Trades Summit Series: Strengthening Teaching and Learning for the Future
Affordances of Technology to Transform TVET
BCcampus: November 24, 2022, Day 1
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Host: Tim Carson

JESSICA DEMOLDER:
Hi, Welcome to our virtual session. Today we'll be talking about affordances of technology to transform the technical and vocational education and training. So we hope that you'll have some good takeaways and help transform your classrooms. So here we go. So here is a quick roadmap to give us a big picture of where we're going today. We'll do some introductions to get to know us, who we are. And then we'll jump right into three frameworks or models that help describe online learning and how to create intentional, meaningful online learning experiences with some examples for each of them so we can understand them better and see what it looks like hands-on. So let's jump into some introductions. Want to go first?

CAMELLIA HILL:
I'm Camellia Hill. I've tapped into trades as an electrical apprentice as well as tapping in as a construction worker, a painter. And so with that moving it and shifting it into this instructional designer space, I now sit in to build educational opportunities for your bonus, tapping into your expertise. So that's a bit of me.

JESSICA:
And I'm Jessica and I've been an instructional designer for about a decade now. I've tapped into a variety of fields and taken people's expertise to transform them into learning experiences for learners, whether in the classroom or online. And I've done a range of fields from medical to language to educational and just a plethora. Just love taking your expert knowledge and creating learning experiences.

So before we jump into our frameworks, we have two questions we'd like you to think about. As we're talking about these frameworks, to reflect on your own experiences. The first one is, what have your experiences been with blended learning? Or could it be online learning too? So what have you learned online and what was it like? Think of those experiences. And our second one is related. And what makes a great online or blended course? So in those experiences you've had, what made it great? Then on the flip side, you could also think of what made it not so great, when we're some roadblocks that stopped you from learning or were there hiccups? And how can we maybe change those to make them great experiences? So think of those questions as we go through some of these models and examples and to relate back to what you've already experienced.

So first quick question that we should probably answer is what's blended learning? There's a few definitions that we'll throw up here. But really it's combining two different things. So it could be combining different modalities, different ways to deliver curriculum. It could be combining different methods or where we combine online and face-to-face instruction, which is

most commonly done. Again, you want to think about your situation, what you teach, or your learners' needs. I think what is the best way for them to receive this content? Is it maybe combining online and face-to-face? Is it doing all online? Is it different modalities? And just think of what would be best for your learners.

Then we want to remember, lots of us are great classroom teachers already or hands-on internship leaders, or have created learning experiences. But it's different when we do it online. So we want to make sure we keep. These are five pillars that we always talk about. One of his learning effectiveness and making sure we're reaching the learning objectives. We want to reach faculty. You want to make sure the faculty that teachers and instructors, TAs, whoever we have there, is also satisfied teaching in that experience. The students need to be satisfied with the learning. It needs to be scalable. So can we make this like a large system? Can we help lots of people meaningfully? And then accessibility, is this accessible to people who have accessibility needs? We want to take great classroom or hands-on learning, internship learning, apprenticeship learning and match that with great online learning. And the methodologies and techniques and skills that we use for both will be different. So we want to make sure we remember that.

So this image here helps us see that we want to take great trades instruction and try to meet it with great blended or online learning so that we build a beautiful bridge of learning.

Sometimes we might wonder why even bother going blended or online. We've picked out some of the main reasons we've seen in the past and curriculum that we've designed for people. Low enrollments is one of them. Maybe we aren't reaching enough people just in our classroom. Maybe we don't have enough instructors. And so we need an online section where we can, the same instructor can reach more people or course scheduling. Maybe people are working full-time and don't have time to come to class every day. And also student preference. Some people just prefer learning online. These are some of the reasons we've seen content experts put their content online.

And then we saw during the pandemic so many people put their learning online. But there is a difference between emergency online, which is what Hodges refers to when we just take anything we can and just throw it online so that it can be accessed versus designing for online learning where we think of our objectives and how can we reach them best and what modality works best. So we want to make sure when we're developing online learning the word designing and not just doing emergency learning. We have a couple of videos to show some points about technology. And you'll see they're in different languages, but I won't even matter. You'll totally understand what is going on. So here is our first one.

