

## Popular Podagogy: Episode 6

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**00:07 Nathan Chaney:** Hello and welcome to Popular Pedagogy. I am your host Nathan Chaney. This podcast is brought to you by Queens University Faculty of Education.

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**00:27 NC:** We are fortunate to be joined today by Brian Aspinall. Brian, how are you doing today?

**00:32 Brian Aspinall:** I'm doing very well, how are you?

**00:33 NC:** I'm doing well, thanks. So, you're probably one of our more famous guests, but we're gonna still treat you like people out there don't know that you're a rock star, so... You're no longer teaching directly in a classroom, so, what is your position now and what does that include?

**00:52 BA:** These days I'm on a leave of absence and pretty much teaching a few courses with universities.

**01:00 NC:** Okay.

**01:00 BA:** I'm doing consulting for various school boards across the country, just in terms of computational thinking and how do we integrate coding as a tool for learning, to provide some equity but also to provide voice to some of our students that may be reluctant to share some of their ideas. That's the two literacy creative outlets. So, just trying to find innovative ways to integrate coding computational thinking into amazing lessons teachers already do every day.

**01:24 NC:** And, when you're consulting, what are some of the things that you would do? Do you go directly into the classroom or do you work with the administration to try and do it that way?

**01:34 BA:** All of the above. I've done the leadership level talking to administration. Figure out how we can roll it out, scale it across the district. We've done the teacher PD stuff, but I personally like the kid sessions the best, with teachers present. It's just amazing what our young people could do and they never cease to amaze me. As young as our primary students with what they're capable of doing. So those are... I really enjoyed that, the most. I think, in terms of being hands-on with the students and teachers present.

**02:05 NC:** And, have you found that some of the things that you've done in the classroom as a consultant has really opened the eyes to the teachers that were there and really changed the way that they have seen things or have you found that most of the time they were already doing a lot of really great things and you were kind of just adding on or both?

**02:24 BA:** Oh yeah, that's definitely both. Just bringing a different outlook, I think, having studied Computer Science and being in it for so long helps being able to bring that to the table and challenge students to do some really creative things, and being able to offer those next steps. If they're doing some really cool, innovative things in the classroom, whether they're colouring greeting cards or animations, or things like that. Just being able to challenge them on that next step, because it's so, what we call low floor high ceiling, right, the opportunities for expanding these is fine, just could be done to almost a infinite level.

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**02:55 NC:** And so, when I was going through my faculty of education program, a lot of the talk was with Integrated Curriculum and sharing subjects and not splitting everything up. Is that a lot of what you're doing now with this coding movement, is trying to integrate it into all of the different subjects?

**03:12 BA:** Yeah, absolutely. I'll be honest, coding is so hot that allows me to get my foot in the door to have a conversation with people. But, the reality is the conversation is so much bigger than that. We have to think about evaluation and then standardization. What that looks like. We're providing kids opportunities to play in the sandbox where they're being creative and I'm not sure skills like creativity and collaboration can be quantified, so we have to rethink the notion of letter grades and putting kids into the box, or the rubric, so to speak, when we're providing them opportunities to scale and be creative as far as they want to take it.

**03:45 NC:** Yeah, and we'll come back to your grades in a little bit there, but before we do, I just wanna introduce the fact that you've talked about this in a TEDx talk and you do a lot of public speaking and as having been someone who has listened to all of the public speaking that I can get my hands on in research for this podcast, I must say that you're pretty good at it, so good on you. But was this something that you always felt comfortable with or was this something that you really had to work at? This public speaking.

**04:19 BA:** The public speaking thing. I did it a lot in elementary school, but I never really thought anything of it, until it sort of came full circle when I started my teaching career and when I got into the classroom about 12 years ago, I was asked to present about integrating spark boards. That was the technology, that was the tool at the time. And so I think right from day one as a classroom teacher, I was presenting to colleagues and I've just sort of learned as I've gone through the motion if you will, up onto this point. So it's a bit of a constructivist approach. I've learned a sort of experience positive and then of course negative feedback and pushback, while public speaking, but just being able to try and read a room, and it's really no different than teaching a class full of students, and trying to read whose disengaged and why that might be.

**05:07 NC:** And what advice would you give teacher candidates or new teachers who might be a little bit nervous about speaking in front of their colleagues?

