Dan Reeve:	Hi and welcome to another Applied Learning podcast. I'm your host, Dan Reeve. This time I sit down with Imtehaze Heerah of Mechanical Engireering. Imtehaze is doing amazing things with Applied Learning in the class and the things he talks about failing and failure positive attitudes is incredible. I hope you'll enjoy.
Imtehaze H.:	I'm Imtehaze Heerah. I'm a faculty member in the department of Mechanical Engineering Technology. You know in the School of Trades and Technology, Camosun.
Dan Reeve:	Awesome. And what was it about… when did you first start thinking about bringing an Applied Learning model, just generally, to what you teach?
Imtehaze H.:	I think it's always been from the get go. When I started, I started here almost like 15 years ago, and whether it was the norm within the department or not, but I just felt, as you mentioned early on, that was just the normal thing to do. In fact, the field I teach in is a very dynamic one. So it's engineering, which is applied science in a way. Things are changing all the time you know. People are coming up with new toys, new software, new hardware, and we need to stay current. So it only means that that currency has to make its way into the classroom. And the only way to do that is just to be able to tie in theoretical knowledge to what's really happening in the field and industry, in the world. So it's just a natural fit really.
Dan Reeve:	Excellent. Can you, because today we're going to be talking about some of the different programs, is there a brief description you can provide of an Applied Learning class or course, a program that you want to sort of thematically talk about today?
Imtehaze H.:	Yeah… well… over the years I've taught a number of courses, but my background is mostly along robotics and automation. So I teach programming classes, I teach robotics and automation, I teach control systems. So there's some sort of a theme to it already there. And all of those things, all those courses, are inherently applied courses. So it's a matter of using some foundational knowledge, and then putting it together in a clever way just to come up with smart systems. And you know, automated systems and so on. So just by definition, those courses just lend themselves fairly naturally to, you know, having an applied component or components to them.
Dan Reeve:	Great.
Imtehaze H.:	Yeah.
Dan Reeve:	So the first part, we're going to talk in… two general things, one is sort of generally preparation. And the first part of preparation for the eight principles, is intention. How do you decide that… like… an idea, that a theory, a particular core piece of knowledge for any one of the courses you teach, that Applied Learning is the way, like what's your intention to connect, the theory and the

practice, before you, if you're studying the course or tweaking the course, what's your intention, what's your hope?

Imtehaze H.:   Well, I don't know if you're aware of this, but I'm fairly well connected with industry, so I work very closely with industry in a number of ways. I've done applied research on a number of projects with many companies around. Last year I took a year off from teaching. I managed our Technology Access Center, and that, you know, sort of reinforced that connection with industry. I'm also on the program advisory committee for the departments, so every now and then we'll be meeting with industry folks and chatting about the program and getting feedback from them. The point of that is our learners here, the reason they're in the program is ultimately they want to be able to find a job, a career path, that's going to take them into the field.

And it's very important for us to keep relevant and current. And a lot of times, regardless of what the theme of a course is, there's so many ways you can teach it. But that needs to be informed by, you know, the people who are on the other end. Because they will tell me that well, you know, these are the challenges that we're facing these days, or this is the new trending technology. And somehow, if I can fit those into my course... I mean I think I've done students quite a service, and I think I've done industry quite a service as well, because in a way we're trying to make sure that the students are ready when they leave here. So they have the current knowledge and they're ready to be fully utilized by it.

Dan Reeve: So if I'm understanding correctly, your starting intention is informed by a deep connection with what the most current practices are in industry, and then trying to figure out a way to get your students up to speed, and ready, for when they come out.

Imtehaze H.:   Absolutely.

Dan Reeve: Okay. When you're planning your class, do you have a series of activities that build on each other, in terms of your intention, like you start here? And excuse my ignorance, if you're talking about robotics, obviously you're not going to do something complicated at first, start with simple models and move your way up. Do you have like an intention or a plan on that?

