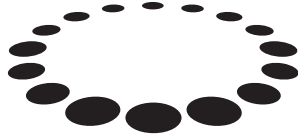# DEBATES
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Revolutionize Schools with Design Thinking and Play. How a New York Public School is Transforming Learning

C. Ross Flatt

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Transcript of Ross Flatt keynote speech at MACBA Auditorium. Barcelona, April 18, 2016. Debates on Education.

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Introduction

My name is Ross Flatt. I am the Lead Learning Designer at a not-for-profit organization called the Institute of Play. Institute of Play is an organization in New York City. I'm going to tell you a little bit more about what we do.

And in today's presentation I'm going to talk about three things really. First, what is game-like learning and how does design thinking relate to it. Second, I'm going to tell you, not just what it is but where you can see this model in action, at a school called Quest to Learn and in other programs throughout the United States and the world that the Institute of Play helps run. And third, we're going to talk about some specific pedagogical methodologies. Ways that you can use game-like learning and design thinking in classrooms today. You can really talk about this stuff and theorize and debate. But what's really important is, what's actually happening and what we can do.

Now, before we start, I have a little assignment for you. Everybody should have received a piece of paper and a pen. I apologize. I can't write in Catalonian. But I'm going to ask you guys to follow these instructions and all read them. There is a rule though, you are not allowed to show anybody else what you were drawing. No peeking. Okay? When you're finished you're going to fold your paper and just put it to the side. We will use it in about 20 to 30 minutes. So first draw a triangle. And really try to follow my instructions as best you can. But unfortunately, I won't be able to answer any questions. Draw some circles. Draw filled in circles inside. Above each draw an upside down V. Above, draw a bunch of straight lines. Then draw a rectangle below the triangle. So one more time, draw triangle, draw some circles, draw filled in circles inside, above each drawn upside down V, above draw a bunch of straight lines, draw a rectangle below the triangle. When you're finished, you can just fold your

paper, put it to the side, I'll give you another 10 seconds to finish up and we'll come back to it. I promise I won't be collecting this and grading it at the end.

Game-like learning

So, my talk today is all about game-like learning and it's impossible to talk about games unless we talk about play. So, my question to you is that I want you to think about is what does play mean to you? What does it mean to play? And more importantly, when was the last time that you played? Some of you might have been on the Subway today, playing a game on your phones, others might play board games at home with your kids or with your spouse. Some of you might be in some sort of a sports league, like a soccer league or a volleyball league or something like that. Play encompasses all of these things, play isn't just limited to video games or to an actual game. Play is what we do when we're not concerned with our everyday survival. We do it for enjoyment and play is essential, to who we are.

Now if you can answer that second question, when was the last time you played, you're in luck today. Because we are about to play. We're not going to use the paper, I asked you to do, we're going to do that later like I said but what I am actually going to need you to do, is in a minute you're going to be standing up. So if you have stuff on you, you're just going to set it to the side and you'll get back to it. But I'm actually going to ask a favor I was honored to co-present, some of what we're talking about today at Steam Conference with a true lover of Gamification and game-like Learning and Education in general. So his, not only is he an expert in Gamification but he is an expert in speaking Catalonian. So I'm going to invite my friend to come up and explain what we're about to do.

(Participants take part in a game of 'rock, paper, scissors'.)

Thank you so much. Okay, so, when was the last time you played? So I think I can answer this question just by looking at all of you. How did play

transform the space that we're in right now? What I saw initially was a room filled with people ready to listen and the three of us are up here, we're going to present and I'm going to stand up here and tell you all the things I know about games and game-like learning. But play, immediately change the space that we're in. Instead of somebody being up here and everybody being down here we became a community. People who probably didn't know each other who are here tonight, now know each other because you have done battle. You have played rock, paper, scissors. We're laughing, we're smiling, there's a little bit more energy, it is, I don't know about you guys, but I had a very long day, doing a lot of. Game based learning workshops. And it energizes you. It certainly energized me watching this. That is the magic of play. That is the power of play. And that's what we try to do every single day at the Institute of Play.

Like I said, the Institute of Play is a small not-for-profit design studio, located in New York City. It started in 2007, we're just a small group of former teachers and learning designers and game designers. And what we do at the Institute of Play is we design experiences that make learning irresistible. And that the core at the center of all of those learning experiences, is a game or game-like experiences that underlies this whole thing, that gives teachers and students a need to know, a reason to know more, a desire to continue to learn. Because there is nothing more powerful about a game than the gift that it gives you to want to continue to learn. You want to beat the next level, you want to get to the boss. You want to win. If you fail, you want to try again. That's what games do.

Games give you a reason to learn more about the world that you're playing and it connects you to the outside world. Our purpose at the Institute is simple, we want to transform all of education through play. So how do we do that and why do we do that? Well, as we saw just now. Play builds social skills and it encourages positive interactions with people. I have never played a game of rock, paper, scissors or I'm frowning. I've never really played a game that I've enjoyed where I'm not interacting with people or meeting new people in a way that is positive, in a way that is energetic. And it does the same thing for kids.

Play also though, and more importantly, it activates that part of the brain that strategizes, it's responsible for reason, for making decisions,

for judging and making choices and memory. When you play it helps you retain things. And because of all of this, play is associated with leading to better academic results. And that's not the most important reason of play. But it is so powerful and it is a wonderful reason why we bring play in schools.