**05:16 BA:** Even I get nervous to this day. My best advice would be just to forget about it. We're all professional people, we're all the same places. It's really a judgement free zone. Everybody goes to conferences, because they want to learn something and if a session isn't right, if your session isn't right for somebody in that room and they happen to leave, that's totally okay. That happens to all of us. And in fact, we should encourage that because professional development should be about your own needs and so we shouldn't be affected if people do leave and not take it personally that it's perhaps our message or our content that didn't fit with them. It might just be that it just didn't suit them. It's the idea of risk taking and modeling that approach for our students. This is a perfect example of that.

**05:58 NC:** Yeah, absolutely, and that's something that I actually kind of admired when I was listening to your talk is the idea of risk taking and celebrating failure in the idea behind celebrating failure because it is something that we're terrified of. We're terrified of failing whether it's in the classroom, in our lives, anywhere. And I remember when I was teaching an entrepreneurship class

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to my students we talked about how one of the main factors of successful entrepreneurs is the fact that they can tolerate failure and move on from it. And the students were so surprised by that because they thought that entrepreneurs were just people who were instantly successful, and I had to explain to them that the majority of entrepreneurs had failed five, six, seven, up to 50 times before they found the product that was right for them and so that was something that really resonated with me. So how, when you were teaching, how would you celebrate failures in your class?

**06:55 BA:** Well, the idea of celebrating failure in a system in which failure is punished is something that has to be re-thought out particularly in a math classroom. You know math... For a long time math has been scored based on the quantity of correctness, and so failure was defined set by how many answers you got right out of ten. With all this inquiry-based stuff we're doing today, you know open ended math problems, we have to rethink that because one good task might allow students to demonstrate a whole variety of skills. Now, being a phys ed teacher, I also look at the notion of failure in phys ed and what does that look like. I never once put all my students on the foul line and graded them based on how many shots they could make out of 10, because all of them would fail, right? So why was I doing that in my math class with worksheets? It's a very similar sort of a pedagogy, but then again if you look at the phys ed classroom or even the science classroom, or the arts classroom, those educators have been embracing failure since the beginning of school. I mean you learn from trial and error in a gym class. It's technically wrote in a repetitive practice, but you're not graded, so to speak, based on how well you do it that first time through or at the end of the unit or anything like that.

**08:00 BA:** So I think we just have to recognize that failure is no longer a four out of 10, it's, "Oh shoot, that didn't work. What can I change, what can I improve, and what did I learn from this?" I mean, we learn from, not necessarily experience, but reflecting on those experiences. So the idea of embracing failure and embracing risks is brilliant, but how do we do that in a system in which failure is punished? How do we encourage kids to take risks when there's too much risk in not getting the grade, so to speak.

**08:27 NC:** And so this ties us back into education reform and for as long as I've been in the field of education, there's been lots of talk about getting rid of letter grades and getting rid of the grading system that we have, and putting a mark essentially on a student and what they've done in a classroom. But we're still, to this day, using letter grades and using these things and so obviously there's been some barriers as to getting this change pushed through. So what are those barriers specifically, and how can we kinda move past those, so that we can make it so that it's a more effective system to reflect 21st century skills and learning?

**09:13 BA:** Yeah, I think we need a number of years as a transition. We almost need a single cohort of K-8 to travel through 10 years of school without grades, so to speak. I mean at my former school, when we piloted going grade-less, it was shocking for our older students because they had spent their K-6 years with grades and all of a sudden by removing them, it didn't make sense, particularly when we stream our students in high schools here. We've got kids in grade eight that wanna know their marks if they're headed into an academic stream. So I think there's quite a few barriers.

**09:47 BA:** Stakeholders in education are used to grades, but grades, in fact, are only created for stakeholders, they don't help the learner at all. It's to communicate to parents and to communicate data to other people who are in positions to make decisions. So I don't necessarily think that grades need to go away as a whole, but I don't think we have to grade absolutely everything that kids do.

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Take Growing Success, for example, here in Ontario and the idea of observation, conversation, and student product. To quote Damian Cooper, there's a reason cell phone towers use a trifecta for an accurate picture. And so the notion of grades is scary because it's hard to quantify a conversation, and it's hard to quantify observation. It's easy to quantify a student product, if it's been scripted, and there's a rubric, and so a lot of the barriers are what we've been doing in education for the last, well the last decade anyway, since we introduced rubrics and levels, two decades I suppose.

