**PROFESSOR:** So today in class, we've got a guest lecturer. Scott Osterweil from the MIT Education Arcade at MIT Game Lab's going to be talking to us about learning and play in games to put us in the mindset for the games that you're making that feel like they might be educational or more about awareness, to take some ideas from him on that.

Then after that, we're going to do a play test. So this is your first opportunity to give staff and clients, if our clients show up, the experience of playing your games and giving you some feedback on the low-fidelity prototypes that you have right now. And again, they could be digital or non digital.

That's going to be pretty quick today. We don't need everybody to play everybody else's games, if you don't like. So what we're going have you do is set up your games. I expect if they're paper, you probably only have one copy of your game running at any one time. So just make sure that everyone who's on the team who is not playing is observing and taking notes.

If you do have digital and would like to set up multiple stations, please do. It's always helpful.

Our next play test is November 5. We're having the class from 21W032, the Introduction to Digital Media class taught by Ed Barrett. They'll be coming in at the end of the day at about 3:00 PM to test your digital games. So on November 5, it's a good opportunity for a first playable version of your digital game to get tested by people who are not in the class.

And then after play test today, we'll take a quick break. And then we'll do presentations where each team will come up here, and you've basically got the floor for two minutes. We want to hear what is the state your game right now, basically referring back to your product backlog. What are the features that are planned? What did you test today? What does your build look like today, your low-fidelity prototype look like today? And just let us know how it's going.

We're going to ask for a number of these short two-minute presentations throughout the rest of the semester. And those dates are in the handout for project four. And I'll be making mention of them as we go along.

And then the remainder of class, you've got about hour to an hour and a half at the end of class to work in class. I'm going to let you know how much time you're going to have time for working in class for future days. This Wednesday, you'll probably have about two full hours in class to work, looking at what our lecture schedule looks like.

So that's that. Any questions about what we're doing today? Any questions about project four? OK. I'm going to hand it off to Scott.

**SCOTT OSTERWEIL:** [INAUDIBLE], this is the [INAUDIBLE] switch you were talking about?

**PROFESSOR:** Yep, I'm switching it over right now.

**SCOTT OSTERWEIL:** Well, it's nice to see you all. I see at least two faces from-- three from classes that I taught, so forgive me for those of you who may have heard some of this before.

So this was sort of teed up as if I'm going to talk to you about education, but I'm actually not going to talk to you about education. I'm going to talk to you about something else entirely. Maybe we'll get around to education by the time we're done.

But what I want you to do right now-- hang on one second-- is turn to the person next to you and play a quick round of tic-tac-toe.

So I do like doing this, even though it's hard to get people to stop. It's actually kind of interesting to me. When I've done this with an audience of about 300 people, it takes a long time to corral everybody back, which is really remarkable.

If you weren't playing a game, I hope you were at least looking around and noticing that the room got kind of loud and there was a fair amount of laughter, and noise, and animation, which is really remarkable when you consider the fact that tic-tac-toe is a stupid game. That by age eight, you had figured out that there was no point in playing tic-tac-toe because you almost always play it to a draw.

I'm always amazed when I ask a bunch of adults, which you are, to play tic-tac-toe, how into it they get. And I think in the end, it's the thing I really want to talk about, which is play. I know you guys have been in a class studying games. Have you talked much about the word play? Good.

We are all in the business of making games, and yet we don't stop much to think about play. But play is not something that was invented with the Atari. People have been playing games for a long time. The oldest known game implements are older than the oldest known writing.

I don't know how many of you know art history, but this is the late 16th century in what's now Belgium, the low countries-- Flanders in those days. The great genre painter Pieter Bruegel, who did a painting called *Children's Games*, in which he documented over 100 games that scholars have been able to identify as real games that were played at that time.

And if you think about it, at that point there wasn't really much of a thing called childhood. That by the age of 11 or 12, you were probably working in the family business, whatever it was. You were expected to take on adult responsibilities. And yet clearly, play was still a huge part of their lives.

Now, this is a fanciful painting. He was not trying to be realistic here. But the point was play was a huge part of their lives then.

So we know that they were playing back in the 16th century. We know they were playing 6,000 years ago. We actually know that our ancestors played too, that other vertebrates play. In fact, Edwin Wilson has sort of argued that ants play too, but let's just stick to vertebrates for a minute.

When mountain goats play-- there's a alpine mountain goat-- they play by-- and by the way, let me just say quickly from my definition, play is the stuff you do when you don't have to do something else. You don't have to get food. You don't have to evade capture, or protect your young, or procreate, or find shelter. When you don't have to do all that stuff-- some of which you do playfully, by the way-- but when you don't have to do that stuff and you're on your own, you play.

And so mountain goats play by actually chasing each other around the mountains and jumping from cliff to cliff, ledge to ledge. And they do it in spite of the fact that mountain goats will occasionally fall to their deaths. And if we know anything about evolution, we know the behaviors that lead to the deaths of individuals are behaviors that are more likely to die out, unless there is some advantage to the behavior that outweighs the risk.

And it would easy to assume from this that mountain goats are learning how to do the things they need to do, like jump and land on precarious ledges. That that's what they're learning

through their play. We might extend that thinking when we look at an image like this. By the way, you can find images like this on the internet.

