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**EDUCAUSE Live! Exploring the 2018 Horizon Report**

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>> Greetings and welcome to EDUCAUSE Live!. This is Malcolm Brown director of my initiatives here at EDUCAUSE and I'll be a moderator for this session. Here at the outset we'd like to thank Mindtree who helps institutions engage constituents with rich experiences and power educators and optimize operations. Now you are probably familiar with the interface with the webinar but here are a few reminders. Please use the chat box on the left to submit questions or to make comments. If you are tweeting, please use the hashtag EDUCAUSE Live! And please click on the link in the lower hand corner for questions and you can direct a private message to technical help by clicking the top-right corner and you can select chat with and select host. As I'm sure most of you know EDUCAUSE Horizon Project early in 2018 and is on tract to publish the report later this month. EDUCAUSE participation in the Horizon Report for Higher Education goes back for years to release the second issue of the report 2005. For anyone who has been reading the report over the past years knows the report is about teaching and creative inquiry. One of the gems of the report with the exploratory project and vividly illustrate just how the technologies can benefit learners and instructors. We're delighted to be joined by presenters today who have different roles in today's webinar. As commentators we're fortunate to have designer Michigan State and as comment Tate tors will Joining us will be Nori interim director of academics EDUCAUSE and certainly we have with us from project presenters from three institutions from Humber institute Vice President, from the American Woman's College at bay pack University Jeremy Anderson and two presenters from James Madison University and John McCarthy in school of writing rhetoric and technical communication. Thanks our presenters for joining us today and just as a reminder this webinar will be going to two fifteen Eastern time. Let's begin. To get us started Nori Murphy to give us a quick overview of the 2018 report in general and peculiarly projects in general.

>> We're excited to discuss the Horizon Report. The preview is available and many of you have been reading that. Last February when it was released, I'd like to go over a couple of things about the report before we go into the projects that we're going to be highlighting today. One of the things that you may recognize that has been included in the Horizon Projects over the last few higher ed reports is that they are using meta categories impact areas and this year we have included those six impact areas and you'll notice that they cue apart across the eighteen different essays included in the report. We found that in the topics that were selected that always connected devices really were interesting about expanding access and equity and one of the things that was of particular interest was that the flexibility of how when and where learning takes place seems to have more value right now than lowering the cost of education although lowering cost does appear in other places in the essays. As far as spurring innovations we were looking at the projects and essays as institutions as incubators, not a traditional thought of innovation but something that is really a very mature idea about innovation. We find that in the essays inventions entrepreneurial thinking are part of the pet Goth cal approach and the purpose of having institutions as incubators is to introduce graduates who are not only prepared to join the workforce but to ad advance their field through an entrepreneurial approach As far as fostering authentic learning we're finding that challenge based learning appear to be very important pedagogical approaches as presented in the 2018 report. Tracking performance is where we see leveraging data but it's interesting how across the multiple essays we'll find that leveraging informed decision making appears to be a very important aspect of the report. Fuel /P-G learning experiences and pathways for students seems to be important about tracking performance and informing adaptive learning tools are increasingly more important as we see these things spanning across the horizon. The barriers to adoption, we find things in improving the teaching profession is still coming across as a wicked challenge. The shifting roles of faculty shifting from stage on the stage to a facilitate or, a mentor, a coach, the ability for faculty to use data to personalize students experiences and new experiences in course design becoming more of a subject matter expert and learning to work on a team with instructional designers. They seem to be very interesting things that we're seeing across the different essays in the report. Finally, spreading digital fluency interestingly when I read this I've spoken with several people and there's something subtle about the way digital fluency comes across in the report this year. It's not literacy anymore. It's about fluency. Imagine being a second language learner and the first time you can tell a joke in your second language is the time where you are no longer learning but you are fluent and we're seeing that in the digital land scale where students are not onliable with communication with devices and technology but they are able to create and make connections with their learning content and with the methodologies and we're finding this is the fluency that is required of students through the Horizon Report essays. One of the things that we wanted to make sure we did in this years Horizon Report was to continue the inclusive tradition in the community. The international and U.S. higher ed community, projects that exemplify the development horizons in this years report. We found over one hundred and nine exemplary projects through the submission process and eighteen of those are presented in the 2018 report. Today we are very excited to hear from three of the institutions who's projects are features. Malcolm, back to you.