Now, when I see the word play in games and I say schools, we might have a few experiences that we can think about but really what I think about when I think about play in schools, I think about preschool. When I was in preschool, my favorite thing to do was to step into a role, to play pretend. I pretended that I was a chef or a policeman or a superhero or a doctor. And it made me embody and take on that role and really try to live that. More importantly, it made me want to know more about that role. Know more about that world.

When I was in preschool I had to play with others and learn to share and learn to cooperate, learn to communicate and express what I wanted without getting in trouble and without making enemies. All of these things happen in preschool. And it is this amazing source of energy and excitement.

And then we send our kids to first grade and second grade and third grade and they sit in rows and they listen to the teacher talk at them and they read textbooks and they write things down. And all of a sudden that play goes away.

And I don't know why we are teaching that way. Because when those preschoolers grow up, the jobs that they're looking for are jobs that require leadership, the ability to work in a team, technical and communication skills, the willingness to take initiative, the ability to be flexible and adaptable, the ability to have interpersonal skills and relate to each other's. The ability to be creative and plan.

Nowhere here do you see the ability to memorize every historical date, or to know that two plus two equals four, or to know every step of the scientific method. All of those things are very important. I was a social studies teacher for many years. History is very important and enriching to me. But it's important to me when I can connect with it. And I can experience it and I can live it in a way that is meaningful and enriching. And that's what play can help activate.

So all of these ideas, these skills that people look for, at the Institute of Play, we call them 21st century skills. These are the things that we really should be measuring, when we are assessing children. Rather than can you ace this test or can you finish this paper in a quick way or can you pay attention or can you, you know, all of those things are really important. But when we look at these ideas, it's 21st century skills or what other people call soft skills. These are the habits of mind that, I don't know about you guys, but when I was a teacher, these were the skills that I wanted my students to leave my classroom with. If they didn't know every little thing about George Washington and Thomas Jefferson and Abraham Lincoln, okay, I wanted that too but I wanted them to be thinkers, to be creative, to solve problems, to communicate with one another, to collaborate. I wanted them to be great adults and great people.

So the Institute of Play we thought about how play connects to those skills and how it fosters those skills. And we looked at the best games in the world. All the best most innovative exciting games had seven things in common and we call them, *the seven principles of game-like learning*.

I'm not going to read them all to you, I'll let you take a look. But I want you to think about the best games you've ever played. And the best games you've ever played, everyone in some way is a participant and is involved. In a great game you are learning as you're playing but it certainly doesn't feel like it, because it feels like fun. And the best games, you learn by actually doing something. I didn't learn how to play Monopoly by reading all the instructions or to play rock, paper, scissors by just listening. You have to actually play it.

And in a game, you learn immediately, you know exactly how you're doing. In the moment. You learn, you know if you're winning, you know if you're losing, you know if you could be working on something better or not. Feedback is immediate. And in a game, it is okay to fail, because that's where the learning happens in a game. When we stumble, when we forget something because we try again. We start the game over, we reset the system, we play the level again, we go to practice.

Now imagine, if these ideas were transported into a classroom space. If in your classroom, you understood that you weren't going to sit there

and let learning happen to you, and just think you're going to absorb it. You were active participant in the learning. Where in a classroom, it felt like fun, it didn't just feel like you were going to school. Where you learned by actually doing stuff and you could make a connection between what you were learning and what was happening in the outside world. Or you could understand exactly how you were doing in that class, in a moment rather than three weeks after you handed in a test and you get your grade back. Or you get a report card at the end of the semester, you know immediately. Where your class is constantly challenging and where you know it's okay to fail because you can reiterate and you can redesign. That's a powerful classroom.

And when Institute of Play really wanted to see this happen, the largest project that we've ever embarked upon and we did this very early on was in a place called Quest to Learn.

Quest to Learn

So, Quest to Learn was a space where we imagine that this would come to life. It was and it is a public school in New York City. And what's amazing about Quest to Learn, and I will tell you some specifics in a minute, is that it is a 100% public school. It's not a private school. It's not a charter. It's not a small school for very wealthy children that are in a room run by all the Institute of Play people, but it's a public school with 100% public money, right in the heart of New York City. That's actually me with some of my students, we're playing a game called Galactic Mappers.

When Quest to Learn first opened, I actually was not a part of the Institute of Play or Quest. I was just a regular New York City public school teacher, I worked as a history teacher in the Far Rockaway's and I really loved my job. I taught middle school kids, I taught high school kids and I loved history, I loved teaching kids but the school I was at, it was a great school, it really was. But it was what we call a Test Factory. The kids were had amazing test scores and the parents loved it and the Principal loved it and the students loved it. But the students had a tough time thinking creatively and thinking independently, they had a very difficult time being able to connect what they were learning to anything that wasn't going to be on a test.

And what I really liked at the school and I loved to the students, I wanted to be in a place where not only my students were going to feel that connection but I as a teacher was going to be encouraged to design a curriculum that was going to be engaging. For all of you who are teachers out there, how many times did you start the school year, when you started your career somebody hands you a stack of books and says, "Good luck, I'll see you at the end of the year. Teach this."

When I found out about the Quest and the Institute of Play, I knew that I had found a place where I was going to get to be a true designer and work with other designers to create an amazing learning space.

So like I said, it's a public school, it opened up in 2009. It was framed around this idea of game based learning, but supported through design thinking where teachers would be designers and students would also be in the role as designers. And through that, students would learn to think systemically. They would be able to understand, why things operate, why things are connected to the rest of the world. There is no better system than a game. And we were going to start there.