Anyway, so we've all seen images of cats or puppies fighting, playing at games that look like fighting or hunting. And if we take that example and the example of the mountain goats, it's easy to conclude that play is about rote memory. It's about learning to do things through repetition.

But they've done a study where they prevented kittens from the opportunity to play while they grow up, play with other cats. And it turns out they learn how to hunt just fine. What they don't know how to do is how to interact with other cats or make other more complex decisions. What I'm going to argue is play is about something far more involved that just sort of rote memory and repetition.

Last animal example. They did a study where they gave an otter a fish every time it swam through a hoop. Now, if you think about what an otter's needs are, that otter was rich beyond its wildest dreams. Everything it needed was right there just by swimming through the hoop.

So did the otter retire as we might do if all our needs were taken care of? No, it started swimming through the hoop upside down, backwards. Playing with a hoop with its way of exploring how the world worked. The otters-- I assume there's more than one-- the otters knew that swimming through a hoop got fish. They wanted to find out what else it could do.

And again, this is when survival is no longer an issue. So play is really the way in which we explore the world.

Just looking at these images of children, there are four different continents here, four very different kinds of games. But I'd argue the affect is the same in all of them, and that what's going on in all of them is the same thing, that the kids in these pictures are really constructing their understanding of the world through play.

What I want to argue is that through play, we begin to build the kinds of conceptual structures that we are going to then engage with more formally in other spheres of life. And I could argue that it's only for children, but I'm going to argue further that it doesn't stop in childhood.

But sticking with childhood for just a moment and using my own personal example. I loved playing with blocks when I was a kid. And this is all pre-kindergarten. I can remember the

pleasure of discovering that two square blocks were the same size as one rectangular block, and two rectangular blocks were the same size as one big block. And the kicker was that that was equal to four of the little square blocks, and that those relationships could then be replicated elsewhere. That that was a pattern that I could find elsewhere in the world.

And so pre-kindergarten now, what I am really doing is developing a primitive, but I would say robust sense that math is the way we actually model the world. That we can actually model the world mathematically.

Now obviously, as four-year-old, me couldn't have said that. Four-year-old me couldn't even necessarily answer 2 plus 2 equals. But four-year-old me knew something far more robust. I was starting to really understand that the world could be described mathematically, and that that was why I was primed to be a relatively good math student.

The challenge, though, is that I just played with blocks the way I chose to play with them. No one made me. In fact, if you'd sat me down and say play with blocks and discover what you can about numbers, I might have refused and age four. Players' motivations are entirely intrinsic and personal in all play. You cannot make somebody play.

I think it's helpful to think about it as if there were four freedoms present in play. Freedom to experiment. I thought I had revised the slides. I really sort of revised that. I think it's better say freedom to explore is the better word.

But what I was doing with those blocks was seeing things about the blocks that were not-- the package showed pictures of things you could build with the blocks, but that's not what I was doing. I was sort of exploring properties of the blocks that no one was telling me to look for.

Freedom to fail. If you played with blocks, you probably built a tower that eventually fell down, and you probably learned a lot from the tower falling down. You probably, in fact, persisted at trying to get the tower to stand up. And along the way, you were learning all sorts of stuff about mechanics and physics.

Freedom of identity. If you think about doll play for a minute, a kid in the floor of their room acting out conflict between two dolls, or stuffed animals, or action figures is really exploring all the roles in their own family, in their world. A kid who plays at Luke Skywalker versus Darth Vader is really figuring out what part of him or herself is Luke Skywalker and what part is Darth Vader, because we think we have both of them in us. And that's what we explore through play.

In less than a week, on Friday, a fair number of you are going to engage in identity play at a fairly large scale, so it's not just a childhood thing. I mean, I'm talking about Halloween, obviously. And anyone who's ever played *World of Warcraft* or any number of games knows that in fact, through games, we play with our identity over time.

Finally, freedom of effort is the freedom to really play hard or play relaxed. You cannot make somebody play hard. And if you watched the pattern of play, people will play intensely. They will suddenly ease up.

Again, stick to *World of Warcraft* for a minute, sometimes you want to grind. You just want to do the mindless stuff for a while. And sometimes you want to enter into an intense battle. They both happen.

So here's the challenge for us. The player's motivations are entirely intrinsic and personal, as I've already said. And I'm also arguing that obviously, learning is happening through play. But how do we channel play into learning while still allowing for its fundamentally open-ended nature? So if you, as Rick said, are going to be making games in which you want to-- well, I hope you're thinking about real learning rather than just conveying information. And I'll get to that in a minute.

But whatever it is you're doing, theoretically you want to make a good game, they still have to have the freedom to play. You don't have a game without play. You can have something that has the structure of a game without play, but it won't really be a game if they're not playing.

But anyway, so that's where games come in. That's how we can channel learning sometimes while still being open ended.

And just to use the most absurd example, think about golf. It was Bernard Suits who originally used this example. But in golf, you're hitting a very small ball with a very long stick. Anyone golf here? Yeah, that's what the normal percentage is in a class. But it's hard, right ? The first time you swung the golf club, you might have missed the ball entirely, right? Yeah.