>> Thank you, Nori. Now I'm going to turn the floor over to Jessica and David. Any comments on what you've heard or the Horizon Report in general? Jessica? I'm sorry. David. I beg your pardon.

>> I was confused.

>> This is David from the University of Denver, Colorado. I've been the director here for years and been an avid reader of the Horizon Report. I think in the report it was that sanity check that made me feel okay about these things and I could wave the report around in front of my boss. As it matured it was a way to see if we're doing the right things, where we in step, are we learning? So in that sense I think that this current evolution of the reports is fascinating and fantastic. I would say this though. One thing that's interesting to me is innovation seems to have been a watch word for the report all along. If we keep focusing on innovation I have to wonder are we doing something wrong. Are we going to post truth world. Are we in a post innovation world in higher ed and I think the answer is we're not and the reason why is all we have to think is what innovation is. Elon Musk says if you are not failing enough you are not innovating. The generation of new ideas, but in fact innovation is taking creative ideas and seeing what works and fixing it. I got excited about the report being published and this is my chance to learn and find out what innovations stick, what innovations work and test myself to innovate in my area.

>> Great, Jessica.

>> Again, I'm not David but if that's what you want me to be I'm here for you today. I'm Jessica at Michigan State University and I've been in the field of IT since the late 1890's and in academic technology and learning design since the mid 2000 and Horizon Report has always been a compass for me and my team about what is coming, what is new but it has also been a valuable tool for what Nori mentioned as the theory to practice. How are these development moving from theory to practice really impacting students success on our campus and our organizations and then also through sharing these projects how can we start to build communities around these ideas as opposed to working in individual organizational styles which I think we all think about it a little bit and we're noticing that there are pieces of our field and work that we really wish weren't so. I'm thrilled to be here today and amplify these ideas and meet and talk with you all. Thank you for inviting me.

>> Thanks, Jessica. At the risk of putting you on the spot, I thought David posed this question as being opposed to innovation idea. Do you think we are or we're not?

>> You are talking to me? Okay. I think I do not think we're in a post innovation era but I do believe we're in an era where everyone defines innovation differently. There are faculty on my campus who they make a video and their lives has changed their practices in ways that they feel are impacting students success in their courses whereas students are saying wow that video was an hour and fifteen minutes long. I'm not going to survive this. Please stop so I think I can elevate this conversation in the chat, maybe some shared definitions or shared conversations about what it means to innovate are one of the outcomes of the Horizon Reports can facilitate. Thank you for the challenge. Keep them coming, Malcolm.

 >> David, do you have any last comment to make?

 >> You bet. I think that it's critical, innovation. I think it can be exciting to see what works and it can be tiring for the people who are supposed to use all this innovation and in a world where there's hundreds of thousands of apps and new technologies and your phone is updating constantly. We do need to think about innovation as that front, that kind of moving front between new stuff and future practice and help people cross that divide. I don't think we're post innovation yet but I think we're in a post innovation weary time and I think we have to be thoughtful about how we impact people.

>> It makes me think we should think about vocabulary. It got overused to the point where it lost some of its value as an expression. We're about to go into our first project. Just a reminder to everyone we inspire to make this an interactive session. Please feel free to jump into the chat and how innovation needs to evolve. Please feel free to make use of that space. Jessica and David thank you very much for your insights there. Now I'd like to turn to the first of our three projects. First up is Jeremy Anderson who is with the he American Woman's College. He'll tell us about projects that bring together adaptive projects and open resources.