**10:46 NC:** And so that whole conversation reminds me when I was teaching out west I actually had an opportunity to go visit a charter school just as professional development. I was actually there for athletic director professional development and as part of their day, they just had us go around for a tour. And one of the interesting ideas that I found there is that students were actually able to negotiate their grade, and so it wasn't... It was self-evaluation and self-assessment, but it also allowed them to have a say in showing what they knew when they were presenting it to the teacher and it took a lot longer, obviously, it's difficult for every teacher to have conferencing, but I thought that was quite an interesting model and it was a little bit different as far as the idea of the grading model because you were also getting them to show that they knew what they were talking about and that they could discuss why they were doing it.

**11:42 NC:** And I think that has a lot of transferable skills to a modern workplace as well because you're able to discuss and negotiate and provide evidence of what you wanted. And it was just an interesting idea that I thought that kind of went along with what you had talked about, and it also, they could point to the fact that they could show growth, and that was something that they were assessed on, rather than just being, you know, how many answers did you get out of 10? And I thought that was an interesting way of looking at it. And I'm hoping that as we continue to move towards a more progressive education system we can continue to integrate ideas like that into our classrooms so students are using skills that they're gonna need when they're leaving the school system, no matter what their profession is.

**12:29 BA:** Yeah, I totally agree. I think that because of the grading system we currently have, how often do we hear and how often do we say, myself included, "Oh, I need a math Mark" or "Oh, I need a health mark it". It's almost report card season and thus our evaluation drives instruction, which is counter-productive, it shouldn't be the case, we typically are implying, we're handing out of student products, so we can crunch numbers very very quickly to fill a mark book, because we have to report on it.

**12:54 NC:** Yeah, and that's the pressure that's on teachers as well as we say those things, not because we necessarily want to go and find a math mark, we say it because that's what we have been taught that we need to have, so that we can show it and then...

**13:07 BA:** Justification, right?

**13:08 NC:** Exactly, this is what we have been doing and this is how we can do it. And when I asked the question, one of the things that I think is actually in my opinion, one of the biggest barriers would be getting parent support, because we've all... One of the things that stuck with me and I don't remember who told it to me, but one of the things that I found to be most interesting was the idea that the tough thing about education is that everyone has an experience with it and so parents feel as if they know the education system through and through because they have gone through it. But when you make changes to that education system it's not upsetting but it's a challenge to try and

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get people on board to show that this is something different, and I think that kinda ties into this thought as well.

**13:52 BA:** 100% It's like you said education is the only industry in which everyone has lived at least better part of 16, 18-25 years. And so, everyone totally has an opinion. I think a lot of the conversations we have with some of the parents at our school like we don't practice medicine the way we did 20 years ago. Industry has changed significantly, and if education were a business, the reality is we'd be bankrupt because we're so [14:19] \_\_\_\_.

**14:20 NC:** Right, yeah, and that's something that I hope that the message gets across the country and really across the world, because it's something that we need to really think about and change. And even as teachers, I was guilty of it when I was teaching, where sometimes I would fall into habits of what I did when I was in school and then I had to realize that that wasn't the most effective way to reach the students that were in my classroom and I'd have to change and adjust and adapt and so.

**14:50 BA:** Even when I was in grad school, I was playing the math game. You look at a syllabus and you figure out which assignments are most important and which ones you know you can hammer out quickly with the best return if you will. So that if you happen to flunk another one year, your average still maintains what you need to be in that program. Even in grad school I was doing that.

**15:09 NC:** Oh, yeah, it's funny that you say that 'cause I used to have a Faculty of Education instructor who would always refer to school is playing the game and it was because you can always identify how you're going to get your marks. And it wasn't necessarily that you knew the content or that you had learned it was just that you knew the system and you knew how to work the system. And that's kind of what that brings me back to when you say things like that.

**15:35 BA:** It was. And there's a one I wanna talk about badges, right. I don't claim to own this idea. It's all over the internet, but imagine the school system where students could demonstrate a skill and receive a badge just like you would at summer camp and maybe kids could graduate high school after say 30 badges it doesn't matter how old you are and not all students have to have the same badge.