Sometimes even when you start connecting with the ball, it goes the wrong direction. It goes 10 feet, 20 feet. When you can finally hit it some distance, it goes into the water, it goes into the woods. It costs $2.50 every time you lose a ball. If your goal, after all, is to get the ball in the hole, why don't you just pick it up, and walk to the other end of course, and drop it in? The golf game would go much quicker. You'd never lose a ball. You have a lot more success.

But no one chooses to play golf that way. If you think about it, people choose to play golf by moving the ball to the hole in the single stupidest way possible. And as Bernard Suits said in this context, games are really about overcoming unnecessary obstacles.

And unnecessary is critical here because every game is, by definition, unnecessary. If you're really playing, it's voluntary. It's not required. Your survival does not depend on it. So by definition, every game is unnecessary, and therefore the obstacles in every game are unnecessary. And the game is the voluntary overcoming of unnecessary obstacles.

So why do we do it? Why would we do all that? Well, in games we willingly submit to arbitrary rules and structures in pursuit of mastery because that's what's going on in golf. Even in golf. You think it's hard, and yet even though you missed the golf ball the first time, you think, I think I can hit it. And then eventually you do hit it and you say, I think I can hit it further and I think I can hit it straighter.

And in fact, the game gives you feedback. The game is continually giving you feedback as to how you're doing. No matter how ridiculously hard golf is, you set for yourself proximal goals. I'm going to hit a little straighter, a little further.

And the game lets you do that. No one runs out into the golf course and says, stop, you didn't hit the ball far enough, or yells at you and says, hit it further, further, right? They let you playfully explore what you can do with that golf ball. And you keep saying I'm getting better, and so you keep playing golf. And that's true with every game. And I'll talk about a couple other examples going forward about that.

So games give you proximal goals which seem worth achieving, but only if you can continue to be playful. And that's I think the thing we sometimes lose sight of when we're making games is the playfulness. We remember the goal. We remember that there's an outcome that we want. And we remember that we want the player to get to that outcome.

But we forget about playfulness, which means we either make a game that's too easy. We lead them right to the outcome. That's like picking up the ball , and walking to the other end, and dropping it in the hole. And a lot of games do that. Or we just figure I'm going to make it really hard. I don't care whether they enjoy themselves. They're going to get there. And of course they don't. They quit.

It's one thing to define a challenge. That's important. The real art in it is defining a proximal challenge, one that people can reach. And I would argue that if you're talking about games in which you want to convey information or you want people to learn something, all of that has to hold true.

And in fact, the other thing I'm arguing, obviously, is that at in every game, people are learning. That the reason you like playing golf is because you're learning. And Raph Koster sets this out really well in the *Theory of Fun*, the book *A Theory of Fun*. But that basically, the fundamental pleasure of gameplay is learning, is learning to master the game, which means in a sense, if you're doing a game and you've got some goal for some learning to happen, all you've got to do is make that learning interesting and worth achieving by giving people the right set of goals to work toward it.

So I keep talking kind of interchangeably between play and learning. And yet the four freedoms of play, which I'm arguing are the four freedoms of learning, are not the four freedoms of school. If you think about school, and I'm not talking about MIT right now, if you think about your own high school experience-- high school is particularly bad-- what kind of freedom is there?

Freedom to fail? Not so much. Freedom to explore? Well, I mean, even a high school science lab, everyone is expecting to get the same results by following the exact same procedure, right? And that's the most experimental you ever get in school.

Certainly no freedom of effort or freedom of identity. You sit in your same seat every day and you're expected to behave the exact same way. And you're expected to work equally hard. You can't come in and say I don't feel like working today.

So there's very little play in school, at least as it's currently embodied. And this is why I mention school here, is because I think one of the challenges if you're an MIT student is that you were probably pretty good at the game of school. You probably did what was required of you. You probably didn't necessarily recognize that doing the things that school required of you is not when you were actually learning, that that was just playing the game. That the learning was more self-motivated and more self-directed.

And so frequently people, when they turn around and try to make anything to do with learning, whether it's a game, or write a book, or create a curriculum, they replicate everything that's bad about school. And the reason I don't like to say I make educational games is because

when you think of educational games, you think of all the bad games that have replicated what's bad about school. Games that have largely taken the dead carcass of a game and stuffed it full of academic content.

So you're going to shoot at aliens and you're going to memorize your times table. Now, what aliens have to do with times tables, I don't know. Any I'd even argue that memorizing your times table is of questionable value. There may be a place for it, but it's certainly not what being good at math is about, fundamentally.

And too often, games for learning end up being about simply I'm going to feed you content that would be boring in a lecture or boring in a textbook. And guess what? It's going to be just as boring in a game. The only difference is we're going to surround it with things that we think you think are fun, like shooting at aliens.

So it sort of translates into people thinking that what the world needs is something like Grand Theft Calculus. But in fact, without playfulness, a game is just going through the motions. It's just gym class. Volleyball in gym is not the same as volleyball at the beach, and there's a reason for that. And even smart MIT kids making games when they think there's learning involved end up reverting to gym class, to just I'm going to make you play this game to learn this stuff you don't want to learn.