>> Hi there again, everybody. So what really excites me about being here today is very much what David was talking about. We've been going through a lot of innovation here at the American Woman's College trying to figure out how to bring two new toos, O ER and adaptive learning to scale and there's a lot of sweat equity in that. I want to share what we've been doing and how we've been doing it and what kind of outcomes we've seen and where it's going in the future. Without further ado, let me tell you about the American Woman's College. We were launched by bay path that's been around 2007 and we were the first American online institution for adult women and we serve an access mission as does the University in general and that means we have a very socially diverse student population. One of our strategies for decreasing the price for women is looking to O ER first and that has paired well with adaptive learning and this is what an adaptive course looks like at American Woman's College. The idea here is we've broken the course down into seventy to one hundred core concepts and this is one week in one course. Each of these concepts we have learning, which is comprised of text and video, audio, there can be examples where students are interacting with the material and we test the students with a collection of questions. The hypothesis we have here is that by allowing students to engage with types of materials they are going to start to understand how they learn best through metacognition and we're going to allow faculty members to look at what students need help, what concepts they need help with and we're going to improve immediate course and long-term success in terms of persistence and grad ration rates. We're focusing on math, English, humanities and sciences and subjects along those lines because those have the highest potential impact. What's been great is that's also the place where you'll find most of the O ER. We've been building vertically in our science and business programs which are also our largest enrollment programs. The result of all of this has been that we've scaled up rapidly both in the number of O ER courses as well as the number of adaptive courses. That very much has been by design and adaptive learning includes granule content, concepts that you saw on that map before. So to get enough of that content we love that O ER allows us to reuse learning materials in my way we can imagine. For example, if we want to re package a collection of activities from one course as we do in our intro English course and then put them into a more advanced English course where students might need a refresher, for example, with APA styling. We're able to move that around and use it and without O ER we won't be able to do that. There's also been pressure from the outside in that publishers, you know we've been using their textbooks and when we speak to them about this they get guarded and throw their hands up and walk away from the table because that's never been the paradigm. We've got this benefit of being able to use O ER but then we've got this outside pressure to find something new. It's been a great pairing between O ER and adoptive learning in that sense. What this has requires though is a lot of different partners and you see a couple of them here. We've focused in on a lot of the low cost and O ER providers, the open stacks of the world and one that I'd like to mention is ed map. They've got this great service where they match up an access librarian with a subject matter expert from our institution and on top of that we've got our own subject matter experts who create their own material and write all of the hundreds of text questions for O ER and it takes research and partnerships. We've had to change a lot as an organization and we've created competency stacks for virtually every role in the organization. The first stack there that you see is what we put in front of our subject matter experts and the second is what we have for our faculty and then we've got for staff another training stack and the basic concept here is that you can stack up and get these additional competencies if you want to proceed with the use of adaptive learning or O ER at the institution. Just using faculty for an example, if you want to teach an adaptive course what we're going to do is put in front of you that teaching knowledge course, you see it there on the screen and we're going to put you in a training course showing you how to use the analytics associated with adaptive learning so you can change from that guide from the set on the stage to the guide on the side as Nori was saying. We do that for faculty subject matter experts and they need to learn about O ER. If you want to work in higher level skills and higher level courses you learn how to do O ER. Students need to be oriented because they are going from a perspective of wanting to show up in the classroom and have information said to them. Adaptive learning with O ER and open pedagogy opens up opportunity for a more directed self learning so we wanted to help faculty become that guide on the side but students need to know they are going to have a different role. We put them into a non credit learning experience in the beginning of the program and it prepares them for that. I'll also say communication as with any change process has been absolutely critical. We send out e-mails, training webinars, videos and we have a full website embedded in every course that talks about how to teach and learn with O ER and adaptive learning. It's every week, every couple of days we're communicating with a different stakeholder group about how to use these new tools we're acquired. Then what's really come of this though is some amazing stuff and that's really where the proof is in the pudding. The savings because of the O ER has been incredible. You see here what we've saved last academic year and we're project to double that over the next year. That three hundred and fifty dollars is important to students. Many students don't have money to buy textbooks and this really is going to improve their learning which is another component. It's great that we're saving money but if the learning and engagement is not there it's all for knot. Students feel engaged in learning in these O ER and adaptive courses and one of the reasons is they feel like the classroom has become a lot closer and you can see here a quote but as you reed through the other comments it's about bringing the students and faculty close together because they are each seeing the learning map in that course and they can speak intelligently about where the challenge or excelling is happening. Students feel really great about that and feel engaged. On top of that students perceive that they are learning better. 82% in our survey that we send out say I feel like I'm learning better in this adaptive course in O ER which is wonderful. We're what we're going to be doing is looking at what the hard data says and that's a part of a grant that we were awarded by the U.S. Department of ed and we'll publish that to our institutional website but certainly the perception is that, learning is improving and one of the big reasons is again and again students are saying we love the fact that with adaptive learning we're able to see the same concept in a number of ways. One student might see the text version and another might see the video and it's tailored to how they've learned in the past. Another thing though and faculty and students say the big theme with them is teaching isn't a black box anymore. I know from day one how every student is doing in every single concept in my course. There are no more guessing games. You are able to hop in right away and be intentional about how you work with the students and that comes through in the way that faculty talk about it which is odd because most of the time when I speak to somebody new to adaptive learning, the first thought is we're going to take faculty out of the equation and the system is going to do the same and it's quite the opposite. It brings faculty and students closer together. Where do we see this going at the institution? We're excited about the future of adaptive learning and O ER at bay path. You just have to manage it and it's all over the place is what we've seen. What we're looking at is a content managing system. Press books are out in the O ER space already and they know what we need and L TI and common cartridge is going to make it easy for us then to share this material with students and learners but also as we were saying earlier with other institutions and we don't want to be part of that silo. If I'm looking into my crystal ball, that's where I think the industry is going. We need to figure out a way to make sure that we're opening this content that we've createded so that other partners and perspective institutions can come along and use this because we've put in a lot of effort and we want to make sure that other institutions aren't spending the same money, time and resources to get all the learning we have and that's the only way we'll be able to scale this across the industry without a huge cost to institutions and therefore, without rising prices for students as we've continued to see year after year. In order for that to happen we need a new paradigm for content control and sharing materials between institutions and with partners, perspective partners who may want to bring new material, new content to bear for us. That's certainly part of the future of adaptive and O ER. The other thing I'll say specific to adaptive is there's this great opportunity here. We've been talking about the way credentials are going to change in the future and how students move between institutions and employers as they aggregate learning over time. The beautiful thing about learning, those maps that each course or competency set if you are at a competency based institution, all of that stuff can travel with students and they can show that to demonstrate their learning and it's concrete so an employer is going to know very well what a student knows. If a student is transferring from institution to institution, same thing. I can see these concepts are the same as what we teach. There's opportunity there which is exciting and that's why I'm going to close with just a shame less plug here but it's related. We put in a proposal. We really want to continue this work and we think that if we can partner with institutions or a vendor that we're going to be able to do wonderful things with both O ER and adaptive learning in the future. That's it. Thank you very much. I'd love to have comments and questions.