[chuckle]

**16:00 NC:** Exactly, yeah, no, it's exactly like that. But we're gonna transition a little bit here, just so that I don't get into sounding too much like a grumpy old man on a rant. So speaking of badges and the idea of apps you've created a lot of classroom apps yourself and I know this is asking you to choose your favorite child, but which one have you been most proud of or which one do you use the most and why do you think it's so useful?

**16:28 BA:** I'll be honest, all the apps that I created over the last decade or so, were just because I couldn't find an alternative solution for schools or a free solution for School or it was just a way to beat the firewall so I have to go back and pick my favorite, it was 100% be Twiducate which is something I started back in probably 2008. I remember going to a workshop and we were talking about digital citizenship and how do we prepare kids and model this approach. And I remember in 2008, going well, that's really hard to do when social media is blocked in schools. That was

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uncharted territory. We didn't know how to navigate that so shut down YouTube, shut down Facebook, shut down Twitter until we figured this out. So I left that workshop going well, wait a second, how do we monitor digital citizenship when these apps and tools that we wanna use are blocked at school. And I remember doing Pathways, 'cause I was an intermediate teacher and I remember a group of students had said to me Mr. A, you studied Computer Science, why did you get into education and we start that conversation and tell 'em all the benefits of it.

**17:31 BA:** And they said, so why don't you merge the two? And it was like a light bulb went off. [chuckle] Oh, my goodness these kids are totally right. Why can't I build an app that allows me to teach what it is I'm being asked to teach in terms of digital citizenship. And so that's what we did and having students as your beta testers was really remarkable and having the media pick up on it and having them come into the classrooms, do interviews with kids and parents. It was... To this day, it was one of my most proudest moments just because it sort of happened naturally, I guess. And so when I think about the lessons, the best lessons I've ever taught in my classroom were pretty well unscripted, so to speak. And that was the project that did it and within two years we had, think I had almost 150,000 users in the first two years.

**18:17 NC:** That's pretty incredible. And for anyone out there that doesn't know what it is, can you just give a little summary?

**18:24 BA:** Yeah, to Twiducate was play on words. So Twitter for education. So T-W-I-D-U-C-A-T-E. I'm no longer involved with the project. The second Twitter was opened in all of the school, there wasn't necessarily a need for it, but a lot of educators are still using it because it's a wall garden. So it's actually only people in your classroom who would follow your stream and the stream looks like a Twitter stream, but it's not affiliated with Twitter in any way so you're not having a Twitter account or anything like that but when students and teachers are posting messages to a timeline, it's behind that wall garden.

**18:58 NC:** And what would you say to teachers who maybe don't have the computer science background, or the coding experience and are coming up against such a change in the way that we look at the education system, how would you recommend they go about learning to do a lot of these things and learning to help students with creative coding projects and with developing apps and doing all of these different things because it's a lot more challenging if you don't have that background, I would imagine.

**19:31 BA:** Yeah, yes and no, I think. There's pros and cons to both. My approach is a little bit biased when I'm asking kids to build apps because perhaps my expectations are slightly different, but the biggest shift in my own pedagogy was letting go of the tools in technology. In my first couple of years teaching we were trying to fund a class that had the iPod Touch back in the day, but I didn't know why I was trying to do that I just knew I wanted this tool in my classroom, so my pedagogy wasn't what it is today, so to speak, and I remember spending hours and hours after school looking at apps and trying different apps just to see what they could do because I felt it was my job to teach the tool, and I was burning myself out completely. About five years into my career I thought, all I need to do is know my curriculum really well, and be comfortable with discomfort. I've probably got a half hour of MineCraft playing time to my name, but I know what it can do and I use it in my classroom on a daily basis. So, I think the biggest shift for myself and the best advice I can give is not to be afraid, to just let go because let the kids bring the tool to you and if you recognize curriculum and what they're doing, you've totally won.

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**20:44 NC:** And, I think the challenge with that is that in Ontario and across Canada as well, there's just such a fear of not meeting all the curriculum expectations, which is so difficult 'cause you never really do have an opportunity to meet all of the curriculum expectations. And so, how do you know that you're going to get to that point where when they're using these tools and when they're using these apps you can integrate it into what the curriculum is and how they can do it?

