activities and break into small groups, your students will retain more information than if you just lecture.

So, how do clicker presentations work?

A question is displayed, and I'll show this in a few minutes, but in PowerPoint in this particular case, and then the polling is opened, and the instructor or the presenter can control each step in this process by clicking their mouse or their remote.

So when the polling is opened, the audience has the opportunity to respond by using the clicker. And then polling is closed. And again, that's at the faculty member's discretion.

And then the results are displayed immediately.

So everyone can see a graph of the answers to a particular question.

So, this is our first question. Give you an opportunity to use the clickers. I want to make sure everybody has one. And then I want to point out some things here that you'll notice on the screen. Again, I'm running Turning Point system, and you'll see on the top I have a tool bar, and because I have -- because I have inserted this as a clicker question, I have this tool bar that has a polling option, and you can see that the green area is indicating that polling is open.

So you can respond to this question by pressing any button, and I guess I'll respond, too. And you'll notice -- you probably can't read it from in the back, but up at the top, there is a counter, and it's showing how many responses are coming in. So right now I have about 22 responses to this question.

I also have at the bottom here a gauge, and it's showing 25 of 50 have responded.

Now, I set the number, the high -- the maximum number to 50 because I knew we would have about 50 people today. So that number could be as high as 250 for each session.

So when I'm ready to move on, I just click my mouse, and in this particular case I have set a countdown and I could have mentioned that to you before, class, you know, you have ten seconds to respond.

And then at the end, when I click, you will see the responses to the question there.

So we have about 48% who have responded as teachers, and

then you can see the distribution there. It's interesting. Okay. Now, I've chosen to display the result in percentages, but you could also put in numbers, if I wanted to see just raw numbers, it would show me the number. So I can toggle that on and off. So I have three more questions for you to try. This is an example of an opinion poll, and an example of how you could spark some discussion in the class. And maybe if you want to pose a question about something that's controversial, sometimes students may not want everyone to know how they feel about certain topics,

especially if you're talking about politics or religion or something like that. So again, you can respond. And then I can choose to start the countdown. Again, the countdown is optional, but I've added that, and all the objects that you see there are different styles that you can choose. The polling automatically closes at the end of the countdown, and so, wow, this is a tough crowd. I'll remember this when I'm writing down the -- so -- yes. Question?

>>AUDIENCE MEMBER: Is it possible for me to vote twice?

>>HOPE WILLIAMS: No. No. Actually, I've set this session up so that you can only respond once. But what happens is if you change your mind, your second answer will replace your first one. But that's an option that I can set in the program. So -- but it's no.

Okay. So this one -- this is from Mike Kane's accounting class. And I'm sorry, I don't really know the answer. I know what it is because I took it out of his presentation, but -- so we'll test your accounting skills here, your business skills, and give you a few seconds.

Okay. Have about 23. Oh, and if you noticed, I chose a different gauge down here on the bottom, so it's showing that I have 25 out of 50.

Another option that I have here, if for some reason I wanted to repoll the audience, I could do that, so maybe if, I don't know, someone had a question and I needed to clarify before moving on, I could say, okay, well let's start over. So you do have that option.

So another type of countdown. Time is really running out. The sun is setting.

And, wow, okay. So then I could reveal the correct answer. That's pretty good.

Now, if for some reason I had given you an assignment and, you know, only 8% of you got it right, at this point I

could, you know, engage in some discussion and clarify and find out why you were confused, or if you needed more information.

So anyway, so that's good.

And this is the last one. It's a little tougher, maybe, I don't know.

And the source here is a basic math book. And the reason why I pulled that out is because this is one of the textbooks that comes with clicker presentations. Some of the textbooks actually come with PowerPoint presentations that you can use for your classes and so you don't have to develop the PowerPoint from scratch. So they're designed to be used with clickers. So this is one of the textbooks that has the clicker questions.

And that's close enough. And a different type of countdown here.

Polling automatically closes, and, hey, all right. So that's basically it.

So now, I'm going to hand it over to Charlotte, who is our clicker pioneer. We call her the clicker Diva here. She's the queen!

>>CHARLOTTE THOMS: We have to be queen of something, so why not click -- oh, I'm sorry. So why not clickers?