Imtehaze H.:   Yeah. I mean sometimes I do and sometimes it's [inaudible 00:05:17] to some students, sometimes it's still not quite clear. But the point is that every single course that I teach, and I think for most courses that we teach in the department here, has a lab component to it. So it's almost as if, in class you talk about the theory of things, and then in the lab you get the opportunity to sort of reinforce that, because now they get to see it in the flesh. And now they just learn about a new tool, a little Lego block. And then we'll learn about you know, multiple Lego blocks over a number of weeks, and then we get to work on a project, and then that's when they get to put all those Lego pieces together, and now they can see the big picture.

Dan Reeve:	Right.
Imtehaze H.:	So you know, if I'm running a project, I'll make sure that the tools and those little building blocks are known to them ahead of time. Not from a theoretical point of view alone, but also from a practical end. In fact right now, I have some students working in the robotics lab, and they're working on a project, and to be able to get to that project there was a theoretical component that we touched upon in class, there's some applied component that we've touched on in the lab as well, and finally they're getting an opportunity to just put it together and see oh that's what that thing means, or that's what we were supposed to do with that little lab.
Dan Reeve:	Right.
Imtehaze H.:	So you know. Absolutely. So you know labs are just kind of leading up to bigger projects.
Dan Reeve:	So we're gonna talk now from intention, we're going to take it to preparation and planning, and there may be again, there's no crystal clear divides, everything kind of blends. How do you know you're ready to try a new Applied Learning activity?
Imtehaze H.:	Ha, that's interesting. Well, I like to tinker. So I like to try things and I'm okay with failing. So you know, if there's something that is exciting, that is relevant, that is going to be of use, and that can help students grasp some concepts even better, I'll give it a try. I mean, as I said, you know, my field is fairly dynamic, there's new toys, tools, coming up all the time. And you know, if you ask me how did I deliver that part of the course five years ago, it's completely different from the way I deliver it now. For one, you know, you get experienced and a bit more mature over the years, you get feedback from students because you know, you hear what's working, what's not working. But also you know, the technology's changing, so you have to keep up.

How do I know? Well, I know that there's something that needs to be done. Just go for it. And you try a bunch of things. And I must say you know, the projects… and there's activities, they don't just kind of come up as courses of study. I spent a fair amount of time up front trying a bunch of things, and trying to put myself into the student's shoes. You know, what is it that they're going to gain from it, is it really useful, is there a point to this, is it going to be a hurdle? And work backwards and figure out "well, if these are the things, these are the learning outcomes, what is the best pathway to get to that?" |
| Dan Reeve: | Right. |
| Imtehaze H.: | So, to them it's enjoyable, and at the same time they're learning you know, from the whole process. |

Dan Reeve: Okay. Can you talk a little bit about… so I'm sure in your field because it's such a lab-centric and technology-centric field, can you just sort of walk through your thought process when it comes to logistics? You know, when you are prepping either a new lab or even a new string of labs, how do you consider the planning, the timing, the equipment, logistics, what's your, and not maybe the details but just sort of your thought process?

Imtehaze H.: Well I mean, I think as anything engineering, you always work backwards. You know exactly what you want to accomplish, and then you try to find a pathway to that goal. So "What are the steps that I need to go through?" So often times you know, if I'm developing a new lab, then I know exactly what I want to do with that lab, and then what I'll do is, "well, what sort of hardware do I need, what sort of software do I need, what sort of background information do the students need to have to be able to get to where I want them to get to?" So I need to think about that up front. And then, even though I'm in the Mechanical Engineering department, we work very closely with other departments as well. So we have an Electronics department, Electronics Engineering department upstairs, and there's a lot of commonality between the kind of things that we do.