**21:11 BA:** Yeah, finding the entry point is going to be the toughest spot but, ultimately, if you know your curriculum really really well, and you present the task could you say the kids, "what might be the most appropriate tool here?" You'd be amazed as to what they can come up with, and I think you'll see a lot of natural curriculum stuff comes through it. I'll give you a perfect example. Two years ago, I had a group of grade eight students. We had Genius Hour scheduled into our timetable at the time, which is that opportunity for kids to follow a passion and do their own sort of projects in our language arts minutes. So, they would read and write about whatever it is that they were working on. This group of boys decided they wanted to take apart a lawnmower and I said, "well, make sure everyone is okay with bringing a lawnmower to school", and with permission they brought in a lawnmower and they started to take apart this lawnmower. And, of course, in my mind, this is our Genius Hour Language Arts Project. So, they're gonna take a part a lawnmower and then they're gonna blog about it, they're going to recount what they did, summarize what they did, write an explanation because I was so focused on those language minutes.

**22:16 BA:** Because that's why Genius Hour was timetabled. But, as they started taking it apart, they started talking about the circumference of the deck. I remember them saying, "it's 24 inch deck" and I went... "Well, what does that mean?" Well, it means that the blade is whatever 24 divided by pi, and all of a sudden I'm doing my grade eight measurement. I'm going, "Oh my goodness, there's our circles unit right here in math." And, then we're talking about oil because I looked at the cap for the oil and I said "why does it say 5W30?". And, they tell me it's about thickness of oil and all the sudden we're doing viscosity, which is our intermediate science curriculum. And that wasn't planned, but it just happened and I knew my curriculum well enough that we could engage in those conversations. The real challenge is, I guarantee those boys will never forget circumference, diameter, and viscosity. How do you quantify that experience? How do you now assign a grade to what we just talked about, you know?

**23:09 NC:** Right. I guess that goes back to what we talked about earlier where is it important to sign a grade to those types of things? When we have students who are learning in a authentic... And it sounds like they were very engaged. I wasn't in the room, but it's very engaged in it, as well.

**23:28 BA:** Well in class, they would pull out a cell phone and call their uncle who was a mechanic, and I was totally okay with that, and he was offering them advice because they didn't have the answer and I didn't have the answer and that's the world in which we live. But, the reality is, I hate to put kids in a box, I never wanna do that. These are students who are heading to the applied stream who had mastered this curriculum content. So, now I'm faced with this bit of a dilemma where I know these kids deserve an A in these content areas, but then all the sudden these red flags go off. If their As, they need to be in academic. Well, that's a conversation with parents because they don't understand, right?

**24:02 NC:** Yeah, and I guess that goes back... That's getting into a whole other type of education reform where we re-look at streaming and what that is and what that does, and...

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**24:09 BA:** Yeah, not all provinces in Canada stream in high school.

**24:12 NC:** Yeah. Just going off of that, when... It's something in that not enough teachers, I think, are comfortable doing yet, just from what I've seen and from what I've heard. But when you talk about calling their uncle in the class and having them talk about it, the other tools that you can use is... It's amazing to me how few teachers are willing to look things up on Google or on YouTube or anything when students are there and I think it's such a useful tool that we have now, that you have all of these resources at your fingertips, that there's no point in just pretending like we have to have all of the answers. And...

**24:54 BA:** Yeah, I mean, we used to go to school because that's where the knowledge was. The teacher was the content expert and well teachers are still experts, don't get me wrong. I think if we flatten hierarchies and recognize all students are experts in their own domain, that's probably the biggest shift that needs to occur. And then, like you said, the idea of, I don't know, the power of I don't know, as an educator models what it means to find information, synthesize information, summarize information and then make an opinion based on it.

**25:24 NC:** So, we're gonna transition here a little bit. You've written a book called, "Code Breaker." So just in a quick summary, who is this book for? And why should they go out and buy it right now?

**25:39 BA:** Code Breaker is a book written for the K-12 space, anyone in K-8, and probably some math and science in the secondary level, just because I've written it through my own way, with that being at the elementary side of things. It would just gear itself slightly better to that. But it's also for parents and students, because it's a story of... It's a real story of the shifting in my own program. So as I wrote the book, it was basically talking about where I was in my practice at the beginning. I felt I had to sell a mark book, I had to produce all of this student product to where I am today. And then there's coding lessons imbedded throughout, activities to help people begin to try coding in other subject areas. Math is obviously the natural fit, but there's examples of how to code in a science classroom, or a language arts classroom. You had mentioned spiralling curriculum earlier in this call, and those are perfect examples of that. If you're using a tool like Scratch, you would need to understand the Cartesian grid, just to use it. And if you're creating content for a language classroom the power of spiralling curriculum and those experiences, is huge.