Do you have any questions? I think that would be the -- I think that would be the best way. Yes?

>> Can I use this to mute my children?

>>CHARLOTTE THOMS: I'll tell you the advantage for my class. I teach the general business courses, and, of course, you know that's all reading courses, and when we get ready to review, my students request clickers.

They don't -- you know, I have a whole arsenal of tools that I use, wonderful things like Jeopardy, my favorite, and all kinds of ways, so -- because they have to learn over 200 vocabulary in a ten-week period.

And what has happened is by using clickers, I can now incorporate more lecturing, more class interaction into the class itself instead of just me talking. Now the students, once they click on the answer, now they discuss why they picked the answers that they picked.

And what has happened is on the first day of class, I give them the final, and then on the last day of class I give them the final. And we compare the difference.

And what has happened is students who, on the first day of class, maybe will get 23, 34, they get, like, 92 on the final. And this is vocabulary. And concepts.

And I do not water down the general business courses. I use the same books, for example, in marketing that the College of Business uses because we have an articulation agreement with the College of Business. So I must be sure that my students are on point.

And I'm very grateful for this technology because when you come to my class, ask anyone, my students are standing outside the door waiting for me. Because they can't wait to see what we're going to do next.

And I have very few -- I think last quarter I had one student who didn't show up every day for class. And my classes are overloads. Students line up to take my class. So, if you want your students totally engaged, this is the process. The queen has spoken!

>>HOPE WILLIAMS: Thank you. So now we have the king! Michael Kane. Do we have a question up here? Go ahead.

>>MIKE KANE: I work with the queen in the same department, and we have department meetings probably every two weeks. And they're not the most exciting meetings in the world. When she introduced us to the clickers for the first time, it was last fall. It was one of the best department

meetings that we have ever had.

There was a lot of discussion within our department during that meeting.

Clickers started, like Hope said, about three years ago in large RIT classes. Now, our typical class size is about ten students, maybe ten to twelve students, and it works equally as well.

I use the partner system, and really, the best part, again, is being able to assess. If most of the class answers incorrectly, then I'll take the time to explain it again.

>>CHARLOTTE THOMS: I've also -- I do workshops off campus, and I've had groups as large as 500, and I use the clickers equally effective with large groups.

>>HOPE WILLIAMS: We have a question over here.

>>CHARLOTTE THOMS: Oh, I'm so sorry. Is it for me or Mike? Oh, it doesn't matter. Okay.

>> When you display the answer, should it be only one correct answer, or could be more?

>>CHARLOTTE THOMS: For me, my students are young. I don't want to complicate their life, so one answer is enough. Right. One answer.

I should have asked any other questions.

>> Any other questions for the presenters?

>>AUDIENCE MEMBER: I teach business courses as well, and

I'm interested in your use of the clickers, so how do you know who gets it right and who gets it wrong when you have this system?

>>CHARLOTTE THOMS: You can set up -- do you want to answer, Hope? You can set it up.

>>HOPE WILLIAMS: There are a couple different ways that you can use the clickers. You can set them up so that each device is registered to a student, and then he would be integrated with a course management system, so if you want to do rating, you can do that, and there's actually a grid that you can display on the screen, too, and there are reports that you can generate. So at the end of each session, there is a file that could be saved and you can generate reports from that.

We tend to use them just for, you know, review and group activities.

>>AUDIENCE MEMBER: Do you compare those to the classroom performances? Have you evaluated the three systems to decide which one you like best?

>>CHARLOTTE THOMS: That was a decision made with the lady sitting next to you and Hope.

>>AUDIENCE MEMBER: Was it based on evaluation or experience?

>>HOPE WILLIAMS: I'm sorry. I missed your question. Oh, a particular brand? The Turning Point clickers were introduced to us by the online learning department, so we

started with the clickers that they provided for us. But now we're branching out and we're doing different research. So in the next slide, our next steps are to try other brands.

And so there is one called the iClicker, so we'll be using iClickers in the fall, but Turning Point was the particular brand that was selected by our department.

>>CHARLOTTE THOMS: You had a question, Marsha?