Currently Quest to Learn is a sixth through 12th grade school. In fact, this year it's about to have its first graduating class, we're really excited. 57 students I think at this point, have already gotten into college. And we're very excited to hear about the rest. We're graduating a class of 65 seniors I believe. And the largest class at Quest I think the sixth grade is about 110 kids. It's really, really grown and we're so proud of it.

And what's really amazing about Quest, like I said is, its diversity. It is culturally diverse, it is socioeconomically diverse – 42% of the students are free and reduced lunch. In the middle school 30% of the students are Special Ed, 36 I believe in the high school. Three percent of the students are English language learners and most importantly, this school is just like any other school in New York City in the sense that the kids have to take standardized tests, which we call in the design field, a design constraint. How do you design an innovative approach to learning if students still have to take this? I'm going to tell you in a little bit how we sort of have addressed this but students have to meet this and the students at Quest do fairly well on the tests. They don't blow everybody out of the water but it's really about putting kids in those roles as designers where we've seen the most growth.

So what I want to do actually is, I want you guys to see what it's like to attend Quest to Learn. I could tell you all about it. But I think it's going to be better to see it.

So, last year when I was in the role of Assistant Principal at Quest, now I'm full time at the Institute of Play. When I was Assistant Principal at Quest to Learn, we were approached by one of the best teams of

journalists in the United States of America, Nickelodeon. And Nickelodeon wanted to do a report on students, around schools that were different. So what you're going to see here are four of our students who are in the 7th – who were last year in the 7th grade and in the 8th grade and you're going to get to see what that looks like.

So without further ado, Quest to Learn.

(Video)

Student: *At my old school it was very basic, and it was just like textbook, textbook, textbook.*
Student: *If you are in a textbook, you are kind of bored. So you're not really paying attention.*
Student: *In Quest, we use a lot of games in our classes. Board games, card games, virtual games, computer games.*
Student: *They involve games into everyday learning. And so you're still learning the same things that you would at a regular school. But you're learning it in a more interactive and game based-way.*
Ross: *We notice in today's world; kids are most engaged when they're in some sort of a game-like space. So Quest to Learn was formed in 2009 with this idea that we wanted to immerse students in game-like experiences. Students are actually learning as they're playing. They're learning through play.*
Student: *There is 6th through 11th grade at Quest to Learn and it's a public school.*
Ross: *At the start of the marking period at Quest to Learn, students are introduced into some sort of problem that they have to solve. And they're going to solve it for the duration of that marking period.*
Student: *Within each trimester, we have a mission. And within those missions we have quests. Our games are made specially for Quest to Learn by the Institute of Play, along with the teachers. We play test the games before we actually play them in class to see if they'll help our learning.*
Student: *We work in groups a lot so we can get different points of view. That helps you understand more parts of the story. Like if you're*

building a puzzle, you can't build the puzzle with just one piece, you need multiple pieces.

Student: *See what you noticed, that's different.*

Student: *We have different names for the classes, so instead of Math, it will be Codeworlds.*

Teacher: *What is the game going to look like?*

Student: *In our Codeworlds class we were asked to test out a new method of learning where we have to design a game, using algebra. So we'll put in an algebraic term, which will give us the next step in our game.*

Student: *The energy in these classes is always active. We're always doing hands-on projects, we're always into it.*

Student: *At first you don't really know you're learning about something, like when you're doing it as a game, you just sort of go with the flow because you want to get to the end goal.*

Teacher: *Every player gets five cards face up.*

Student: *And you trade out a card and then zero out?*

Student: *Yes.*

Student: *Now, I like math because I found that you can see it in everything. And that's really awesome. You are like all in it, feeling the game, you know?*

Student: *I think you remember more when you use games because you want to accomplish that goal faster.*

Student: *Once you have a test or something, you can remember, "Oh, we actually did this in our game."*

Ross: *Students are becoming a lot more perseverant as they've been at Quest to Learn. We've seen growth in the English language, arts achievement. And we've also seen students make significant gains in how well they work with each other, how well they collaborate and how well they can design.*

Student: *At my old school, I was really zoned out, I was really zoned out. I was like reading comics in class but now I'm not even considering touching a comic book because I'm so scared that I'm going to miss a subject. And I'm, like, hanging on to the teacher's every word and it's really fun actually.*

(Video ends)

So that's a look at inside the school and one thing I hope you sort of noticed is that, it's not only is it a really interesting school to be in but it's a marriage of new ideas and old ideas. You see teachers, you saw in one class, in the class called Codeworlds, digital games being played but students also actually doing work and thinking about things and planning things and designing ideas and using that to connect to these larger games. And these larger games are the game ideas.

So in an about five minutes or so I'm going to tell you a little bit about those different approaches that you saw in that video, but one thing that was mentioned here is how Quest to Learn has also been able to sort of measure what is usually not measured, so like I said students have to take standardized tests and they're assessed on English language, arts and math in middle school and in high school. But what we've also started to notice was that students are starting to make games in other areas. In those soft skills are those 21st century skills.

A group that worked independently of the institute from New York University actually did some assessments at Quest to Learn. They did some qualitative assessments and some quantitative assessments, meaning they had the students take some design thinking tests and some written communication tests, some systems thinking games. They also interviewed teachers, and they interviewed students. And what they really found, when they started to look at the data and they're actually still doing this assessment, so it's ongoing, but what we are starting to see, is that when a teacher had a high fidelity to the model when they really followed and believe in that model and practice that in class, and students like the ones you saw here could make that connection that their teacher was actually using these ideas and thinking like a designer and the students were thinking like a designer, this is where we saw the growth. We saw growth in analytical skills and communication and problem solving and critical thinking, which has been really exciting. But it also told the Institute of Play something else, that the power of this approach is all about the teachers. It's all about what the teachers are able to do and how they're able to use this methodology.