**26:45 NC:** And how can people find the book?

**26:48 BA:** Code Breaker's available at Barnes and Nobles, it's available on IndiGo, it's available on Amazon.

**26:54 NC:** And what were some of your... For a lot of us out there, I can say personally, I have never written a book, so what were some of the biggest challenges with that experience?

**27:04 BA:** [chuckle] Well, we never wanna say we're bad at math, so I won't say I was bad at writing, I'll just say having studied computer science in my undergrad, I don't have a lot of experience with writing papers, per se. But I will admit that my writing has significantly improved the more I have done it, and I have no regrets about starting a blog about 10 years ago, because that's where a lot of the ideas reside, but being able to take them and articulate them into my own thoughts or reflections today, that was a really lengthy, frustrating, but fun process. And ultimately,



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now I have a product that I'm really, really proud of, because I never in a million years would have thought that that would come to fruition. I'm actually working on a second one, shameless plug.

[chuckle]

**27:52 NC:** Well, where can we get that one? What's that all about?

**27:56 BA:** Well, as a follow-up to Code Breaker, just so the people listening, of course the book is about coding, but the idea of Code Breaker, based on Alan Turing and his work during World War II, in terms of re-thinking the way they did business allowed them to win the war. So the notion of Code Breaking itself is a bit of a metaphor, in terms of the conversation we're having here, how do we hack the system or hack the classroom, in terms of education reform? So the follow-up book is going to be called, "Block Breaker." And it's a story about Minecraft. It's a story about a former student of mine who was autistic, and Minecraft was an exceptional tool to allow him to demonstrate thoughts and ideas, things of that nature. But again, it's a book about pedagogy. It's not, "Fifteen ways to use Minecraft in your classroom," It's, "Look at what Minecraft was able to do for this profile of student." And as a result, I had to rethink absolutely everything I did, in terms of how I did day to day business in my classroom.

**28:54 NC:** Alright. Well that's a pretty interesting book and I can't wait for it to come out. We're just gonna take a quick break, but we'll be back with your classroom confession.

[music]

**29:18 NC:** Are you an Occasional Teacher looking to improve your job prospects? Are you an experienced teacher trying to reach the next pay scale? Are you interested in improving your overall teaching practice? Queen's Continuing Teacher Education has you covered. With easy to access online courses, you can log on to your course from anywhere you have access to the internet. Courses offered by CTE range from special education to technological education, to safe and accepting schools. Queen's CTE courses work with your schedule, have supportive, expert instructors that want to help you succeed. Registration is fast and easy with no commitment to pay until the Friday before the course starts. What are you waiting for? Visit [coursesforteachers.ca](http://coursesforteachers.ca), for more information or to sign up today. That's [coursesforteachers.ca](http://coursesforteachers.ca).

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**30:26 NC:** And we're back to our Brian Aspinall episode of Popular Pedagogy. We are at the "classroom confession" portion of the episode, where we have teachers come on and tell us something funny that's happened to them while they were teaching, or something funny... A funny interaction that's happened with their student. And it's just meant to show that, as educators we see a lot of really funny things, a lot of fun things in the classroom, and it's good to share them and show that not everything goes perfectly all of the time, but it's okay because we can adapt and enjoy that. So do you have a classroom confession for us?

**31:05 BA:** Yeah, I've got a classroom confession. Do you remember when the Canadian penny went away?

**31:10 NC:** Oh yeah.

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**31:11 BA:** I don't remember the year, four or five years ago now, perhaps.

**31:14 NC:** Somewhere around there, yeah.

**31:16 BA:** And I thought, you know what? It became... It was time for our probability unit, of course, at the time, math kinda followed the calendars. So yeah, "It's like April 1, it's time for probabilities." So says the textbook or some framework you're following. So I thought, "I'm gonna go to the bank and I'm gonna get all of these souvenir pennies for the kids in my class. They're gonna think it's so awesome. They're grade eight years they're gonna have a little memento to remember forever." And I ask them, I handed out all of these pennies to every kid in the class. And I said, "Okay, everyone get out a piece of paper and make a t-turn, and once you put the T, then I want you to put an H." It was very, very scribe. I didn't even tell them why we were doing it. I just gave them step by step by step.