Our focus might be different but there's a lot of common threads between what we do and what they do. So often times I'll just have a chat with them. And "Hey, you know what, I'm planning to run a lab. And this is the theme. Do you guys have any equipment? Can we share that? And can we work together on this?" So you know, and I'll make sure that on the planning front that's taken care of, and then on the timing front, whatever I want students to work on, I'll make sure that I run all those labs myself. It's taken me an amount of time, then I can anticipate well, it might take the students a little bit longer, but it is going to be doable within the time frame, so. You know, all of that is sort of done up front before the students get to it.

Imtehaze H.: So if there's anything that needs to be ironed out, you know, I try to take out the kinks early on.

Dan Reeve: Right. And probably will this be a theme we come back to, but iteration. The first time you try something you'll walk through, and we'll get to that in reflection, when we talk about reflection. So one of the themes that's really important for Applied Learning, and you've already actually talked on it a little bit, is the idea of authenticity, that you're creating something that's real and present and current. What is it about your student experience or activities that ties it to the current foundational elements in your field of practice. And again, this may be a little bit of what you've already said, but maybe you can just specifically talk about that, that makes it authentic.

Imtehaze H.: Right. In terms of their experience you mean?

Dan Reeve: Yeah, yeah.

Imtehaze H.:	Yeah. So one thing that I always ask them beginning class, and I do that for every single class I teach them, I ask them… you know, "you need to question…" every time I'm bringing up a topic, "you need to ask why are we doing this? What's the value in this?" You know, back in the day information was not as ubiquitous. Now it is, if I'm going to be talking about topics, then there's loads and loads of information. So the point is not so much the information… "Oh, these are the steps that you have to follow" You can find that anywhere. I will make sure that you are guided to the right place to find the information. But how can we make it sort of more involved for the students, and interesting, and interactive. And that they walk away and they feel that they've gained something, because if it's just sitting through a class, and they've just watched a video that they could have done on their own at home, on YouTube, then you know, I don't see a lot of value to that.
Imtehaze H.:	So you know, I suppose any activity that is planned, that's the thought and that's the angle.
Dan Reeve:	Right. Okay, let's move on to reflection. And it's kind of the last piece in the planning, but it also is a live element in the classes as well. So number of people who do Applied Learning consider reflection really important, both for yourself and for your students. Let's just walk through some of these questions.
Imtehaze H.:	Sure.
Dan Reeve:	What reflective questions or practices do you have students consider once they've completed a part or a full cycle of a learning activity?
Imtehaze H.:	Sure. So often times, and I think it's fairly common for everyone to do, so often times at the end of the activity I'll ask them you know, "How did you feel about it? What did you think you learned from it? What were some of the challenges that you faced? And what could've been done differently to you know, just mitigate those, or just kind of make that experience a bit easier? And if you could, you know, make any chance to the activity, to the experiment or the project, what would those be?" So you know, get some feedback from them, because at the end of the day, I can plan all I want, but they're the ones working on it. And then the way they tackle things is very different.

In fact, when I say they, it's not just a blanket they, because one group is going to work very differently from the next group and so on. So it's kind of really nice to hear the feedback from all the students, and we do that, you know, along the way, so as they're working on activities, whether it's a lab, whether it's a project. So I'll just talk to them casually, say:"Hey, so, how are things coming along?" And so on. And then we'll do the exact thing at the very end of the activity, because at that point in time, maybe there were some hurdles that they couldn't get over, but once they got over it, then looking back they can appreciate well, "It was well worth it because we learned by making those mistakes, so we learned by having all those difficulties along the way". |