Just to talk about the difference between a good learning game and a bad learning game, let's talk about difference between spelling bee and Scrabble. In a spelling bee, most of us, when we do a spelling bee, are nervous. Our palms are sweating. We think we're going to fail. Eventually the moment comes where they say no, you're wrong. Sit down. You're probably relieved.

When they say, you're wrong, sit down, nobody says to you, well, that was interesting that you spelled it that way, or I can understand why you might have chosen to spell it that way, because it rhymes with-- no. They just say you're wrong, sit down. And that's the end of it.

The end of a spelling bee, one person feels good, the winner. Maybe the kid who comes in second feels OK. Everyone else is relieved because they don't have to do spelling anymore.

And I first coined this analogy thinking about bad games. But I later came to realize that it's bigger than that, because if you think about-- so I don't know how many of you know this, but 7% of the population in the US graduates high school saying they're good at math, which

means we take an hour a day for 12 years teaching 93% of the population that they're not good at math. We would be doing them all a big favor by in kindergarten, saying you're not going to do math and just leave it at that.

Or better yet, we could figure out ways that teaching method that actually were meaningful and relevant to people, rather than making them feel like they're not good at math.

So that's a bad game. And so what I'm really arguing is that school is a bad game. School is a game in which we reward people for learning how to play at school. Sometimes they're smart at some things. I'm not saying that there aren't people.

But largely our goal is to weed people out. And we filter some people into some fields because they seem good at it. For everyone else, we're sort of convincing them that they-- whew, I don't have to study anymore. I'm done with school. I never have to learn anything again. That's the way most people end up leaving school.

Scrabble, you sit down. You got your board. You got your tiles. You're moving around all the time. You're being creative even in the downtime just thinking about all the words you know. If you never win a game of Scrabble, you have all sorts of other proximal goals, like getting a 50-point word, or getting a triple word score, or getting the highest score you ever got. Just like golf, it gives you lots of feedback.

By the way, most people who play golf, they're not in a tournament. They're not playing to win a game. They made their own game. Maybe I'm going to get a lower score than I got last time, or maybe I'm going to get at a lower score than the person I'm playing with. Well, at Scrabble, it's the same thing. So you're continually setting your own goals within the game.

The game has goals. It has something called victory. And we all may aspire to that victory, but we have lots of other ways of measuring ourselves that are not about victory. And every player makes up their own game within Scrabble, and golf, and any good game. We actually all play a different game when we play a game, and that's not a fault to the game.

So one last thing I sort of want to bring into the conversation as we think about this is an expression. It dates back to around the same time as the Bruegel painting. But in English, we first see the expression all work and no play makes Jack a dull boy.

And at first, your first response is that's a good thing, right? Yes, play is important. So it seems to be a statement in support of what I've been saying.

But the only trouble with it is that it also sort of suggests that there is this dichotomy. There's work and there's play. And I may have sort of suggested it by saying it's the thing you do when you don't have to do anything else. But then I did modify that by saying that you do some of these other things playfully as well.

And in fact, when we go into school, we think that there's learning and there's play and they're different. But in fact, I'm going to go quickly through those slides and just go up to here and just say I think we really need to think of it more like this. And we need to think about situating things here.

And fun, by the way. Let me just be clear about fun. Fun is not giggles. Fun doesn't even necessarily require a smile on the face. If you think about yourself playing a video game at age 11 or 12, there were probably moments where your tongue was sticking out, and you're cross eyed, and you're yelling at the screen, that's not fair, and you threw your controller. And then you beat the game and said, that was fun.

And Seymour Papert a retired professor from the Media Lab, is the one who coined the term hard fun. And hard fun is not a special category. I would argue that lots of fun is hard fun, maybe most fun. Certainly most games are hard fun, and that most good learning is hard fun.

The things you learn that aren't fun, yes, there may be some value to memorizing your times tables, but it doesn't make you a mathematician. That's not where the real learning happened. There's things you have to memorize-- although I heard somewhere that a 10th grade biology student has to memorize more words than a 10th grade French student.

And if you think about it, how many of us, other than those of us who go to biology, ever use all those words that we memorized about? None of it. So, I mean, I think too much of our vision of learning is still based on memorizing stuff that you then get tested on, rather than building up cognitive structures that you can then work with through the rest of your life, which is what we really want people to do.

That's my point, because I know you're doing this work with the Red Cross. You have information you want to convey. I want to argue that if the information you want to convey fits on a 3 by 5 card and people can carry it around with them, then there's no point in making a game of it.

So just to do a parallel example, I've done games for the working poor, games where the goal is to explain to them that they shouldn't take out payday loans or take on credit card debt. Well, in fact, you could write that on a 3 by 5 card. If I handed it to most people and said don't take out a payday loan, don't take out credit card debt, they would nod, and smile, and agree. And then they would go and do it when they were in extremis, anyway. They don't do it blithely, but they do it.

But my point is that the understanding that you really need is more subtle and more complicated. You really want to give people some functional understanding of something. So when we did that game, what we really tried to do is put people in the situations in which they might otherwise get loans and help them see what the alternatives were. That that was the important learning, and helping them recognize those moments. The learning was sort of helping them, and helping them feel empowered to be able to make decisions. So we were doing lots of stuff beyond conveying the information don't take out of credit card debt.