VIDEO 1: [Talking in German]

JESSICA: So there we can see. We'll go, actually read into this one.

VIDEO 2: Emma, Emma, Emma, Emma. [Talking in French]

JESSICA:
So here it's fine for us to see in a humorous way, of course, technology usage, right? So whether we gifted our dad an iPad and he's using it as a cutting board, maybe that's not so meaningful. Then the opposite, needing toilet paper and getting an iPad technology. Again, the technology there is not being useful. So we always want to make sure we're using it intentionally for in the best possible way. So this is a quote that we really like, and it says, "For technology to truly have an impact on student learning, we have to do more than simply digitize what we've always done." Right? So we now want to transform the learning.

So here's the three models we're going to go over and I'll start with the first one, learning affordances. When we talk about learning affordances, it's things that technology gives us as a benefit of doing something online. And there's three benefits: space, time, and fidelity. The first one is space. So we can have high flexibility in space would for virtual. So for instance, today we're virtual, we're in different countries and yet still able to communicate a message with you. Low flexibility of space would be if we were all in the same room together. Then we have time. Again, high flexibility would be asynchronous. We're doing things at different times. Then low flexibility would be synchronous. Maybe we're doing something at the same time. The last one is fidelity. High fidelity would be rich and often we see something, we hear something, we communicate with someone. It's rich in all senses. Whereas low fidelity would be maybe like a text only. So maybe like a book or a PDF or something that's just low fidelity. And none of these are good or bad. They're just words that we use to describe difference and affordances or benefits of technology.

Here we have some examples. So we're all familiar with in-class lecture. So if we think about time, space, fidelity, what does that look like? So it would be low flexibility in space and time. We have to be in the same place at the same time. It's kind of low fidelity as well because we're just reading text off of a PowerPoint or just listening to someone present. This would be maybe a low fidelity. When we see everything in this right column. Maybe we want to think, is that really the best use of time and space? Or is there something different that we could do?

Maybe something else that you're familiar with would be like an in-class demonstration, whether I'm showing how to cut something or wire something, or do something safely. What is that? So here it looks a little different, right? So it's still low in flexibility in time and space, but it's probably high fidelity. So I'm seeing action, I can ask questions. It's being, the actions that are being described. Maybe I can smell something. It's more rich in all the senses. So this is then what this looks like. And again, not good, not bad. Just a way to describe something. If we're taking students time and space, we want to make sure we're doing it in the most meaningful way. Here's a little different one. We have sometimes branching scenarios. It's something that we've created in the past, where students go through a learning module and have to make decisions. So what do you do if and then they decide. Depending on what you decide, it's like a learn along your journey. So if we look at that, this would be high flexibility in time and space because you do it on your own, self-paced, online, whenever you want, whenever you have time. Then high in all senses, you can add videos and images and interactive quizzes, and you

can add discussion boards. They can create videos, they can watch videos. It's rich in all senses. So this would be something if I'm like, Oh my students don't need to be at the same time, same place. This would be a great thing, a great tool to use to create these scenarios.

So as we think about the trades that we teach, the skills that we teach, want to think, how can I make best use of time, space, and fidelity for my learners? How can I best create learning experiences to then meet the objectives?

So our takeaway message with this one is we want to make sure that we're intentional in these decisions that we're making when we create these learning experiences.

CAMELLIA:
Perfect. So another word, intentional, we can tap into the specifics, your outcomes and your courses. And so multiple manners exist for us to tap in and to interact inside our course outcomes. And some of these include the learner to content, ways of interaction, learner to teacher or instructor, or maybe the person who's over the apprenticeship. So the mentor and then the learner to learner, or maybe it's even learner to your client or customer, the person who's receiving your service. These interactions you can build into your courses to have that authentic, transferable learning and education experience. We're going to highlight three tools we use if we design our courses. Again, you can modify them to you. So if we're using GoReact, which is kind of a video simulation, you could use an iPhone or another device that you or your institution has. Always sit in your space with your outcomes. As we speak, what is it you could do in your course today to reach and increase your scope with your students to have that authentic education. So it's transferable skills in the authentic real world.