>> Thanks, Jeremy. If you have questions for Jeremy you can put them in the chat space. Going back to David and Jessica, any comments?

>> This is David. A couple of quick things. There's so much about this project that is exciting and commendable. It's systematic and I'd like to leave you with a couple of topics with some questions real quick. Doing such scale is smart and commendable and you've pended to the right measure which is cost. We're trying to scale these things up to control cost. My question is across higher ed is focusing on the cost message going to give you the political collateral you need to make change at your institution. At higher ed we don't like to talk about cost sometimes. The second line of inquiry I'd layout to think about is O ER is wonderful but if you think about it what we're doing is socializing the creation of content in a way that higher Ed's embraced but maybe we're not fully comfortable with because we're used to being the experts. You extend that model further and suggest that anyone with competence should be able to create curriculum and curriculum is our last protection. We own curriculum so my provocative question for the group is are we at the point where we're going to see resistant not only in content but also curriculum?

>> Thanks David.

>> I think that speaks to me is both progress applied directly to the Horizon Report is cross sector collaborations but also how this kind of model can serve the O ER model as a social justice. I was a first student college student and was completely unprepared and I was like how do I afford these books? What am I doing? I didn't even know how to ride a bus at that time. I had that opportunity to have O ER and the adaptive learning opportunity and I went to school in the late 90's and we barely had internet. I was really inspired by the idea of access and that you know if you are following along in the chat window, I think Nori called it the soul of the projects, the human aspect of this project excited me. I do have questions that mirror the ones in the chat. What's the connection between O ER and adaptive learning? In your project is there a consistent text or O ER course? How are you going to open that up? Another one, another very important question to me, how are you ensuring that these open access and open educational courses are open to those with disabilities? That's another social justice issue for me.

>> David? Wait. Wait. Yes. In the chat please. We need to stay on schedule here. We need to cut some of the conversation off. There will be time for general conversation in the last fifteen minutes. Thanks, everybody. Thanks for your patients.

>> Humber Institute in Toronto. The college responsible for education of many first response and utilized mixed reality technology.

>> Thank you so much and thank you for inviting me to be a part of today's discussion. As the slide indicates my name is Eileen and I'm the associate Vice President of teaching and learning at Humber College and we have a large college, a very diverse population. Offer blended theory and practice both inside and outside of the classroom. We offer a range of credentials, and we have a large full time population of thirty thousand full time students across three campuses and six hundred full time faculty and approximately six hundred part-time faculty and 20% international students so we are a large college and ensuring that we move the innovation mandate forward it is very hard to scale as had already been indicated by Jeremy. There is innovation but we do attempt to do so by helping faculty solve problems within the teaching and learning realm. The project that we're going to discuss today was really designed to engage students in the learning process that they wouldn't otherwise have the opportunity to experience. And it really incorporates gainful design elements, aspects of basic human motivation such as presenting the students with a challenge, making sure that they have a narrative to follow through and providing them with a safe space to experiment and reduce the fear of failure and giving them an opportunity as in gainful design, opportunities to compete either with each other or with themselves. What we're going to do is I'm going to play a video that really helps provide an overview of the project right now and the problem we were trying to solve.

[Video]

 >> [Indiscernible].

>> Great. Thank you. So really the intent of this particular project was to help prepare students with technical skills, communication skills and most of all skills around resiliency and this was really the problem that needed to be solved. In 2012 a study on merge service workers found that paramedics were at high risk of developing PTSD and so the faculty member came to us and said really trying to figure out how we can really help support students develop resilience. We can teach them communication skills but when they are faced with mass casualty incidents we are potentially sending them out into an environment that they are not completely prepared to attend to. At the same time that this was happening and we were trying to solve this problem we had already made a commitment to looking at how we develop a virtual reality lab. But just to furtherity rate the severity of students being prepared and going out into the real world, at the present time the way that students