Dan Reeve:	How do you pinpoint times or breaks when student reflection is critical? Like you say these hurdles. You know, sometimes there's formal reflection, you say okay, at the end of the project, whether it's the end of the class or the end of six classes, sometimes there are times where it might be more flexible, say.
Imtehaze H.:	Sure.
Dan Reeve:	Can you think of like a way in which you watch and you say okay, maybe we need to reflect?
Imtehaze H.:	Yeah.
Dan Reeve:	Maybe walk through that a little, that thought process
Imtehaze H.:	Yeah. So if students are working, and then I'll have a class of 60 odd students. So often times they'll be working in pairs. For labs, and then if they're working on a bigger project then it's probably group of three or four. So as they're working on the projects then I'm constantly getting feedback from them. But if I see that there's a common thread there, that every single person, every single group's facing the same challenge, then maybe it's time to stop. And stop for a couple of reasons.
	One, maybe there is something that is inherently flawed with the experiment, maybe we need to review. And it happens. And maybe there is a gap there. Because I could've assumed that they knew about certain things, and I was wrong and there was a gap, so I'll make sure that you know, let's just pause. Let's just bridge that gap and then continue. Because at the end of the day, the goal is not to rush into the activity, but to make sure that it's fulfilled. You know, the way it's intended to.
	So at the end of the day they need to be able to walk away and have the learning outcomes that were intended in the first place. So it really is a dynamic thing. And it changes from activity to activity.
Dan Reeve:	Okay.
Imtehaze H.:	Yeah.
Dan Reeve:	So now I want to talk about you as a, not so much your relationship to the students, but how, when and how do you reflect on an Applied Learning activity, what's your process and how often?
Imtehaze H.:	I would say constantly. I mean it's not one activity. I mean, there's a project, I just brought up earlier, so I'm teaching robotics and automation this term. The students have two projects. And the first one is a little robot arm and they have to program it to get it to move around, draw some lines and so on and so forth. I've been working… it's a classical robotics and automation project. I've been

working on this one since I started like 14 years ago. But if you go back to the first version of that project, it's completely different, way ahead now as compared to where it was before. So it's a constant thing. Like every year, before I start the same project, I'm trying to figure out well, "How can we improve on it?"

Imtehaze H.: So one of the tool we used last year, maybe that tool is not you know, the latest and greatest now. "Can we swap that for what is more current?" Whether it's in terms of hardware, maybe in terms of the software that they are going to be utilizing. So it's a constant you know, iterative process really. Just not only within the term, but also after the term and trying to make sure that you know, when the students, the next cohort comes in, they're exposed to the latest and greatest.

Dan Reeve: Okay. So that leads nicely to… How do students' reflection impact the design implementation of an Applied Learning project?

Imtehaze H.: Oh! This is perfectly tied into the way I view it. So Applied Learning activities are not something that I decide on my own I'm going to do and then I enforce it on them. I think it's more of a group activity. So for one, the reason I'll pick an activity is because there's a need for it, and I can see that what the students will gain from that activity will benefit them, not directly but also once they go out and work, they will have learned some relevant skills that they can put to use. So that's the first part. And then I'll come up with a plan. Well maybe this is the way that I should bring that to the classroom.

Imtehaze H.: And we'll you know, roll it out. And then you'll start getting some feedback from students: "oh you know what, I wish there was this little thing here" or "if that button was over there, it'd be so much easier or fun" And this is all part of the same thing. So the continuous improvement is not just from my end because I've seen it, but I get the feedback and it's fully integrated, the students' feedback is fully integrated into, you know, if we can rollout the changes from within, we'll do that, and if we can't then we'll do it for the next iteration.

Dan Reeve: Right.

Imtehaze H.: Yeah.

Dan Reeve: Right. Now we're going to talk a little bit, thank you by the way, we're going to talk a little bit about orientation and training. How do you prepare yourself to guide an applied or experiential learning activity? And I want to add, because you're an experienced instructor, let's say a new one. Because you know, the one you've taught for 14 years, you're probably… you know most of what to expect.

Imtehaze H.: Sure. Yeah so I think I've brought that up earlier on, if there's something new, and there's a lot of new things all the time. So not so much like a new piece to

an existing puzzle, sometimes there's new puzzles that I have to bring to the table. And there's nothing wrong with it, in fact it's quite exciting. I'm really looking forward to that, because otherwise you know, what I do becomes quite mundane. And boring. So I will know first-hand about the need for this new activity, because it's been driven somehow. And then what I'll do is I'll just kind of try it out.