>>AUDIENCE MEMBER: Just in response to the folks in the front row that asked if there could be only one right answer, and I think that it allows for multiple things to be indicated as right answers if you wanted to use that strategy of introducing more than one thing.

And also, if there is multiple right answers, you don't have to go to the indicator on the screen that says which is the right answer. You can just show the responses and then enter into a dialogue with the students about why whoever chose number one, why they think it's the right answer, and lead to discussion instead of answering it for them.

>> We're good. Another five minutes. And then there's room for questions, more questions, too.

>>HOPE WILLIAMS: Okay. Well, on that slide, so our next steps are to experiment with other types of clickers. I have somewhere, our math and science department will be using a different type of clicker that allows alphanumeric responses, so for the math questions, they can put in, you know, more than one, instead of just picking multiple choice, they can put in the answer, and they can do short answers as well. I just got these last week, so I know how to turn them on. That's about it.

So we'll be spending the summer experimenting with.

There's also another brand called the iClicker, and I don't have those yet, but here's a picture here.

This is -- I'm not sure what it stands for. It -- it's a model number, but it allows for alphanumeric responses.

And the iClicker -- yes?

Oh, yes. The question is about the receiver. This is the receiver that actually tracks your responses. So it's a USB device. Plug it into your USB port and as you can see, it didn't require line of sight, so you could be anywhere in the room with your clickers and respond. Question?

>>AUDIENCE MEMBER: What is the distance, I mean, anywhere in the room, but if you're in a huge auditorium-like room?

>>HOPE WILLIAMS: It's marketed as 200 to 400 feet. I haven't used them in an auditorium, but I have seen them used in auditoriums. Cost. Well, cost depends on what type of agreement you arrange with the manufacturer. At NTID, we purchased the clickers directly from the manufacturer. But at a lot of campuses, there may be an agreement with your campus book store, and sometimes clickers are bundled with

textbooks. So average cost, \$30 to \$60 a device.

These are approximately 30. The iClicker will be significantly cheaper than that for students, and the XR, they're about \$45.

But again, it depends on if we have an agreement, a bundle of textbooks and if we get any, you know, discount for mass multiple orders.

And that's a decision that --

The advantages of the different models, the three that we've used so far, with the XR, again, it allows the student to be able to input short answers. So if you don't want all of your questions to be set up as multiple choice, just, you know, 1, 2, 3.

Of course these are more complicated. But they provide

feedback on an LCD screen, so the student can see their response, and that's also helpful. And that's -- you know, we've gotten that feedback. Sometimes students -- they don't know really whether their response has been accepted, they're not really confident. I can see the numbers go up, but I don't know if that's my clicker actually registering the response. So this one, they -- it shows a checkmark and it shows them that their response has been accepted. And then the iClicker, it's just a more simplified device, and it has the buttons along the side and it allows you, with the Turning Point software, you have to install software and you have to install the hardware for the receiver. But with iClicker, you don't have to install any software. Everything's built into the receiver that's plugged in, and then you can use it immediately with any program. It overlays questions on to a screen.

So, any other questions? Anything else to add? Charlotte? Okay.

>>AUDIENCE MEMBER: Is that program compatible with the Smart Board?

>>HOPE WILLIAMS: I haven't used the Turning technologies with the Smart Board, but the iClickers can be used with the Smart Board.

So, but if you're -- if you're projecting PowerPoint with a Smart Board, then you'd be fine. Question back there?

>>AUDIENCE MEMBER: In response to that, Smart Board has its own technology called Senteo. That's developed for the Smart Board and Smart Notebook.

>>HOPE WILLIAMS: Anything else to add?

>>AUDIENCE MEMBER: I would like to ask Charlotte a question. You've used the clickers, and I'm wondering how often you used them. So if you're teaching a Monday through Friday class, you know, some of your students might get bored with learning vocabulary, so you use PowerPoint -- or for example, I use PowerPoint in my presentations, and

how -- and you would incorporate questions in that, so I'm wondering how often do you use the clicker? Is it a daily thing or do you use it every Friday? Once or twice a week? I just want to get an idea generally what your approach is.

>>CHARLOTTE THOMS: I teach -- my classes are two days a week, two hours per day, and I would say once a week for maybe one hour because I have to break it up. As students, it doesn't matter how great the technology, they're going to become bored with whatever you do.