learn to deal with mass casualty incidences is through full scale simulations and those are time consuming, cost intensive and really hard to pull off and really only happen approximately every three years. We thought that using virtual reality would be a really great way to help provide students with the opportunity to access the skills that they would need to both develop technical skills, communication skills and help them build that resiliency. As I said earlier, we built this lab and basically we had outseted it with motion caption cameras throughout the room and purchased a number of different software components and computers and then what we did was we needed to develop various scenarios for use within the curriculum. In order for us to do that we hired a number of students from our 3D graphics program, our computer program to build the scenario. They were not able to build this content so training support was required but they were amazing students and when we gave them various problems to solve they were quick to respond. When I asked them to build a scenario so that multiple people could participate, they were able to do that. When I said please make sure we have the opportunity to overlay injuries on real people so that the paramedics could actually respond, seeing a one vision through the Google's, they would have to respond to a real person. Through software these students were able to create it with the support provided by their peers and I think that's an important note. They were very self directed and there was a lot of peer-to-peer learning that was happening. As already stated the simulation was developed to expose first and second year paramedic students to a realistic traumatic experience in order to develop resiliency and practice stress management while completing a task. The task was to assess casualties and prioritize findings while assessing danger and this needed to be completed within forty-five seconds. Faculty can moderate and increase or decrease the level of intensity. Not too easy where they might check out or not too difficult where they might get overwhelmed. We had a total of forty-one first year students who completed the simulation with eight second year students. When we did this initial rollout we wanted to make sure we collected data and so students actual and perceived performance on task with some of the data we collected, recordings of students activity while they were in the process and we were able to record that. We he collected bio metric data during simulation and this was around the galvanic skin response rate, heart rate which were all indicators of stress and we did a student interview and asked them a series of questions regarding the training experience and asked them to participate in written reflection and some preliminary indicators were that unanimously students were very positive about the experience. During the recruitment every student included thirty-six interviews and agrees that it was a valuable teaching tool and students highlighted the value of applying theory from the classroom. It was a great opportunity for them to apply what they had learned in the classroom when they wouldn't otherwise have that opportunity to do so. One of the main goals of the simulation is to help students manage stress and develop resiliency. Again, from the preliminary results it indicates that the simulations did induce stress at least in many students and twenty-four point 9% of the students reported moderate stress that impacted their performance. Only one student reported that they have experienced little to no stress. This appears of course to be collaborated by the buy metric data for many of the students although not all and the readings showed there was an increase in the simulation regarding the stressful events and you can see so from the graphs. They were using tackle breathing and their arousal decreased. We want to help students to manage the stress in a mass casualty scene and if they are using breathing techniques we can monitor whether or not they are applying the learning immediately in these situations. For us, there's some implications for higher education, at least two that we would like to consider at this point-in-time. Number one /-FRBGS it ren courses the idea of interdisciplinary learning and when I speak about this it's from two perspectives. One. The students we had involved in creating the content, typically they are in programs where they do not have an opportunity to collaborate with each other and they learn tremendously from each other and they had said that they would not have the skills otherwise. Lastly, I think from our V R training programs, the students in the paramedic programs, their collaborations with other first responders has increased their skills as well. I think earlier there was a discussion around interdisciplinary and I think we need to focus on that. The other implications for higher ed is the shift away from content and knowledge that can be obtained through O ERs and V R can help students develop mastery of skill and that focus on skill both technical and human, that is measurable will become a key component for the future and once we're able to scale this up we'll have the opportunity to really change the way that education and training is delivered in higher education. And I'll wrap that up there. Thank you very much.