And so similarly, I think you're doing games where you probably think you want to convey information, but that's all information that could fit on a pamphlet, or on a 3 by 5 card, and you probably really don't want to make a game out of that. You probably really want to make a game that's going to be about helping people through some experience master something. And through their sense of mastery, change them.

So I think that's it in a nutshell, what I want to say, and just use the rest of the time for questions. And then you're to see your paper projects with everybody else.

Any questions? Yes.

**AUDIENCE:** So a lot of your initial description, it actually sounded like grad school.

**SCOTT OSTERWEIL:** Yeah?

**AUDIENCE:** So I feel like grad school is quite the opposite of what you're saying school is.

**PROFESSOR:** Yeah? Say a little more, because not everyone knows.

So [INAUDIBLE] and fail, because [INAUDIBLE] why did you go to grad school? Because you can explore things. You can fail. You can do a project that doesn't work, that nobody's really going to get mad at you. You just do the next paper. Afterwards, you can try as hard as you

want. And there are days when you don't feel like [INAUDIBLE] too much. I'm not sure about identity.

**PROFESSOR:** Right. Well, a lot of people enter grad school thinking they're going to do one thing and end up leaving doing something else. They have that freedom to. I mean actually, that's true of undergraduate too. I would say undergraduate, and certainly at MIT, it seems to me slightly more playful.

Well, I don't know. I'm not familiar. I don't know what it's like the freshman year, when you're doing all those psets. I don't know what that's like. I was a theater major at a different school, so I don't know what that's like. But I do see, and particularly in upperclassmen, a fair amount of play in your work.

But I think it is true. What I'm really arguing at core is that what real education is about is learning how to learn, is learning all the kinds of things you need to do to know how to learn. And some of it means just having your natural curiosity positively reinforced instead of negatively reinforced.

Kids are naturally curious. They don't have any trouble asking questions. We slowly start doing things that make people stop asking questions. We killed the curiosity in most people. And so I'm really arguing that education should be about maximizing your curiosity so that you continue to ask interesting questions for the rest of your life.

So my example of math, I don't see why there's no reason why everyone who graduates high school couldn't, when they then hear a politician quote a statistic, say how does he know that? Where did that statistic come from? And when you read a survey, say that question doesn't seem like a good survey, or that's correlation, not causation. Those are all things we can learn in high school math, for example.

So it's much more about learning how to think than it is about-- and for statistics, it's far more important to know how to ask those questions than it is for everybody to know what the r value is of something. I think that's a term in the statistics, isn't it? Yeah. I haven't taken statistics.

And the reason I'm going back to sort of trying to talk to you about what education should be about is because if you do games for learning, particularly because they're games, get you've got to shake the false model of learning is and go for the truly playful model-- because otherwise, it'll be the same kind of boring educational game that probably made you look

askance at having to listen to me at all in the first place, because that's what you thought I was going to be talking about. Yes.

**AUDIENCE:** What's your opinion on games that by structure makes it easy or hard for the players who play with a lot of effort, like hard work, or play without a lot of effort?

**SCOTT OSTERWEIL:** You can do a game that's all-- requires nothing but 100% effort. And in a sense, the play is who decides to play that game. The people who are willing to put themselves through 100% effort all the time, they voluntarily do that. And so you've found your audience. I'm not saying you couldn't do a game like that. I'm saying that it's likely that in the course of most people's gameplay, they're going to have this need to-- a game where you get on the rails and the clock is going, and you guys [INAUDIBLE].

That's why there's usually plateaus of some kind or another. There's an acknowledgement that people need to stop and take a breath. Even if it's just a plateau, a savepoint, there's some acknowledgement of that. I think games where there's actually some combination of really intense play and more relaxed play can sometimes be more satisfying.

So I'm not saying that a game can't be all hard-- or the other side of it, *Farmville* clearly was very popular with lots of people who really wanted to do kind of mindless stuff. I guess we all have the need sometimes for non-taxing-- so there's nothing wrong with a game which requires almost all in or very little in. It's just that the reality is, the player is going to move fluidly from one state to the other. And if your game can accommodate that, so much the better.

**AUDIENCE:** [INAUDIBLE], there's something that I want to comment on [? that. ?] It is totally possible to play *Farmville* extremely in hard fun, isn't it?

**SCOTT OSTERWEIL:** Yeah.

**AUDIENCE:** I had a interesting [INAUDIBLE] just playing [? for them ?] and that required very, very precise timing [INAUDIBLE]. So it is possible [INAUDIBLE].

**SCOTT OSTERWEIL:** Yeah. And the point is that Phillip chose to make it that kind of game. And everybody will choose to make it that kind of-- too many games, I think we freely make the mistake of imagining a certain path for a player on the win state, and we design the game around that player, following the path to the win state. And we forget to think about all of the time that

players are likely to spend either trying to break the game, or play in different modes, or in fail state.

I mean, one of the things I encourage students to do is make sure that the failure is the most interesting part of your game, because if your game is at all challenging, people are going to be spending a lot of time in failure mode. A, you want to reward them and say that's OK. We're happy to see you here. And b, you want to make sure that it remains entertaining while they're in failure mode so they don't quit.