[chuckle]

**31:53 BA:** It's like putting together IKEA furniture. Just do this, then that, then this, then that, then I'll give you...

**31:57 NC:** Did your lesson break halfway through you putting it together, or...

**32:01 BA:** What's that?

**32:02 NC:** I said did you lesson break halfway through you putting it together like IKEA furniture does, or...

**32:06 BA:** Oh, exactly like... [chuckle] Exactly like that. It never went together properly the first time. [chuckle] So I just said, "Okay, there are 24 kids in my class and I want everyone to flip this penny one time. Raise your hand if you get heads." Then of course you would expect about 50-50 to have heads. We have a sample size. So I looked around the room and of course kids in my class already immediately getting like "Oh here we go, it's theoretical experimental probability"

[chuckle]

**32:31 BA:** And there's other kids in my class looking around the room going "I don't know why those hands are up," and you know "We'll figure it out," So of course my job is to teach experimental and theoretical probability. So that when you flip the coin it should be 50-50 all the time.

**32:44 NC:** Right.

**32:44 BA:** So when you do an experiment it's almost never 50-50. I mean you flip one coin three times it is never going to be 50-50. So I said "Okay, well everyone flip its penny a second time, raise your hand if you got heads heads." Of course, there's only four possible outcomes when you flip one coin twice, so the expectation was to see about six hands raised. At this point I'm thinking "Oh this lesson is going so well," but I realized now that the kids had already understood the probability who were getting it, and the kids didn't understand the probability part of it were not

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even understanding. They weren't moving in any direction. So I said, "What you think would happen if we flip this penny 50 times?" I put up the SMART Notebook timer because we just got our SMART Notebook Timer was super engaging in those days. I used it for everything which was a really bad approach.

[laughter]

**33:26 BA:** I've been using the tool for the sake of the tool. So I put it on, I set it for 15 minutes. Of course, I made a lot of bias assumptions. Number one, I assumed every kid in my class could flip a penny. I assumed every kid in my class could flip the penny 50 times, I assumed every kid in my class could flip one penny 50 times in 15 minutes. I remember walking over to the radio, I turned it on and the kids went well "Wow Mr. A it's not art class!"

[chuckle]

**33:49 BA:** And I went "I know, I'm feeling super progressive today in math!"

[laughter]

**33:53 BA:** I turned the music on, I started the timer and I started walking around the room, I head over to the first table and there was a group of girls and they're just reading, they pulled books and they're just reading. I looked at them and they say "Mr A, we just wanna read." And I remember thinking in that moment, "Yeah, that's probably more value in that book," I can't read that book. It's about about three inches thick. I mean these kids are ready for grade 11 already and they're grade eight. And I said to them, "What do you think will happen if you flipped the penny 50 times?" And I'll never forget the one girl sitting to my left, she said, "Mr. A if I flip that penny 50 times, I might get 25-25, I might get 23-27 but I tell you what, if I then repeat it, if I flip it a 100 times, the data set from that second experiment would more likely be closer to 50-50 than the first." And I just looked at her and said "I'll be back," and I walked away.

[laughter]

**34:38 BA:** It was the second table and there's this kid, "he threw his penny at me, threw his penny at me!" And over to my left I see another kid with a Ziploc bag, "There's no more pennies, can I have your penny, can I have your penny?" So I was like holy smokes, this went way better in the Nelson Guide, I just read on my prep.

[laughter]

**34:53 BA:** In fact I had to go ahead and close the door and turn the music off, because it was so loud and I had lost complete control. But I entered the place in my own pedagogy, where I was not ready to admit failure, feel vulnerable in front of them. So I sat on my desk and pretended the lesson was going exactly how I had anticipated it to. And it was everything but, I could've lost complete control. We wasted 20 minutes. Nothing was happening at all, in fact, the group of girls at the front that were trying to read were now mad that they couldn't read because it was too loud. When the bell rang a student approach me and said, "Mr. A I'm going to build you an app, so you can teach that better next year."