Imtehaze H.: I'll you know, search online as to "Are there things that are being done in this sort of field, in this area? What have been the successes?" and you know, "the failures?" if you will. And how can I take that and adapt it to something that will be of use and will be proper for our learners. And just get started and just go for it. And if you plan early ahead then you have enough time to fail a few times, before you fine tune it, and that's part of it. I think that's a complete side, but I think one of the biggest problems that I find a lot of times with you know, colleagues or even ex-students, is the fear of failure. This is a perfect environment. The educational institution is the perfect environment for you to fail and to be able to learn from those mistakes. And failure is fine. As you know, you're learning from it because in real life and industry in general…are not as forgiving.

Dan Reeve: Right. I know as an aside, I think at Facebook one of their mottos is "Fail fast."

Imtehaze H.: Yeah, yeah. Because I mean, you know what I'm very much involved in research in general, and this is part of it, because we don't know what the end goal, or what the activity's going to be. So we're going to try a bunch of things. The faster I found out what's not working, the faster I get to the part that would be eventually working.

Dan Reeve: Right.

Imtehaze H.: And it's totally normal. And I think a lot of people have a hard time embracing that whole concept. No, no, it's got to work. If it doesn't work it doesn't matter, we'll move onto the next thing.

Dan Reeve: Right. How do you connect the why we're doing this, to the how we're doing this with your students?

Imtehaze H.: So one thing you know, when I bring up a new topic in class, and I do that fairly often, probably so they're sick of hearing it. I'm always telling them, you need to ask me:"Why does this matter? Why are we doing this?" Because if my answer is well, because that's the way we've been doing it for the last seven years, then that should not be enough for you. So the reason we're doing these things, and the way we're doing these things is because they have relevance to your program now. When you're done with this program, at the end of the mech program, the students actually partake in a capstone project course. That's the culmination of the whole program, where they put all the things that they've learned over the last two, two and a half years, they put it together and then

they work on primarily industry based projects, and they design and build and test and then they showcase to the public.

Imtehaze H.: So they need the tools to be able to get to that. So this is one of the reasons why you need to do that. And the other reason is because that thing that we're going to be talk about, and the way that we're going to be talking about it, is what is being used in the outside world nowadays. So when you go into the industry, there might be like ten different software to do drawings, but these are top two, top three, pieces of software that are being used. So it would just make sense for you to be familiar with these.

Dan Reeve: Right.

Imtehaze H.: So you know. It's informed by many ways, what they should have as a skillset at the end of the program, and also you know, what's going to kind of be of use to them when they go out in the outside world, in the industry.

Dan Reeve: Okay. Recognizing, now we're going to talk a little, and this follows the theme of reflection and failure, which I would love to talk a little more at the end. Recognizing that sometimes activities don't always go as planned, sometimes for better and sometimes worse, how do you assess student experience in light of your learning goal was this, but either it went another way and we achieved something different, or it didn't go the way, you know, you didn't get to achieve your learning goal?

Imtehaze H.: Well going back to success versus failure. So you get involved in an activity, in a lab or a project. And then we know that we have some goals. And some things that we're hoping to achieve, and sometimes things work out. The question is not that "oh it didn't work out" but rather "why did it not work out?" Because even in trying to understand what did not work, and why did it not work, there's a lot of learning that happens right there. The topic doesn't change. But then the avenue to getting to the end result is "well, we're going to try something, and by failing through this activity, we'll be able to reinforce something that you should have known" or by succeeding through the activity, we'll be able to enforce the same thing. So there's two ways to look at exactly the same topic or every idea.

Dan Reeve: Yeah, there's something to be said that sometimes students, if something works out but they don't understand why, that's not really learning. Whereas if something doesn't work, but they learn the why, then that's actually learning.