Like I said, I think it's an easy mistake to fixate on what's the path to success look like, and not think about what the whole gameplay experience is like. And that gets worse when people have an agenda, like a game for the Red Cross. We really fall into that trap. And that's why so many serious games seem so serious, and earnest, and humorless, because all the designer thought about was the player earnestly achieving the goals that the designer set out for the player, rather than thinking about the player playing.

**AUDIENCE:**    [INAUDIBLE].

**AUDIENCE:**    I guess this goes back to your example about golf [INAUDIBLE] and not having somebody yell at you for not hitting the ball straight. How do you think that kind of goes with the existence of golf teachers, who are paid to essentially tell you you're doing it wrong?

**SCOTT OSTERWEIL:**    [INAUDIBLE].

**AUDIENCE:**    I guess I'm thinking of my own dad and [INAUDIBLE] my sister, who have very different opinions about a golf coach telling them to do it right.

**SCOTT OSTERWEIL:**    So the relevant thing there is that they elected to have a golf coach tell them to do that at a certain point in their-- if you started somebody with a golf coach yelling at them-- now, it could be very gentle, loving, helpful person, in which case it might go fine. But chances are if you started somebody with someone standing over their shoulder telling them what to do every moment, they probably would never develop a real interest in it.

So the point which you elect to have somebody there, you have your reasons now. You have your motivation. And so that's a different experience at that point.

I think lots of kids who get turned off to musical instruments or sports because too early in the

experience, they're forced into sort of just reproduce the results that some adult wants you to reproduce, rather than explore this and figure out where your motivation is.

Well, thanks. But I'm sticking around, so if you have any other questions, I'm happy to take them.

**PROFESSOR:** Another reason I wanted to ask you to come and talk to class. So we mentioned a couple of the other game classes we have at MIT that we're teaching. And you teach 615, the Games for Social Change?

**SCOTT OSTERWEIL:** Games for Social Change, yeah.

**PROFESSOR:** Next fall, right?

**SCOTT OSTERWEIL:** Yeah, that'll be next fall.

**PROFESSOR:** Can you say a little bit about what that class entails?

**SCOTT OSTERWEIL:** Yeah. And Sabrina took it. It's sort of taking the same principles that I was talking about and using them to think about if you're interested in social change and how you could use for that, understanding that you can't make people change. And so the question is, how can you use play to actually encourage change?

And so probably we're looking critically at how society works. And the task we're trying this year for the first time-- well, you're doing two big projects this year. We're just now finishing a project on the theme of walls to go in conjunction with the 25th anniversary of the Berlin Wall coming down. And that's going to be on display at the Goethe Institute, which is a place in Boston, and it may also be on display in Munich at the same time, the games.

And then we're going do a project where we try to actually look at some system in society, like school, which is a bad game, and try to redesign it as a good game. Not make a game about school, but rather redesign school itself as if it were a game.

Every year we try different stuff. The one thing I like to try to do is come up with projects that actually have-- for which you're doing it with somebody besides just me. I don't just want students doing stuff for me. I want them doing it for some bigger audience, and we try to do

that in every game, every semester [INAUDIBLE]. And that's [INAUDIBLE].

**PROFESSOR:** Cool. Yeah. So if you really like what you're doing right now with the Red Cross/Red Crescent project, and you want do more of this kind of stuff, take a look at that in the fall.

And if you're looking for some help or insight about the design of your project this semester, the Games for Social Change materials are on the OpenCourseWare website. And we'll post those readings and materials there so you can take a look at that.

**SCOTT OSTERWEIL:** It's a bit of a seminar, so I think there's no lectures. And so I think there's a lot--

**PROFESSOR:** The readings.

**SCOTT OSTERWEIL:** Yeah. And they're not always explicitly about what we end up talking about in class. So I don't promise that they'll always be helpful. But anyway, they're more like thought starters than [INAUDIBLE].

**PROFESSOR:** All right. So it's 1:48. Take a really quick break. And then set yourself up into your five groups, and set up your play test. We'd like to start doing play test at 2:00. So 12 minutes from now, if that's possible. Do you think it's enough time?

So we're about to get started. How many stations do you have for testers?

**AUDIENCE:** [INAUDIBLE] many [INAUDIBLE].

**PROFESSOR:** How many are you going to have? Three? All right, three. Cool. If you're not using your computer to run a game, then close it or set it aside so people know. How many stations are you going to have over here?

**AUDIENCE:** Two.

**PROFESSOR:** Two? And group behind you, how many workstations? Four? How many workstations are you going to have? Two? And in the back, how many? One? 1, 2, 3, 4, 5, 9, 12.

So basically if you have-- there's one, two, three, four, five testers, plus let's say each team send out two people to test other games. Remember to rotate. We're going to do this for about 20 minutes, as long as it takes. And then see where we are and do it again to get some just quick testing and make sure that the five of us get to play a good number of your games and

give you some feedback on that.

So remember, if you're using digital-- if you're not, if a computer's not being used for testing, close it or make it look like it's not being used for testing by typing on it. Let's get started.