>> Thank you Eileen. That sounds like a terrific project. I'm going to turn to our commentators again. We'll start with Jessica and turn to David. Any insights on what Eileen shared with us?

>> I'm still trying to get my hands stop sweating after watching that video. That was amazing. What an affective application for people who are about to enter, I mean traumatic experiences. I also loved as we redo the Horizon Report and look at thing that's are solvable and ad advanced learning and what is new and what should we try and prove works, etcetera? I think this is a really powerful example of a project that went from kind of an idea into a really powerful application. It did show some of the questions I have at a large institution with not much money and how to fund it or that development cost but I think my favorite thing about the entire project was the students of constant creators. There was opportunities for them to learn enough about technology and about simulation itself to develop one and work together to develop but they had the opportunity to use simulation. Harnessing students to create their own learning was a really powerful idea so thank you for sharing.

 >> Quickly, this is David. I would say V R is super cool. I always worry though with the cost and complexity, are we creating additional barrier? The alternatives are more complicated than V R so that's commendable but a question I would leave you with is how do we prevent technologies like V R from expanding the divide as we roll it out in our environments?

>> Thanks, again. Thanks for sharing with us. Now we're onto our third and final project, the Virginia drone project. Sean McCarthy at James Madison University.

>> Thank you so much for the introduction /TK-FPLT I'm Patrice and along with my colleague Sean we want to give you a quick overview. X lab is a make or space situations James Madison University. Much of our program supports undergraduate focused classes where students and faculty work as teams to solve complex problems often using robotics. Partners from industry government and local partners organizations and we're excited to be part of the launch for the Horizon Report and our drone program.