So, one of the strategies that I use is I -- I let them lecture. At first I model the lecture, and then I assign them portions of the concepts that we're trying to learn. They will present a PowerPoint presentation on that, and then I will review the information, and then I will use clickers or some other tool to reinforce. But clickers are the only ones that they asked for. They -- when I say, we're going to review on Thursday, they say, will you use the clickers? And I'm like, if I feel like it. But yes. Did that answer your question?

>>AUDIENCE MEMBER: Yes. Thank you.

>>HOPE WILLIAMS: We provide the clickers to the students, so Charlotte distributes the clickers at the beginning of the class and collects them at the end. Again, other campuses and other colleges, they may require students to purchase them. So it just depends on how you want to administer. Not required. It's not required by the campus. But that depends on which courses they're taking. Those are available at our book store.

>> Is there another question over on that side? Oh, here.

>>AUDIENCE MEMBER: Yeah. One question. In the -- do you teach predominantly NTID students?

>>CHARLOTTE THOMS: All my students are deaf or hard of hearing.

>>AUDIENCE MEMBER: I noticed in your research paper under Future Directions, you wanted to take a look on if these clickers improved, I'm assuming yes, how much more improved, it would be interesting in my mind to see how much more NTID students gave for the clickers versus the hearing students.

>>CHARLOTTE THOMS: I wouldn't have a way of measuring hearing students' acquisition of information.

>>AUDIENCE MEMBER: Well, I would think that data exists. Research papers are written, I'm sure. But then it would be interesting to take your research paper.

>>HOPE WILLIAMS: You probably have to have a business studies course, marketing, OTB, orientation to business, hearing students versus orientation to business deaf and hard of hearing, comparing.

>>AUDIENCE MEMBER: I mean, in my class I always have two or three NTID students, and I'm always amazed at how good they can -- I don't know how much they watch me, but they're

watching the white board, they're listening to the interpreter, and if there's another one sitting next to them, they're talking to the NTID student next to them. To me it's almost as if you're adding one more piece to the

puzzle, but I guess they're used to it. I guess NTID students are used to gathering information.

>>HOPE WILLIAMS: A question over here? Question?

>>AUDIENCE MEMBER: I work primarily in distance learning in Wisconsin. So I'm wondering if, you know, if this technology is compatible, if we could get results from other schools that are long distance.

>>CHARLOTTE THOMS: You know, I don't see why not. You're talking about the results of research? Do you mean the results from research from using the clickers?

>>HOPE WILLIAMS: Or connecting to other classes?

>>CHARLOTTE THOMS: I don't see why not.

>>AUDIENCE MEMBER: Just long distance students being able to connect to this kind of technology and utilize it.

>>CHARLOTTE THOMS: Well, I don't know about that.

>>HOPE WILLIAMS: Using it as distance, from a distance.

>>CHARLOTTE THOMS: I first got it because I was doing a distance learning course in marketing. But I haven't had the time to figure out how to make it work for her or for them. I don't know. I don't know the answer to your question.

>>HOPE WILLIAMS: Probably use video conferencing, deliver a lecture through video conferencing somehow, but --

>>CHARLOTTE THOMS: Yes. Or the screen with the --

>>HOPE WILLIAMS: Smart Board?

>>CHARLOTTE THOMS: Yeah. It might work. Thank you for another idea!

>> We have time for one more question.

>>AUDIENCE MEMBER: I'm wondering if there's any experience with high school or younger-aged children using these clickers because I know for myself I'm a high school teacher, so I'm wondering if any high school programs that are using this kind of program.

>>HOPE WILLIAMS: It's possible that the Turning Technologies Web site may have some information. They have case studies, and in your handout, the last slide has a list of references so if you go to their Web site, I'm pretty sure they have case studies from higher ed and, you know, K-12.

>> Well, we want to thank hope, Charlotte and Mike for a wonderful presentation today, and to our interpreters and our captionist as well. Please be sure that you complete your evaluations either by going to the Web site that you can access in our NTID learning center, or I have some paper copies here.

And the session number was M2E. Thank you.