So as the Institute of Play stayed the same size and Quest to Learn has now expanded, I believe there's 50 teachers that work at the school

now. It's impossible for this small organization to just stay embedded in the school and also this is some pretty good stuff, we want to reach other teachers. So what the Institute of Play is now doing, beyond Quest to Learn, is working with teachers, in the greater New York area, in other parts of the United States and now through an online program with other teachers around the world. And this program is called TeacherQuest.

TeacherQuest

The idea of TeacherQuest is to rethink and re-envision the way that teachers are both taught and assessed, so that they can change the world of students.

So in TeacherQuest, there's no sound on this video. I just want you to kind of see what a TeacherQuest workshop looks like. This is a workshop where the Institute of Play brings teachers through the design process and through the game design process. Now initially when you look at, it looks like just a bunch of adults having the time of their lives at a professional development session, which hopefully is a little true. But what we're actually having them do here is, they're starting to think about how games are designed, to modify games, to think about that and then to start to see how games have goals and how they can create learning experiences that have clear learning goals. And how the actions of that game can also support those learning goals. So after moving through this process and after playing a few games and modifying a few regular games, teachers then over the course of several days or if it's the online program through several weeks, actually begin to think of learning goals and learning games that they can develop.

In other levels of TeacherQuest, teachers design or teachers create larger design experiences for their students. And the reason we put them through this process is because why would we ever ask students to move through a process and to own a process if we as teachers don't understand the process ourselves, that is so essential. For anybody who knows the design process, you know that the very first step in the design process, is to empathize, is to put yourselves in the role of the person you're designing for, to really think about that experience.

So here we have a model of the design process. This isn't the only mode of Design Process, there's many different processes you can go through but this is one that I really connect to. And it's the process that Students at Quest and teachers in TeacherQuest and learning designers, such as myself move through when we're designing experiences. We think about the needs of the people we're designing for and we define what that is. We brainstorm possibilities, we prototype and we play test or test out, those situations and we apply them.

One thing you noticed the girl, Delphine, in the video said, was that the games that the teachers create with and sometimes with Institute of Play, sometimes now teachers do this on their own, are actually play tested on the students. And the TeacherQuest program we actually have a group of students from maybe a nearby school come in and play test the games that the teachers have created. That is so essential. How many times have you taught a lesson that you never tested out before? I know I used to do that all the time. I would sit at home oftentimes on like a Sunday and be writing and think is going to be amazing and then I go to show it to my students and it sometimes would be a disaster.

Well, imagine if you actually took some time to see what your students thought that experience could be like, you tested it on a small group, you got their input on that and you developed it. And yeah, that process takes a little bit longer, it is a little bit more work, but students have a much better connection when teachers actually get feedback from the people they're designing for. It is an incredibly powerful experience.

So I've told you what game-like learning is and what the design process is and what the Institute of Play does and where you can see this happening. Now is the big question is the how. How does a game-like learning work?

So there are really three major ways that game-like learning can exist in a school setting. There's others but these are the three big ones. We have the game experience, the actual game itself. We have what's called a game-like experience and then we have the gamified experience. So we're talking about each one of these and we might actually do one of these. You all still have that piece of paper, right? Okay, good.

All right. So we have the game experience. And the game experiences just like it sounds, it's actually playing a game in a classroom setting. Oftentimes you can do this with a digital game or like you saw earlier, you can do this with an analog game or a board game.

Often times, like you saw and I will go back. Often times, it's a game that a teacher designed or modified. If it's a digital game, the goal here is to find a game that has a really clear and distinct learning goal and that the actions in that game support that learning goal. There are, again for the teachers out there, you probably know there are a ton of digital learning games that are really, really bad. They're either boring or they're poorly designed and oftentimes, it's because the goal is very simple or it's not challenging. Maybe your player moves through a space and that solves a math problem and then moves through another space and then solves another math problem, and that's not really engaging. And the point is to try to find a game that actually pushes students and challenges them and constantly has them thinking more deeply about a specific skill or a specific piece of content. And analog games should seek to do the same thing.

This is a game called Absolute Blast. There's Jane who you saw in the video earlier and some other students that are at Quest to Learn. This is in their sixth grade math class where they're studying absolute value and some simple introductory algebra. And as they play this game, it's actually constantly asking them to practice these math skills and it is also used to sort of introduce them to this general idea of absolute value.

So what we're going to do, is we're actually going to experience a game-like learning in action. We're going to play a game that will introduce in a minute that has a very simple learning goal and actually it might have a few learning goals. So as we play this game, I want you to start to think about what that learning goal could be.

Remember this? Okay. So I asked you to draw triangle, to draw some circles, to draw filled-in circles inside, above each drawn upside down V, above draw a bunch of straight lines, draw a rectangle below the triangle. What I'd like you to do, please, is hold your paper up, so that I can see it, because I'm sure everybody drew exactly the same thing. And maybe show it to each other. So let me see how we did.

So first of all, this is not the right answer, by the way. This is just an example of another bad drawing. So my question is and really, this is not a rhetorical question, if you think you have an answer to this, feel free to shout it out. Were my instructions good? I won't be offended.