Some examples. Imagine you had your plumbing one-on-one course. Initially in your courses that design, that appeal, that visual burst cognitive load that is limited, that you can beautifully design and scaffold and templatize to the courses you develop either as an individual or as an institution. We've highlighted a model you could use here as your institution title, the course name, your outcomes or objectives, and then an overview of those modules.

And continuing on, those modules could be a plethora of simple. Here we've highlighted six. And again, the visual appeal of this already invites students in to learn. It's not just black words on a white screen or page, but now you've invited them in, again, tapping it as Jessica spoke to those fidelity, higher fidelity, adding in more senses, as you can.

GoReact is the initial tool we fancy to highlight today. It involves you to have live feedback, custom marker sets, and time-coded feedback. And we'll speak to some of these affordances here.

So imagine you have a task in your outcomes. So here we've highlighted some carpentry work. But maybe whatever around you have. Maybe it's culinary, maybe it's painting. You have a skill set someone needs to understand and maybe their specific tasks or steps involved in it. This is a beautiful opportunity for them to see it visually and then interact with the video or image that

you've put into GoReact. Here they would watch this. Maybe it's an introduction video of someone designing or developing or making a building or whatever it is your task objective is to be your skill set. So as you do that, you can time stamp it with what's necessary for your students to know and understand, And as formative assessment prior to a summative assessment, that maybe it happens in your field at a higher risk in the real world.

So here they would have interacted with the video. You would have allowed some time stamps. This can go on to some safety or maybe trainings that are involved in again, whatever realm you're in. So here we have an electrician and the safety coding do's and don'ts. So it's outlined here of what to do and what not to do inside the safety, and then to assess and confirm that your apprentices or your individuals that you over instruction, that are interested in your topic areas or skill sets can tap into the appropriate safety and you can assess it formatively here. So maybe again it will be outlined. Remember to wear electrician safety gear and some main points for those learners to understand and tap into. Those can be tagged inside that GoReact. So maybe these are the points. So again, if we turn back to the video, this is all the same idea. Inside here, you'd see these boxes that are coloured and they're looking in here. Maybe your outcome today was understanding the safety in this particular task. Then they could have instruction that you would embed inside. They could have reminder bullet points. Then they could identify it by tapping into these different tag or marker sets inside that video so it flows nicely. At the end, you'll see them add in, and it's this interaction between you and the content and your learner. And you could either interact via writing a text, writing an audio, making another video to your learners. So this is a high-fidelity opportunity that they could do. Again, tapping into those affordances, this is increasing the time and space. It can be done without you present in your time zone, but it can be done via them with that increased flexibility. At the end you and then can receive this kind of outlining comments section that highlights the point that they understood or maybe the points that they didn't yet understand that you can touch back into in another lecture or opportunity to build into your course.

Another piece that maybe you have is vocabulary. There are so many professional vocabulary skill sets that exist in all rounds. So here we've highlighted a few of the electrical terms. someone may have. Again, there's a lot of new vocabulary to learn. This can be done really efficiently, maybe not in-person, tangibly in a course, but it can be done online tapping in once more to those affordances. So if we take a few snippets of these vocabulary and plug them in maybe to a digital vocabulary card. So they would see here the highlight of the circuit, and then they'd have an image. And then when they clicked the term, they would see on the opposite side the definition of it. So they can quiz themselves and learn again in this visually increased manner. So again, the low effective field, meaning they can do this comfortably at their own pace limitless times. And it's not a moment of you in person in the flesh when you can tap into those more technical, but maybe hands-on that don't afford themselves online. So you just start to shift. Okay, what can I do online that can really benefit students? And then what can we save for in person in the flesh that will really benefit students?