Imtehaze H.: Completely. You know what if I may dwell for two minutes on this. So, one thing. In the robotics lab, we have a robot. And I get students that's part of the lab to program the robots. And I tell them from the get go, in the lab I say: "you know what, many of you guys will crash the robot. Because when you're moving it around, you will run it into something. And that's okay. But I can guarantee you that you will only do that one time, and you will never ever do it again. And

you will remember for life" So that's learning. The fact that you fail, I mean when you look at the big picture "this is probably the best sort of learning moment for you guys, compared to we did all these things and they were seamless" And on a side note again, yesterday I was having a similar conversation with a colleague of mine, who's retired now.

I think a problem that we have, and it's just more of a philosophical approach here, is that when we tend to teach people, whether it's students here or we're talking about topics in our areas to other people, is we have experienced a bunch of things, and at the end we figured out what works. So what we present to whoever's learning, we're presenting the model that works. So what they gain is that experience without experiencing the 20 different times that I failed. But the reason I know what I know now is because I've failed so many times before. And because we miss that, then people just think, so if I just follow step one, two, three, four, it's going to work. And then all of a sudden, there's something which is completely unknown that comes up. And they don't know how to react to it. Because "oh, I don't know, but this is not part of the four steps that I'm used to"

So it is important to say "well, you know what, we're going to try something. See what happens" And often times I'll tell them to do that. "Well you know what, you've got to connect this little sensor to your controller, see what happens" And then they'll say "well, it's giving me bizarre numbers. Why do you think that is?" And that's us getting you know, the thinking going, and I think that's more important. Because otherwise people end up becoming very afraid to try things. And when presented with new problems that they haven't seen, or heard of before, they don't have in their mind like a structured way of solving, then they tend to freeze, because I don't know what to do now.

Dan Reeve: So there's so many themes, I'm going to riff on this for just a minute, because I think it's great. I want to talk about resilience a little bit. And I share your passion for failure positive approach to teaching and learning. I think maybe you can discuss a little bit the idea that failure's not the worst thing, and in fact failure is something normal, both here and even in workplaces, and there's a certain kind of resilience it takes to say "it didn't go well. But that's okay, we can learn from it"

Imtehaze H.:   That's right, yeah. Well you know, I'm not quite sure how that came about. I think once again going back to the beginning of this interview, I like to tinker, I like to build things. And you build things and then they don't work, and then you build a new version and it doesn't work, and you try it a few times. And at the end of the day it works and it's very fulfilling. But you know, automatically what's happening is every single time you've failed, you've learned what doesn't work, and there's an option to try something different, and then you're building on that experience. So I, in the way I deliver labs and projects as well, part of it is structured, so I need to make sure that they have the foundational

knowledge, and then it becomes a bit more open ended "This is what you need to do, let's try to see how you get there"

Imtehaze H.:   And then there's different people, different students, they'll approach it a bit differently, and as they do that they will run into issues, but I want them to run into those issues. And it's important because then they get comfortable with the thought that well, something not working is not the end of the world. It's part of the whole problem solving approach. If it doesn't work, we'll have to understand why it didn't work, and what change can we make to what we just did. So that it you know, performs better, or works better the next time. So you know, failing a few times is completely normal.

And going back to what we literally just talked about, I think it's very important that we pass that on. That especially in a learning environment, it is completely okay to not succeed the first time, because not succeeding, or not you know, getting to where you want to get to right away, through the direct path, is in itself a great moment of learning, and it's going to be memorable. Whatever thing you did that didn't work, for sure you'll remember that for the rest of your life, and you'll make sure that you won't make that mistake ever. So. And it's totally normal. The whole thing has, in society in general I think, has the wrong connotation.

Dan Reeve: Okay. So just to pick up on those things. If you're working in a lab and things don't go as planned, do you have a… and you've kind of hinted on this, do you have some tools in place that have like a reset button? Like you know, you changed a lab from last year or last semester or this semester, and it falls flat. Do you have like a reset path, or how do you, as an instructor, say, acknowledge, or what do you do when things just fall flat?