No? Okay. Why? Why weren't these instructions good? They were very vague, they were ambiguous. I didn't say how many circles to draw, I didn't say where to draw these things on a paper. And we can imagine a teacher doing an activity like this in a class possibly to start to think about giving instructions, listening to instructions, interpreting ideas. It is very simple learning goal on the offset. And maybe if I had constructed this a little better, that would have been a little bit more clear.

This is a game that we designed at the Institute of Play called Picture Talk. It is a very simple game. This game has two roles, it has the describer and it has the copiers. So, the describer and the copiers. And the rules of the game are simple, the describer picks a card, he or she may use any words to instruct the copiers how to draw the picture. They cannot say what's on the card. They can't say what the card looks like.

So, for example, I brought Picture Talk with me. So I can't, for example, say pick a card and say, draw a house. I can't say that, that's cheating. Okay. I have to use specific instructions to get you to draw that house. The copiers are not allowed to speak. You can't say what does it look like, how big is it? And when all the copiers are finished, the describer reveals the original drawing and copiers reveal what they drew.

Would you guys like to play around a picture talk with me? I haven't been able to play all day. Okay. Great. Good. Who would like to be the describer? I've been talking enough today. Yes, thank you. Come on up. Oh and describer, you are completely allowed to speak in Catalan, in fact, I expected just, maybe you guys can tell me if they're cheating.

So all of you are going to need that piece of paper and a pen.

(Participant, called David, asked to the stage to lead the exercise in Catalan)

We have to make sure that they can't see what's on the card. So, we're going to use the bigger cards, big props. Okay. Remember, you can't say

what the card is. You can use any instructions to tell them how to draw this. And as few steps as possible.

(Participants play the game)

Ross: *Are you ready for the moment of truth? Let's just look, hide the other cards in case we play another round. And you can reveal it. Show them what you drew.*

All: *Aww.*

David: *Oh, good.*

Ross: *Very good. All right. Thank you very much, excellent job. Let's give David a hand. Thank you very much.*

Ross: *So now this is actually a game – I actually played this game today with a group of professors and some teachers and some student teachers. And what they did after we introduced this idea, they embarked upon a design challenge, where they actually had to modify the game. So I actually gave them constraint cards, where they had to change, where maybe they had a different rule of the game, maybe they had to develop this game but there could be no speaking or maybe you would be blindfolded or it would have to be a physical game. Imagine what happens to a game-like this, if I had added the rule of, If I told David who was incredibly brave to come up here, and if I had said, you can't use up, down, left or right. How much harder that would have been? So these are what game designers call MOGS or Modifications To Games.*

So like I said, we have these different levels of picture talk. It's a very basic game, again.

Now a game like Picture Talk is very simple and it has really simple things going on here. There's a structure to this. We have describer who is describing one thing. And there's listeners who are reproducing that thing. But there's some sort of limited communication happening here. This is the challenge of the game. All games have challenges. And within a game like this, a very simple game like this, we have these learning goals that are inherent in the game that exist within the game, the

learning goals of communicating clearly of giving instructions, of listening and following directions and empathy. Back to that design idea of being empathic with people who might have different ways of describing things or understanding ideas.

So I use this game not to say, if you play this game with your students, they're all going to be brilliant. This is a way of engaging students in a manner that can be modified in many different ways or that can actually encourage students to approach contents in different ways. And this game has been modified many times. We have a game called Block Talk. Same exact game but instead of drawing, you're using blocks and building. This can be a math game where they use what in America we call PEMDAS, which is order of operations, parentheses, exponents, multiplication, division, addition, subtraction. Okay. I have a math teacher in the front row who gave me a thumbs up. We have communication. So things can happen in this game.

We have the game called Graph Talk which you can use to teach X and Y axis, length and width diameter and radiuses. So instead of having a blank sheet of paper, you guys would be using graphs. Imagine using a game like this to reinforce this in your math class or Equation Talk.

Equation Talk would have the learning goal of solving equations and describing how to solve equations. So you might draw a card like this right here and you have to get the rest of the class to write this on a paper, but you can't say what the equation exactly is. Maybe you could say that the answer of the card is one or the answer to X is one or so on.

So games like this, this game experience in a classroom doesn't mean that you're playing a video game, it doesn't mean you're even playing the fanciest game. But it's thinking about what you're learning goals are and a way to activate that in your students. And also taking a game that is what my game designer, colleagues call simple and elegant and applying it to your class and modifying it. And being a designer as a teacher and trying it with your students. That's the game approach.

This is another one. This is the game-like experience. This is my favorite one. This is the one I actually used a lot at Quest to Learn. This is where a teacher puts students in a role. One of the students in the video, she talked about missions and quests, did you hear that? So

imagine a learning experience, isn't just a semester or a couple months, you are putting your students on a mission. They have to solve something at the end of three months. And to solve that mission, to beat that mission, they have to embark on quests along the way and every quest is going to teach them something new. It's sort of like a levels in a larger game. And to do that, it might feel like a game. So we're going to watch, as we're going to watch a teacher, her name is Leah Hirsch, she teaches at Quest to Learn currently. She's a teacher of a class called The Way Things Work, it's a science and math class. And she has a mission it's called Dr. Smalls. And she's going to describe to you what that mission is and I can explain a little bit afterward. So let's watch Leah.