>> Sometimes those micro spaces expect it to happen. Kind of like if you build it they will come, that famous line from field of dreams. We strongly believe it's necessary to foster an innovation such as robotics in higher education. X labs we're excited to share our ideas about how to do that in this presentation. Part of the conversation about innovation we see it as an ecological concept. It's not about the technology or the teaching of technology but it's about partners in the industry and severing those needs together so it's an e cosystems approach that has teaching approach at the X labs. Let's start by providing a tour of the X labs and trends highlighted in the 2018 Horizon Report. Then we'll take a look at supportive pedagogy and take a closer look at our robotics course concluded by highlighting the importance of culture of innovation in order to support programming and robotics. Let's start with the lab itself. During the X lab former TV studios on campus and the main space in the X labs consist of the classroom space in the photograph and chairs and wrap around screens and technologies and a station. A series of connected rooms surround the main space, printers and the laser cutter. Is storage spaces are accessible through this room and one is dedicated to drones that we use in these courses. The breakout room sustain classes through the semester. For example the printer startup company called high draw and V R an R projects and this room is home to one of the drones classroom projects to do 3D tours of our applied drones course.

>> The success of our drone program is based on two things that arise in the 2018 Report. We promote trance disciplinary learning in which the faculty and students work on inherently complex or wicked problems with no easy solutions. What they produce cannot be envisioned by any disciplinary alone. Authentic learning experiences bring students in touch with real world problems and work situations. We accomplish this by designing topics for our classrooms and our rob bot I cans program is central to the labs. We've built prototypes from the Department of Defense and others. Our drone program has a tacted the attention from the industry as well. The space authentic learning experiences are three highly important characteristics. Let's take a closer look at the kinds of courses that we teach there.

>> Here you can see some of the courses that we regularly offer at the lab. Robotics, we have a course in our drones course and the key to the success of these robotics courses are taught by teams of three or more faculty from different disciplinary backgrounds in their own departments that attract students from their home disciplines. All sessions are scheduled in the same space in the X labs. An X labs experience is a single course, a network of sessions. We use design driven message for robotics courses such as designed thinking. These are methods that /SAFL complex problems that we're working on for the semester. A common operating system if you will where students can focus on robotics programs.

>> All of our courses, we teach students how to communicate across disciplines across teams and store and analyze research. We also give students the opportunity to communicate findings, professors, clients through print and digital media. Each of our courses have ended in a large presentation that attract people from local community on campus to view the students work. We stress ethics in our classes. It's important to note one thing. The X labs is not situations over every college. This allows us to be truly discipline diagnostic and flexible as weity rate and build our program. Let's take a closer look at one of our drones’ courses. It's one of our most successful overings. It's been through three iterations and involved three hundred students, eight faculty and the participation of four universities and abroad. This includes faculty from physics and industrial design and an entrepreneur and VIP expert both of whom participate in class each week using X labs tell conferencing technologies. In the picture in the bottom there you can see entrepreneur Fred.

>> This year’s course focused on ecological research. Eight students worked with collaborators Virginia Department of fisheries and at least three of the student teams are presenting their projects at the close of the semester and they are testing censors attached to drones that can safely defect birds nets. If you are interested in learning more about this visit the website by visiting the URL on the side. Our drones course is X labs most poplar offering. We've begun to use SA C which we use for cost management purposes. This years drone course wrapped up twenty thousand messages on our work space. We need to create and sustain strong relationships with companies, and nonprofit organizations. Expertise, technologies and funding and jobs for our students. Integration of students into our courses.

>> As we all know it's difficult for curriculum to keep up with technologies. As U A D technology became less expensive we've shifted that initial class to a course that focuses on censor technology. That pivot was subjected by the student in the drone application course who found they needed more technology to better serve our clients. Based on students suggests and industry needs it's crucial to understand that the success of our robotics courses and the support of innovation supports them.

>> We were inspired reading the 2018 Horizon Report and the culture of innovation in X labs because it's that culture of innovation that allows us to keep up with innovation of drone technology. On campus space such as X labs can help administrators’ faculty and off campus partners with rapidly changing work structures that we all face. Thank you very much.

>> Alright. Thank you very much Patrice and Sean. Again another wonderful project. I'll turn to our commentators, David and Jessica. James Madison projects.