Imtehaze H.:   I'm trying to remember an instance that that happened, and I can't. So, yeah, I'm trying to think of an instance where things didn't go as planned, if things didn't go as planned it's not so much that well, the lab didn't work out, it's just that the path that maybe the student took to get to the end result was not as straight forward as I was hoping for, as was planned intentionally. So what that answer being ultimately is not that they can't finish the lab or complete it, we might just take longer to do exactly the same thing. And at that point I'm very flexible. So a lot of times if, there are cases were there was a lab, it was supposed to take two hours, but for whatever reason maybe there was a knowledge gap that wasn't accounted for, from the get go, then it's all good, and then we'll carry on. So that two-hour lab can become like a two part lab. This is what we've done, and then we'll continue it next time. If it's for the whole class, if it's something which is there. Or if it's just for a few groups, then let's just meet up again during the week, and just continue where we left off and see why is it that you weren't able to achieve what you wanted to achieve, within the timeframe that you had.

So I think flexibility is key really.

Dan Reeve:	Yeah, especially if you've reframed failure as a learning opportunity, then there really isn't a time.
Imtehaze H.:	No, I mean yes. Sometimes like you know, one group will just go right through, to the end goal, and half an hour later they're done. And then there's a different group that has actually run into so many hurdles that you know, two hours later they're still at the starting line. And it's fine, because it's expected that they're students, and there's a mix of them, and given their background and the rate at which they can absorb information is different, so just be flexible.
Dan Reeve:	So I want to talk a little bit about assessment and evaluation before we wrap up. How do you structure your formative and summative assessments of the students?
Imtehaze H.:	So from the get go, there are I suppose guidelines. I know what is it that they are supposed to accomplish. You know, there's things like I'll put in assignments and projects and labs in place, and then these are the things that they need to complete, so that's when I'm getting started, and then things are rolling out. But then at the end of it there's an opportunity to go back and reflect, so. "How did the students do?" and often times you can look just at grades. Which to me is not completely representative of you know, the experience of the student, but you know most of the time it is. But you look at the grades and that gives you a sense of what happened. But at the same time, I'm constantly talking to them. And in a way, I have a lot of students that pass the courses that I teach keep coming back to me for advice about this thing or that thing.
	So to me it's, I think it's a bit rewarding to know that you know, maybe I've done something right at some point. And at the end of the whole thing, it was a good experience for them, and so the learning outcomes were met, and they feel comfortable that they can come back and you know, and have a conversation.
Dan Reeve:	So is that relationship building above and beyond the strata of grades?
Imtehaze H.:	Oh completely. I mean, I have students talking to me about projects that they have at home all the time. Like you know "Hey, I have that little thing I want to put, that little contraption, do you know where I can buy this thing? Do you know if I can cobble these things together? Have you heard of...?" So it's always, which is really nice, because at that point in time it stops becoming a structured you know, this is a teacher, this is a student, you're going to learn A, B, C, D, and then we're going to have a test and then you're going to learn the rest. It's beyond that. It's about feeling comfortable and having a very flexible and versatile learning environment, where they feel comfortable to ask questions.
Dan Reeve:	Right.

Imtehaze H.:   I remember going into school back in the day where you weren't allowed to ask questions. You go to class, you're taught, and you walk away, whether you got something out of it or not, that is your problem. But you know.

Dan Reeve: And that sounds like that, it circles back on the idea that a safe and comfortable learning environment starts with the fundamental question of why.

Imtehaze H.:   Oh completely.

Dan Reeve: And then where failure is like part of the learning normal.