Again, some here. Another sample you'd have the image and they could turn it over for a definition. You could even build a matching set. So options are limitless. You could even build

out a fill-in-the-blank set if you wanted to with definitions and the correct answers. So all of those just tapping into the affordances, they could do limitless times. As you see here, the computer marked these. If we go back there's no other answer to fuse. There's one fuse that exists. There's no other answer to circuit. There's one circuit that exists, and so you don't need to be present to mark these. You can with AI setup digitally your computer system course to market. That means students get instant feedback. And that means you can save your moment as a skilled expertise in your realm. Again, in that practical piece to offer more mentorship or more hands-on touchpoints when they are in the flesh with you.

Again, we all base this on the PIC graph, and we'll touch space to hear this framework. This framework to support us as educators to know what we can do. Again, as Jessica spoke to, we're not simply replacing something. We're not using an iPad as a cutting board. We're not slapping what we did in class onto an online screen. What we're doing is trying to build out new opportunities, tapping into increased affordances of technology.

So here we'll just highlight quickly a few of the samples that we've built out in courses that had a previous design and are now in a new online or blended or bichronous space. So here you'll see there's just words on a page. And what this was a description of how to do something. And then on the bottom was a practical piece for students to write answers and the teacher or instructor would later market it and report back, an assessment tool. What we built out with an interactive video so students could tap in and interact. There was question points, pop-ups with increased instruction, pop-ups with increased videos or images. And then below they had that instant feedback done by AI not to use so you could build your expertise for those hands-on moments in the flesh.

Also you'll see again, possibly your vocabulary list, but built out to be that interactive, more visually appealing, limitless opportunities for students to touch with low, high risk. Low risk so they can tap into the high risk with your support. Again, here, this was an opportunity for maybe lots of text. We understand many of you have your long lists of PDFs with instructions and laws and protocols and safety all paramount in your bounds. You can build those out to be less on the high cognitive load. With those visual breaks or you could have hover points to just build out the learning for educators.

As well here, this is a kind of a training piece where they had to demonstrate something. So instead of maybe just having a task and you trying to observe or watch or take note of all the students demonstrating a piece. They could do it virtually in a different space. So maybe this is hands-on. Maybe that means that a painter demonstrates their technique on the job site at a safe time when they can demonstrate that with the apprentice, mentor close. And then they can just submit those videos or those markings or recordings to you. So again, we built that out in GoReact with a time-stamp feedback so that you and your learner can have that high risk moment but with support, but maybe on an increased scope and scale space because the fidelity and time and space were increased.

Again, just organization. With online courses, we can build out these interactive digital pieces that you can click on till we see whatever content you need. That means if you miss, for some odd reason, maybe you had a job that went increased over the contract date you hadn't set. Well, that's okay. They can be flexible. Students can know exactly what they missed, where to pick up. And you too can know with the AI recordings what students have accomplished, what pieces, and what students maybe lack in other areas.

So all of this is to say that you have an expertise to tap into. You have a bound that can explode in scope and scale. And its expertise has to be shared at a global sphere. But it's done by best tapping into these affordances of technology.

So we invite you to if this is of interest and if you need increased excitement or hand-holding in the initial moments. What we fancy to do is just to show you those ways. So take a moment and sit in and what opportunities do you have to leverage or tap into the affordance of technology for your specific expertise rounds. Then we want you to post your questions on this Jamboard. Jessica and I, along with Joshua Hill, who is an Instructional electrician at the Lethbridge College in Alberta. He will be joining us on this panel of kind of interaction Q & A of how we blend your expertise in your trades or vocational or technical expertise work to the instructional design piece. And we fancy to answer your questions to support you in building out your courses. Because your trades are what build our world. As you see in anything we have in the homes that we have, in the infrastructures that we have in restaurants or whatever space it's built out because of your expertise. What we fancy to do is sit in this panel with you so that we can discuss and support and see where are your pain points that may be now matched or replaced or benefited by the affordances of technology.

JESSICA:
Perfect. Thanks and we look forward to hearing all your questions that you post and answering them.

CAMELLIA:
We'll see you live virtually tomorrow. Take care.