(Video)

Student: *How do we know there are tiny things in a drop of pond water? We can use a microscope to view the pond water.*
Student: *Imagine you could shrink yourself and walk into a tiny cell. What is it like inside a cell? It's a fantastic, it's a fantastic journey?*
Leah: *Fascinating.*
Student: *It feels like you're praying when you're actually learning.*
Speaker: *Like sometimes you can like play a game and not even know that you're learning.*
Student: *You're actually having fun and you realize it and then you realize that you're learning while you're doing it.*
Leah: *And I have to ask that question, what hat are the kids going to wear in this mission that they're going to be on. And that's part of the curriculum design process I think most teachers do curriculum design, with, okay, what do they need to learn. But at Quest, it's what do they need to learn, how are we going to engage them and what role are the kids going to be stepping into and what story are the kids going to be stepping into? So it's all a part of creating this narrative.*
Smalls: *Greetings, TWTW students. I'm Dr. Smalls, I work for Shrinkly Labs. I'm honored to say, you are invited to compete in the 2013 Shrinkly Labs, Cell City Design Competition.*

Leah: *The need to know is created by this cast of characters. There's a teeny little doctor named Dr. Smalls. And he has shrunken himself and put himself inside of the body of one of his patients. Because he was trying to find out what this like mystery disease was. And him shrinking himself, he lost all of his medical vocabulary and he sends my students a communiqué.*

So the need to know has helped get me out of this body I'm trapped and help cure my patient. So it's actually, like, completely ridiculous. But the kids, know it's a game. But it's so fun for them to become a part of this narrative that they do get right in. And they do get involved in and start figuring out the clues of where is Dr. Smalls now, well, we know he's in this hollow space and they start learning about the body from basically these clues of his location in the body. So they know that it's all made up and they know it's all just play. But it's fun for them it's much more fun than just PowerPoint after PowerPoint, now we're going to learn about the respiratory system boys and girls.

Student: *I think we play games at Quest to Learn because it helps us incorporate learning into having fun.*

Student: *You can learn from a game and be like, "Oh, that was so fun," and then, like, read like a book and be like, "Oh, that was fun."*

Leah: *At least some kids do get sidetracked, well, this isn't real or I don't care about Dr. Smalls, but for 99% of the kids, it's like they're totally in.*

So what the students did is, through the clues that Dr. Smalls left, they designed cities that were actually model cells. So here you have this student Kai, this student Julianne. And they're at an exhibition, a final exhibition where they have to exhibit this sort of cell that is made out of Lego's. And some are like the ribosomes and mitochondrial DNA and all of the other things that are in a cell. And actually show this. So, this is not a game that they're playing but it is a game experience. It's like a game. It's play, it's playful. And like Leah said, most of the time it's utterly ridiculous. Students know it's a game and they're engaged in it.

This is an example of a game-like experience I did at Quest to Learn, where I had students take on the roles of being Spartans and Athenians,

they were spying on one another. And they actually had to march in a phalanx and actually present this and defended. And this led them to performing a debate in front of the elders of Greece and the Greek Gods, to talk about who should our civilization value more, who did we learn more from, the Spartans or the of Athenians.

So it actually placed them in this experience, and the whole time it was very playful they were pretending to be Spartans, they knew they weren't really Spartans but they actually acted like that. And as students get older, you can step out of sort of the more fantastical and playful element and have them take on roles that exist in the real world. Have them be forensic investigators, have them be doctors, have them be architects or urban developers. That is how game-like transforms from being just a simple game to a large design, a large project. It's larger than just that one game experience. It gives them that need to know.

Here's the final one. This is the one that I think is used, this the term that is used the most, but it's really only – I hope you're seeing now, it's one small part of this larger idea of game-like. This is the gamified experience. Where a teacher can take a classroom, like a regular classroom structure and take the things that make a game a game and apply it to that space. They can add rules, they can add points, they can add win states. It can exist in the classroom, I know it can also exist online. So this is a gamified experience called Socratic Smackdown. And in Socratic Smackdown, the teachers who developed this wanted their students to learn how to have Socratic discussions and read a book and be able to talk about it without being sort of forced to do it and have a desire to do this.

So what happened in Socratic Smackdown, and this is sort of an example of what that looks like, students actually engage in Socratic Smackdown, you have the students here in the middle. And they're discussing some sort of a book or a possibly a text or something similar. And they each are part of a team that they're representing. The students who you saw on the outside are part of the team that's in the middle. They can get help from their teammates from the outside and they're actually being scored by their classmates and the teacher. So there's a point system here. You get points for making agree statements, disagree statements or asking questions, using evidence, playing Devil's Advocate,

connecting an idea to a larger idea. So, it's that idea that you can take the things that make games special and make games unique. And actually make it fun.

So, I think I've probably – hopefully – covered a lot tonight and given you some really different ideas and some different approaches, and hopefully clarified a few things. Well, I'm really looking forward to in a minute is to actually talk about this with you guys and answer some questions and give some more examples. But I do want to leave you with a few sort of game-based learning secrets.

So first, I want you to remember that a game is not just this moment in a classroom where you might play for 20 minutes or maybe you use a game as a reward, if you're good and you sit down, the game will be good. Games aren't the dessert in a class. Games are part of the actual experience and there are things that a really good teacher is going to design before the game. That a teacher could do during the game and after the game. A game is a wonderful way of assessing your students. Not if they're winning or losing but if they can take a meta-cognitive approach to the game, if they can understand how the game is representing what they're learning about. That boy Dylan said that when he's playing a game, he can see math everywhere, and the game helps him do that.