Imtehaze H.:   Completely. Yeah, and that happens you know, I'll say jokingly to the students, or just casually to the students, you know, it is okay for things not to work, the important thing is to understand why is it that it didn't work, and what can we do to change that. So it's the whole, the essence of it is really critical thinking. That's I think key. Just being able, if you can impart that to a student, it doesn't matter what field that you're teaching in, if you can get them to be critical thinkers then they're on the right path. Because there's a lot of tools, there's a lot of information available online, and anyone everywhere, they will be able to figure out that if this is a problem they need to solve, "where do I get the tools from? How do I put the tools together to be able to solve that problem?"

Imtehaze H.:   But it's just being able to impart that whole critical thinking and mindset, I think that's key. And obviously as you pointed out, you know, being in a safe learning environment, where they feel very comfortable, just to approach someone casually, you're not just a student number, you're a student. I know exactly who you are, and you know, what challenges you're facing, and how you're different from the next person and the next person.

Dan Reeve: Okay. Now this is the single most obvious question, but briefly, if you could just describe what evidence you've seen that Applied Learning activities deepen student's understanding of a concept or a theory or an idea?

Imtehaze H.:   So examples or in general? Because at the end of the day you get feedback first hand from students. They'll come to me and say "well, you know what. I had no clue until now, what this thing meant, but then by doing these things, like I learnt about that equation, didn't make any sense, it's all a bunch of math notations, but now that I've done this I see how they relate together" This morning I had someone coming in, we were talking about a bunch of things, he was just dropping an assignment, and then we have a lab about motors, different types of motors, and how to control them and so on, just to be a bit more specific. So he was just telling me "you know what, I've heard about all these things, but just by doing it, it just you know, changed my perspective completely"

                 We are very visual animals as people. So I can talk about something for hours and hours, and people are going to walk away completely clueless. But then you

just get them "you know what, how about we just build this thing here, just do it and try it. And see what happens" And it just clicks, and that's the kind of thing that I find that they'll remember.

Dan Reeve: Okay. So the last part here, so we just talked about assessment, evaluation, principle seven. The last one is acknowledgement. How do you celebrate student transformation?

Imtehaze H.: Oh. A number of ways, I mean for one I celebrate it by giving them good grades for you know, the kind of work that they're doing. But also you know, we do have award ceremonies, and then we have to nominate students for you know, for different sort of awards and so on. So I'm very involved with that. Graduation ceremonies, like when they are graduating, just being there to show them that you know what, you're sharing their excitement in their accomplishments, their achievements, I think that goes a long way. And then you know, any time they have projects that they're working on, and then they need help, they need assistance and guidance or whatever the case might be, I'm always open to doing that. So. You know. There's no one way, it's little things that make the difference. It's not so much the one big thing.

Dan Reeve: That sounds like you really put an effort in being, making that human connection with your students.

Imtehaze H.: Oh completely. Completely. I mean once you've made that and once they realize that you're not there just to walk in, and you're not going to look at them you're just going to teach a course and walk out, once they know that you know, you can talk and you're a person as well, then it makes the world of difference. Just the dynamic in the classroom just changes completely.

Dan Reeve: All right. Do you have any final thoughts or reflections that you'd like to note as we've gone through this?

Imtehaze H.: I was looking at the questions early on, and as I, so in a way these questions were the first time I got to sit down and reflect on what I've been doing, in a structured way, because otherwise to me it's always been well, that's the way we should be doing things. It just felt natural. But by doing that I'm just ever more excited to keep you know, keep doing it. And I suppose by the fact that we have a group of people, and just by being part of that group and by talking to people and just kind of learning from their experiences as well, there might be a lot of tips and tricks that I might be able to bring back to my classroom and you know, make whatever we're doing even more fun and enjoyable.

Dan Reeve: All right.

Imtehaze H.: Yeah. So it's amazing how much people learn when you don't tell them that they're learning, or they're supposed to study, but "Hey, let's just play a little game here" Or "Let's just have some fun. Let's just build something" And you

achieve the same goal without having that experience be too painful. So and you know, and I'm all about having fun.

Dan Reeve: Yeah. Okay, let's end it there, thank you very much for your time, that was great.