Can I get everyone's attention really quick? Can I just get a really brief report? How many teams-- how many tests did you guys get?

**AUDIENCE:** Two rounds and three [INAUDIBLE].

**PROFESSOR:** So you feel like you did a good amount of testing? For the team close up here, how many rounds did you get? How much testing did you get?

**AUDIENCE:** We got about four [INAUDIBLE].

**PROFESSOR:** Four?

**AUDIENCE:** [INAUDIBLE]?

**PROFESSOR:** How many tests did you get? How many people played the game? A good number?

**AUDIENCE:** We had two who played [INAUDIBLE].

**PROFESSOR:** Cool. I'm just trying to get a sense. You guys feel like you've got a good sense of number of people? Did you guys get four or five? And in the back, how many players did you get?

**AUDIENCE:** We only had one [INAUDIBLE].

**PROFESSOR:** Has it been useful?

**AUDIENCE:** Yes.

**PROFESSOR:** OK. So let's close off testing for now. If you'd like to test later today or later during the class period, you can. Go ahead and finish off whatever testing you're doing right now. And at 2:50, we're going to come down and each team's going to give a brief, two-minute description about the state of their game and your product backlog.

And those are actually going to get recorded so that we can send them to Pablo and the rest of his team, so they can see what you've been working on and give us some feedback about it. OK? So 2:50.

Everyone set?

**AUDIENCE:** [INAUDIBLE].

**PROFESSOR:** So Snap, come on up. And again, two minutes. Talk about your features. Talk about what's in your game now, what will be in your game. Also, give a really brief description of the topic your game's about. So this is for our clients to know what we decided to do for all of our topics.

**AUDIENCE:** So we're Snap. So we've decided to [? return ?] Snap into a multiplayer game. So it'll be all everybody playing at the same time.

Right now we have a game that looks pretty similar to what we played in class, where you can enter words and you can snap with anybody else who has played the game.

Right now we don't have any fiction and we don't have any indication of score other than just the number of times you've snapped. We're hoping to change that.

We got a lot of really good feedback today, and we've thought new ideas for how to convey feedback to the player and some improvements to the UI, because right now we don't really express much to the player. That's about it.

**PROFESSOR:** Any challenges that [INAUDIBLE] leading up to where you are now? Is there anything [INAUDIBLE] questions [INAUDIBLE] risks that you have right now?

**AUDIENCE:** So the networking is still a risk, as we just saw. It's a lot more confusing when something doesn't work, why it's not working. We also do want to confirm that the game that we build is similar enough to Snap in terms of satisfying the client's goals. So we don't want to change the game, even if it's more fun. We want to make sure that the game still satisfies the client's requirements and that they'll still be able to use it and gather the information they want to. And that will require some careful testing to see what people end up doing with Snap.

**PROFESSOR:** And what did you decide on? Have you decided on tech yet, or are you still trying out multiple--

**AUDIENCE:** Yeah. So I think we have a tech. So we have a server running on Node. And we're going to use Phaser for the front-end so that we can make a more expressive game. For now, we're not using Phaser, though. The current prototype doesn't use Phaser at all.

**AUDIENCE:** One thing you asked earlier was [INAUDIBLE]. Does that basically mean that you have to run on two different flight, or--

**AUDIENCE:** Yeah, yeah. So the idea would be to experiment with what sorts of entire group visualizations would be interesting to put up for the entire room. And the back-end team might work on what sort of visualizations we want to show separate from what we want to export at the end of the game.

**PROFESSOR:** [INAUDIBLE] anybody else?

**AUDIENCE:** [INAUDIBLE].

**AUDIENCE:** Thank you.

**PROFESSOR:** [INAUDIBLE] Cholera is Awesome.

**AUDIENCE:** Yeah. So the current state of our game, we spent a lot of time thinking about design and how exactly we want to do things. So we're currently making sort of a game where you control-- or don't control. You take care of a bunch of villages. So you see different villages, how infected they are, and how many people are dying sort of thing, and then implement measures to prevent cholera spreading. So you give people soap to wash their hands or set restroom facilities, or use vaccination, and that sort of thing.

And so a lot of the feedback that we got on a lot of questions that we're facing basically revolves around the issue of making this game realistic versus making this game more fun sort of thing. So you can make a really unrealistic game that can be tons of fun, but we also want to stick to reality because at the end of the day, we do want to teach the people that are playing how to prevent cholera from spreading.

So there's sort of this trade-off that we have to make. And the second trade off is sort of like you can make a blantanty educational game that just throws back at you that can sort of be fun for the first time you play it, but doesn't have a lot of replay value. And it's sort of hard to make a great educational game that also has a lot of replay value.

So we're thinking, maybe consider maybe we don't want that much replay value. Maybe this is a game that these people will play once or twice, learn what they need to learn, and then never play it again. So it's sort of trade-offs that we need to think about.

**PROFESSOR:** So you're still working on the paper prototype that you need [INAUDIBLE]?

**AUDIENCE:** Yes.

**PROFESSOR:** OK. Cool. Thanks, [INAUDIBLE].

**AUDIENCE:** Yeah. But we're starting to build up the back-end. And we're going to be using Phaser to [INAUDIBLE].

**PROFESSOR:** So you've already [INAUDIBLE]? OK, cool. Forecast-Based Funding, right?

**AUDIENCE:** Yep. Hi, we're Forecast-Based Funding. The general idea behind our concept is that planning ahead for disasters is much better than trying to react to them. So if you can have operating procedures or ways of planning for them [INAUDIBLE] afford that, you can reduce loss of lives in the event of disasters.