Most importantly, this can't be done on your own as a teacher. It can be, but it's harder. Designing games and designing learning experiences should not be a lonely process. Teachers need to collaborate with one another. We work better when we're working together and we're sharing ideas when we're working with one another. And if you're an administrator or a principal or a school leader, I implore you to give your teachers time to do this. This is where you get some amazing things happening.

Leah is a brilliant teacher and she's a really good friend. But she would never have been able to do Dr. Smalls just on her own, she did that on a team. Same with me, I didn't think of all of these ideas all by myself. I didn't even make this PowerPoint by myself. We need collaboration to do this. When you're doing this in a classroom, you build expectations and structure around expectations for gameplay. People always ask, "Well, this looks great but can I do this with a class of kids

who misbehave?" Yes, of course, you can. This doesn't solve all the behavior problems by the way. You actually have to build a lot of good structures in your classroom. But every teacher's first step towards excellent classroom behavior, is a lesson that engages. And so you have to use these in combination with one another.

Don't think of games as simply a digital or non-digital, you can blend them together. You can use both. And finally when you're picking a game or designing a game, really think of its potential for learning, for engagement and think about what those learning goals can be. And play-test them on your students, test them out first. Ask the students, number one, was this fun? And if they say, no, then there's no point using it. And it's amazing how many students can give your insight into this. I've taken games that I thought were never going to work to students. And they have helped me redesign games and actually play them in a larger group and introduce them to a class. So I'm going to leave us with – and I'll put this actually back up on the screen in a minute with these seven principles of game-like learning. And I'll come back to the slide in a minute. But I do want to let you know if you do want to learn more about what we do at the Institute of Play, we have a lot of resources online for educators, a lot of them are free, that you can actually download online, you can get game packs, you can actually get the Dr. Smalls mission pack online, you can get the Spartan spy mission pack that I created online. And there are also games like Picture Talk that exist on the Institute of Play site.

And like I said, our biggest project right now is professional development and we are doing summer workshops, we do a summer online course. Actually one of the students in my online teacher class program here is from Barcelona, she's actually here tonight, which has been really fun. And so please feel free to reach out to us.

So I'm going to leave us with a game-like learning principles. And I really look forward to your thoughts and your questions. And I hope you enjoyed what I had to share with you tonight.

Questions

Can play be applied at any stage of education?

Yes, games are a great way to engage and it's really about thinking about game experiences that are appropriate to that level. Even a simple game like picture talk, is a game that you can actually introduce a concept. I was at the US Consulate today and we played this game called Power, it's actually a high school game that we play, if you're at the consulate with me today, you experienced that. We had a really good time doing it and it allowed us to start to think of the ideas of government and power and struggles of all of that in a very authentic setting, so if you can design an experience that I would say is authentic and meaningful, you will be able to engage your students. An approach that works really well I think with older students, is that game-like approach when before I came to Quest to Learn I was a sixth grade teacher, but I used to teach high school and taught 16, 17, 18 year old students. My go-to method of engaging the students was to actually have them immerse themselves in history to – maybe reenact the Congress of Vienna or turn my classroom into a murder investigation of Julius Caesar. Have them do things like that that were still game-like. And I think if you can sell it as a teacher and you're enthusiastic as a teacher, you give your students that need to know, I think it's perfectly fine.

Can play be combined with ordinary learning?

I definitely want to be clear that a game-like learning approach doesn't mean that you're playing games, every single day, all the time, you sit

down in class, you're playing cards and that would be amazing, but school is also not a carnival. But there are moments of that. And sometimes if you came to Quest to Learn, students move through periods, they have homeroom and they go to their classes, they go to their different classes, they have lunch and they have gym or Physical Ed. And there are times in a class where it might look a little bit more traditional, where they might have to do some skill work, they might have to either read from a book or from text or from articles or things like that. And a teacher does have to give them those approaches. But it's the way that the teachers at Quest integrate these game experiences into their classroom, that provides for a deeper level. So rather than just use a game at the end of a unit to review, games are used to maybe introduce a concept, to get students to want to explore a concept. And a lot of times actually to assess how students are doing.

There's a game I used where I could actually assess how my students were doing with geography skills by actually playing the game, that was their test. And they were actually very aware of that. It gave me a much better idea of how well they could do as opposed to them just sort of filling in bubbles on the test sheet. So it's about that balance and it is knowing that it is okay to use both approaches. But to know when something is the best tool for a job.

Can play be applied to teaching theatre?

Very fortunately, actually the Institute of Play and Quest to Learn have a partnership with the Arthur Miller Foundation which runs a program in the school and in an after school program. The Arthur Miller Foundation actually looked at Quest to Learn as a place where theater and role-playing experience can really come alive. So that definitely exists there. One thing that the high school Quest does is they design the feeder productions. So every time the high school does a play or a performance, it's something that the students created. They wrote, they do the lighting, they do the acting, they do the staging, they do the costuming. They do everything, using that design process. And you also see it in the regular

curriculum of a class called Sports for the Mind, which is not a Physical Ed class, it's a design thinking class where they learn the principles of game design and then they also design games. But they also design theater experiences and acting experiences.

How can you carry out assessment using play?