>> I would offer an observation which is first of all your notion of culture of innovation or innovation of an e cosystem is fantastic and I would encourage everyone to use that concept and if we needed a metaphor of what higher education looks like they put the X lab into a former studio. We've got to move. We've got to change. Hanging on to the past sometimes is the wrong thing. I guess the question I'm going to raise here is I think this is actually a story about the changing role of faculty and I love the ways that faculty are being drawn into this with their disciplines, to teach and interact with students differently and like everyone else I'm curious how we scale that in our less innovative areas of higher ed.

>> Jessica?

>> So I'm all for innovation and techno gee and you guys just became my best friends whether you like it or not. I think you've done important things in regards to fostering that culture of innovation and maker spaces are critical to being able to understand concepts by applying them and trying new things and build your own or construct your own reality etcetera and I love how you were able to tie those pieces in across the entire infrastructure of what you've done. I would echo David. How cool that you are really changing faculty roles and spaces and you built the thing in a place that no one would expect. It's going to be real fun. Thank you.

>> Looking forward to it, Jessica.

>> Terrific. We have about seven minutes. I'm going to again put David and Jessica a bit on the spot here and ask them if they have any comments on the profession. I'll start with Jessica and go to David. Jessica.

>> I won't say that I do but I do want to echo some and really draw attention to the questions going on with speakers and some of the things that have emerged in regards to these projects and talking about we're really excited about how would we do it at our own institutions and some of those things involve scale and sharing costs, accessibility and access and then also you know how do we avoid dangers, and closing existing gaps? People over and over again were like, hey, I love this. Can you share your survey instrument? Or how did you get those assets shared across all of those different projects? When Eileen was talking there was a conversation about how did you get all of those people working together on this incredible thing? Sometimes the biggest innovation is getting people and organizations that haven't worked together working together and creating something and moving forward. If you have a chance to go back to the recording, I really encourage you to take a minute before you log off and check out the chats that are happening. People are shooting e-mail addresses to people, making connections in that chat window so just make sure you don't miss that.

>> Thanks for emphasizing community. I think that's a privilege working in high ed. It really is an industry that collaborates more than others. When I look at the comments that have come through today I think that the major theme is really about cool stuff. How do we scale it and that maybe is a challenge and I would be interested to hear from the presenters to see how they see their projects scaling up, outside and inside their institution and thinking carefully about scale, how do you do it and maintain your institutions and these are ideas that can run past some of our population so how do we scale this stuff? Any ideas?

>> Go ahead, Steve.

>> I was just about to say one of the and I don't know if you want us to answer live but the importance of faculty development in answering these questions so faculty are part of the solution here and not just along for the ride.

>> I was just going to through in a comment here. A couple of things that stand out to me is reality stuff we can miss the potential to open up higher education and open it up to a more emotional dimension of education. I know that people suffer from seasickness from being in the V R. That's going to be a whole dimension and the other thing too that struck me about V R is we're moving into an era where there's content creators not being the recipients of creation but cocreators.

>> Any final comments?

>> What we're finding in our courses in general X labs is that the students are frequently becoming more expert in the problems than the faculty teaching the course because the students of different disciplines are working on something that even the faculty don't necessarily know how to solve. So it's not just content creators but actually leaders affecting the classroom significantly. That relationship is also important.

>> I'm looking around the virtual table here. Our commentators, any last points you want to make? Going once, going twice? Sold. Well, I guess we can close now. This has been a wonderful session. Thanks not only to our presenters who work hard to fit into this tight agenda today but I've never seen a chat space as community oriented and interconnecting as today. It was a wonderful experience so thank you all. On behalf of EDUCAUSE thank you to everybody involved in this session. Our producer did a wonderful job with the technical and complicated agenda and mix of presenters. You did a marvelous job. Thank you, Adam. Before we sign off today we'll put up a link to evaluation session right there on the bottom screen left side. Please click on that now and do it now. It helps to do it now when the session is fresh in your mind. We value your feedback. Take a moment and do it now. Please join us September 13th 2018. We'll hear what's new with the core data service EDUCAUSE and we certainly hope you'll join us for that. On behalf of everyone here at EDUCAUSE, this is Malcolm Brown. Thank you very much for joining us today live for this EDUCAUSE Live! Webinar.

**End of Webinar**