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[laughter]

**35:27 BA:** I remember looking at him and I was like, "You need to go sit down before I throat punch you,"

[laughter]

**35:35 BA:** The reality was, he wasn't wrong and so the next day after I had cooled down, I said, "Okay Gavin, come talk to me about this," and he built me a coin-flipper app on Scratch. And what was so powerful about it is, he's the student who created the digital manipulative that actually demonstrates the law of large numbers because he threw all his code into a loop and allowed us to flip his virtual penny a million times in a matter of minutes, thus showing the results being 50-50 to some nth decimal place. But even more powerful than that, I looked at him and I said, "Can you make me a biased coin?" he said, "What do you mean?" And so what we talked about biased the other thing in that probability class, marked cards, weighted dice, he said, "Oh okay," the next day comes back with the new app and he says, "Click that turbo button and flip this penny," And I did, and all of a sudden it was heads 66% of the time, and I said, "How did you do that?" He said, "Well I knew it was going to be 66% of the time because I programmed to be heads two out a three times instead of one out of two. And so with regards of something like the SAMR model in terms of re-definition. Here is an example where I had a lesson that had gone completely chaotic, and a student, typically, again, don't wanna put a kid in the box, typically disengaged math student came, created not only the app to demonstrate what the goal was from the day prior.

**36:51 BA:** But an app that I've never been able to have in my classroom or a manipulative I've never actually been able to have with that weighted coin. The next day when all my students came back, I had dice, I had spinners, I had weighted dice, all kinds of probability simulators. That group of kids in my class had coded, and so they not only had demonstrated their own learning but they created content for me that I could use in future years as teaching tools.

**37:17 NC:** Well, at least that's a bad lesson that ended up working out for you in your favor because that's...

**37:22 BA:** And I think the ultimate, the moral of that story is the idea of letting go. The idea of letting that kid built that app when I said "Yeah, this didn't work. If you could help me out, that would be great."

**37:34 NC:** Yeah, and that's something that is always a challenge when you're a teacher but it's good that you were able to move forward with that and let that student get there. So thank you for sharing that. It's a good lesson for all of us when we're thinking about the stresses of making sure that that perfect lesson is gonna go perfectly, and when it doesn't, it's really, it's painful but you will move on from it and you figure it out from there.

**38:01 BA:** That's I think what I've learned the most. I know I'm not suggesting I don't put effort into my lessons, but the more effort and scripting I put into it, the more frustrated I would get when we went off script when the reality is going off-script is where the real learning half is because it becomes authentic.

**38:19 NC:** Right. So Brian, we're almost at the end of our podcast here, but I just wanna give you

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an opportunity to let people know where they can find you, and where they can see your talks and find code breakers. So do you wanna share that?

**38:33 BA:** Yeah, I exist on just about every social channel. You can get me on Twitter, @mraspinall, Instagram Mr. Aspinall, you can find me Facebook if you'd like to, I've got my Professional Facebook page out there. My YouTube Channel and everything is available on my Blog, which is brianaspinall.com if people want to look at some of the TED Talks that I've done. And I guess the last shameless plug, if you're gonna give me the chance.

**38:55 NC:** Absolutely.

**38:55 BA:** For my capstone project, when I was in grad school, I created a series of videos and curated all of our research and I put it all together into an online site called the hourofcuriosity.com. And so in my mind, it sort of like the Hour of Code part two, but there's about 20 or 30 video tutorials for educators that might be interested in trying coding, I mean all they have to do is pull one of my videos, a step-by-step tutorials for kids to kinda get their feet wet in that coding space.

**39:22 NC:** Yeah, and as someone who's actually gone out and listen to a lot of the things that you've done and I've had the opportunity to talk to you before this as well, and you really do have an interesting grasp on the education system and where we should be going in. And so I encourage everyone out there to go check, out Brian's Twitter and check out his blog and see where he sits on the education side of things because it's really important that we continue to look to thought leaders and other people who have different ideas of education in order to progress ourselves as teachers and recognize that we don't have all the answers. And you never will, but you can always keep trying to learn it and learn from others and see what other people's successes and failures are and kinda go from go off of those. Brian, thank you for coming on today and having the opportunity to chat with us here and hopefully we can do it again sometime. But good luck with the new book, and we'll talk to you next time.

**40:24 BA:** Thank you so much. Pleasure is all mine, I really appreciate it.

**40:27 NC:** Alright. So, that does it for another episode of popular Pedagogy. If you like what you hear, you can find us on Apple Podcast, Google Play or Stitcher. We are also available on the Faculty of Education and the CFRC websites. We'll see you next time.

[music]