I've used the game experience or an actual game as an assessment. And it's really about how you plan that experience and the types of reflection that happens during and after. So for example, I will give you an example of one of my games, I use called Galactic Mappers. So this game Galactic Mappers, you see me on a fun fact, any time you go to like a Quest to Learn or Institute of Play website, you're probably going to see me in a flannel shirt on the ground with students in front of a map. And it's this game called Galactic Mappers, where the students have to build a planet. And they're given cards when they're doing this, and the cards are associated with the points and they know that it's an assessment. And they're doing this after we've learned about land forms and physical geography and bodies of water. And the game is the moment where they have to actually show that they know how to do this. They know how to design maps, they know how to create a legend, they know to follow a key, they know to do all this. So what I'm also doing in this game, is we're not just talking about it, this is a moment where that girl, Destiny, I think, is actually explain to me what's happening on her map. And I'm assessing from her and her group, are able to do that. And I'm not just doing it in that moment, I'm doing this as the students are actually making the game and cutting cards. I'm talking to individual students during the play of the game. And most importantly, I have carefully designed of rubric in advance, this is what you want to do if you're using a game for assessment, designed a rubric, I think what are the content based standards that I'm assessing. So what physical geography standards am I assessing? But I also think about because it's a design school, I think about design components that I'm assessing, are the students being innovative in their design

aesthetic, are they practicing iteration, are they listening to feedback from each other?

And I'm also assessing for socio-emotional skills, for teamwork, for listening to each other, for collaborating with one another. And it's not a secret, I am telling the students how I'm assessing them. They know this in advance. And I also make it very clear that you don't do well, you don't get an A at Quest to Learn, that's referred – it means you're a master and you're a leader and mentor in the community or you might be an apprentice, you have more to learn or a novice. If you beat the game that doesn't mean you're a master, and if you lose, it doesn't mean that you don't know anything, it's about how you can make that connection to learning. And then after the game we reflect on it. They might write an essay about it, they might have to answer some reflection questions or discuss it in class. So there is deeper thinking that happens. But I try to connect it all. And sometimes it does take a little bit longer but I do know that my students have, because they have created the world, they understand the world well little bit better.

How can we get teachers involved in this way of working?

It is a really good question and part of it is, to practice it in your school, is to give it a shot, is to try a new methodology to see how it works and understand that it might not be perfect the first time. We've seen it really successful in any school, not just at a school like Quest but in any school where it's actually introduced sort of slowly. We just worked with a school in Long Island New York, where it's actually a great, great, great school and the administration at the school just wanted a different approach to learning that that hadn't been done before, they wanted to engage their students and get them really thinking about things that weren't just about SATs and getting into college. So they approached us and we worked with, I think 20 teachers at the school and there's about like 150 teachers at the school. So we just worked with 20 of them and we have really taught them how to own this process. And those teachers have begun to teach the other teachers in the school. They started to run

workshops, they started to spread the words. It can become viral. So you give it a shot and have an open door policy with other people. And this is part of the work that we're doing. And for me, I believed in this approach without knowing what it was called before I worked with the Institute of Play but to be able to be here and share this with you guys, the only homework I would give to you guys, is to try some techniques we have, bring the game-like learning experiences into your classroom, design something with your students, give it a shot and tell other people about it.

How can play be applied in classrooms with a large number of students?

If you zoomed out, you would see it 15 to 20 other students in this classroom. It's a big school. When Quest to Learn first started, when you start any school for the first time, there's very few students because it's untested. The first question any parent asks when they put a student into a new school is, how many of the kids go to college? And it's very hard to give them an answer, if nobody's going to college yet. So, but as Quest to Learn has really created a reputation, those classes have gotten big and in a school system where there are one million students, it's very hard to keep your class sizes really small. So in the middle school at Quest honestly in the past couple of years I think there's about 34 students per class. It's pretty maxed. High school I would say, is the same idea. And yes, it's a lot and it actually in a school building where there are five other schools. Quest to Learn is on the fifth floor and on the seventh floor of the building, so space is definitely issue. And it is about innovating in that space.

So it's possible, it's not easy but nothing in a class that big is easy but let me ask you this, is lecturing to a room full of 35 students, easy either? I mean I guess, it's easy to plan for because you just kind of do it but you're certainly not engaging them. It's just a way of being strategic about it.

Can what is being developed by Teacher Quest be applied in any other school?

We say in the United States there's no such thing as a Silver Bullet or a Magic Bullet. I'm here to tell you that game-based learning is a very meaningful approach to instruction but it is not the only approach. And it is not necessarily the approach that's best for every single person. All learners are different, just like project-based learning. Some people I know learned very well by just listening to the teacher, in writing down notes and taking a test. Learners are different. This is one such approach and I think it is a very complete approach. But also, I'll be the first one to tell you, you can't sort of blindly follow one path and not consider other options, which is why I said earlier, you will see teachers give a mini lesson in front of the board. Maybe do like a small lecture, students reading out of a text or an article and you might teach students very directly how to complete something. But it's a matter of that balance. So there is no one magic approach, so I would say, no, there is not one single one but I think it has a very solid foundation.

About the author

Ross Flatt is the Lead Learning Designer of the Institute of Play in New York (USA) and promoter of the TeacherQuest programme.

Ross has more than 12 years' teaching experience, as a specialist in curriculum development and administration.

In 2009, he was one of the founding teachers of Quest to Learn, a public school in New York created by the Institute of Play. He worked there as a secondary teacher, and later as assistant principal.

Currently, as lead designer of teaching solutions at the Institute of Play, Ross supports the professional development of the teaching staff through the TeacherQuest programme aimed at teachers in the United States and worldwide.

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