We are actually between two prototypes right now that we're testing to try and get at the ideas. The first one is a sort of higher-level city-based simulation of a city that's at risk of disaster, which you then have to fortify, [INAUDIBLE] train volunteers, or preparing for upcoming disasters in order to prevent too much damage from happening to them.

One of the problems that we're seeing with the game is that's kind of abstract and not as interactive for players to connect with. But they are getting a good understanding of the idea of planning ahead.

**AUDIENCE:** Yeah. And so to try and address those issues, we have a second prototype right now, which is about trying to actually rescue people in a flooding city. And so that hits the other end of the scale, where the player is told ahead of time this disaster was planned for versus this disaster was not planned for, and the appropriate effects for each. And then they have to rescue people under those two different conditions, and then they get to directly compare what the experience of is for acting in one circumstance versus the other.

**AUDIENCE:** Over the next couple of days, we'll be looking at what we learned from both of them and trying to either combine them or pull out the parts that we thought were really useful to [INAUDIBLE].

**PROFESSOR:** [INAUDIBLE] on this? This was the hard one.

**AUDIENCE:** Yeah.

**PROFESSOR:** [INAUDIBLE]?

**AUDIENCE:** I think it was stated a couple of times that we should be looking at people that are

policymakers or donors in the sense of sort of people who would be allocating funds from governments or non-profits, things like that. Basically we make it appear that this type of planning ahead is a good idea.

**PROFESSOR:** And have you decided on technology yet, or are you still pondering it?

**AUDIENCE:** We're probably using Phaser.

**PROFESSOR:** All right. Thank you. Heat Wave.

**AUDIENCE:** Hi. So as you guys have all heard, Heat Wave is going to be a game that will hopefully be used to help Red Cross volunteers help people in areas that are either suffering from or about to suffer from a heat wave.

So what we did was we decided we wanted to test out a very simple digital prototype, not with the same type action as our final prototype, but not in Unity because having a working game in Unity at this point we didn't think is a viable option.

So we made a Python test base game. And people were able to choose what they were going to do based on the scenario and the people they were interacting with. And what we really want to test it was how does this work. Is playing a good way to learn? And if so, how can we make more learning come out of the fact that they're playing a game and then making these choices.

So what we did was we showed people, and a lot of times, people noticed right away, well, I don't want to sit there and do nothing, which is what we wanted them to notice. And oh, this person passed out even though they were only outside for three hours. Why was that? So we did see a lot of that.

But something we didn't see was people sometimes got stuck in a pattern. It's just like, well, I'm always going to do the same thing. And then they don't get different results and they don't really learn anything.

So we want to give people more interesting options and more options in our actual game so that they try more things and they learn more. So that's what we're going to do.

**PROFESSOR:** So you already [INAUDIBLE]?

**AUDIENCE:** Yeah. Any other questions?

**PROFESSOR:** [INAUDIBLE].

**AUDIENCE:** [? Great. ?]

**PROFESSOR:** Thank you. [INAUDIBLE] Animal Village.

**AUDIENCE:** Hi, everybody. We're saving the Animal Village. Our goal is to empower around 8 to 13-year-olds to reach into their community and learn more about what cholera is, what its symptoms are, and how they would convince people that cholera is actually happen.

Our play tests were focused on bringing as many minigames as possible, and to testing. So in this case, we had four minigames. The main feedback we got on those games was that they were far too easy and simplistic. And we agree, it turns out.

Our goals moving forward are to essentially improve our game beyond just reading an informational pamphlet, and to do things where it requires actual abstract thought and in general, more effort from the player to think of the behaviors and actions they need to potentially change or encourage in their community.

We found a lot of success with this in our game already present in the mayor dialogue. And we hope to branch that up as moving towards, we begin to implement our game in Phaser. Any questions?

**AUDIENCE:** [INAUDIBLE] what's the upside of having minigames versus one [? full ?] game?

**AUDIENCE:** So our goal with the united minigames is to be able to drill down and be very specific about which behavior we want people to show. There are approximately three to four core behaviors that are very necessary to prevent cholera. And having one minigame devoted to each of them in theory will allows us to focus more and teach more, as a result.

**AUDIENCE:** That's a good statement. Just riffing off something else that you said. I haven't looked that closely at the cholera documenation. I'm not so sure if convincing people that cholera is a problem is necessarily the thing you need to do, but convincing people to change their behavior and whatnot.

**AUDIENCE:** So not convincing people cholera is a problem because obviously. It's convincing people to report cholera as it happens instead of waiting to see if that one isolated case of diarrhea is actually a symptom of an outbreak or just someone eating something bad.

**AUDIENCE:** Right. So one of the things is like this early alert thing [INAUDIBLE]. OK. Cool. All right.

**PROFESSOR:** Thank you.

**AUDIENCE:** All right. Thanks.