The Greek philosopher Plato is quoted as saying that you can discover more about a person in an hour of play than in a year of conversation. It’s a philosophy Nicole Lazzaro—president of XEODesign, Inc. (XEOdesign.com), the world’s first Player Experience Design consulting company—subscribes to today. Players’ emotions are at the core of gaming, says Lazzaro, and they are the reason why games can be so compelling. She chatted with Dimensions in anticipation of the 2012 ASTC Annual Conference (conference.astc.org) this October in Columbus, Ohio, where she’ll share how science centers and museums can implement the power of play.

In 20 years in the field, how have you seen games evolve?

What we’ve seen in watching the evolution of games over the past 20 years is that they’ve come a long, long, long way since early days of Atari. One of most remarkable things of course in recent history is where we’ve gone from the Hard Fun, hardcore games, a lot of war simulations and sports games, opening up to some amazing new experiences made possible by iOS and mobile and smartphone games, and casual gaming as well. We’ve broadened the audience from younger folks growing up and playing games to adults. Adults now play a lot of games, which wasn’t true back in the past in the early days of the arcade. And in the past 20 years we’ve seen evolutions of new genres, whether it’s games we play on Facebook or games we play on a mobile device. What’s really cool about that for us is that it’s opened up a much wider range of experiences. We have a lot more—where games start off with, which we call Hard Fun, which is all about mastery and challenge and obstacles and goals, which are all real essential and good parts of games, but now we’ve seen games evolve as an art form to include a wider spectrum of emotions: curiosity and wonder and surprise, exploration games, and games like The Sims and games like Nintendo Wii, which provide new and interesting experiences for players.

How does a game become an emotional experience? What qualities does it have that can spur emotion in the player?

What’s fun about games, what makes games the medium for the 21st century is really their ability to create emotion directly from players’ actions in a game. You can’t—as a game designer, you can’t design the emotion directly, but you can design the choices and situations the player can act in, and that creates the emotional response in the player. And this direct connection between what the player does in Grand Theft Auto, whether they’re stealing a car or running their car through a plate glass window, and the emotions that they get are coming right from the game play. Whereas in film—film will never hand you a jet ski to save the world from thermonuclear doom, but a game—it has to. So that’s what’s exciting about
where games and emotions are coming from—where emotions come from in games.

We talk about player—essentially, just like we have user experiences in a software setting, you might with a spreadsheet or with a photo editing app, you might have an experience you make more usable—well, in games, you have these interactive experiences that you can actually make more fun, more emotional by the way in which you arrange the choices for the player. You might think that, oh, games are creating emotions from the character and the story and the art and the sound effects, and yes, those definitely do that, like their cinema counterparts. But with games, there’s even more fun in that you can actually make a choice and then have the player respond, whether it’s putting all of your Sims into a swimming pool and pulling out the ladder to see what happens, to driving a racetrack backward, to experiencing Schadenfreude when you beat your rival in a game of Bejeweled Blitz. All these emotions—there are over 30 and probably 100 emotions you can access through the game and directly through game play that can do—they create wonderful entertainment experiences, first off, but they also do other stuff as well. Emotions—in addition to entertainment, they also play a real crucial role in engagement, which is the research that we do at XEODesign. It’s the ability of a game to create these emotions that in turn focus player attention. Something that creates more emotion is easier to attend to than something that does not. Emotion facilitates memory, it challenges or—it helps create—it affects performance. In a game like Splinter Cell, you’re playing a war game so you have things flying at you at eye level—it creates fear. Fear is a negative affect, negative emotion and that narrows the cone of attention to get the sniper and move on. And that kind of task helps you succeed in the game. The game is designed to reward the player for that task. Whereas in another game like Katamari Damacy where you’re playing a little prince and rolling up a sticky ball and picking up your room essentially, with all the thumbtacks and bon bons and paper clips and stuff that’s on the floor, and it’s amusing, and that amusement opens up the cone of attention, opens your field of vision and opens wider possibilities, which helps you problem solve to get your little character who’s only 2 cm tall up onto the table to collect more candy and stuff like that with that little sticky ball. So emotions can also be used to adjust performance and that gets really good game play.

And then of course emotions are also involved in learning, which is also a thing that’s important throughout all games. In fact they say that there isn’t anything such thing as an educational game because all games teach. There’s a learning component in all of play. There are other reasons to play as well, but there’s a learning process. And the emotional reward and the emotional process going through the act of learning is really very powerful, which increases—which is a major reason why games are so engaging.

You’ve talked about Hard Fun and that’s one of what you call the Four Keys to Fun. Could you talk about those a little bit and explain how those tie in to the learning process?
Absolutely, yeah. So what we have is—in 2004 we released some research called the Four Keys to Fun and in it what we found is that by watching people play games, watching the emotions on their faces, we actually determined, were able to tease out the four things that make games engaging. Games in a sense are games because they provide challenge, they provide novelty, they provide friendship and they also provide meaning, and those are what we call the Four Keys to Fun. So the first one is the hook—it’s curiosity. It’s what pulls you in the world. It’s what people call Easy Fun; there’s no challenge involved. It’s just the simple joy of the controls, it’s exploring the world, it’s seeing if I can get my motorcycle up on the top of that building or if I put my Sims in the pool and pull out the ladder like I mentioned earlier, just to see what happens—you can explore that world. Or it might just be the fun of waving your arms in front of a connector in front of a Wii. It’s just fun, kind of like the bubble wrap. I like to think of it as the bubble wrap of game design. It’s also the key to your imagination, it pulls you in that way.

But after a time, after about 20 minutes, you need to have something more going on. And so then there’s a specific goal, which is where the player generally gets to the second type of fun, which is what we call Hard Fun. That’s all about challenge and mastery. There’s a goal and then there’s an obstacle, some ways to make progress toward that goal, and then you have strategy. So with those elements, the player goes from a state of frustration because they can’t quite get that goal, you can’t push a button and win, you can’t push a button and save the princess—but you can with repetition eventually figure out a way to succeed, so then you go from the frustrated state to one of the feeling of that epic win. And that feeling of the epic win is what I call Fiero. It’s a Italian word that the body’s just on fire, like, “Yes, I just got the top monster; I just leveled up.” And that’s when the arms punch the sky and you just feel like you really won. You can’t get that feeling of winning unless you feel very frustrated, and in our lab, what we see most of the time is the players have to get so frustrated they’re about ready to throw the controller through the window, and at that point they succeed, because when they succeed and I’m sure you’ve experienced this—that’s when it feels so good, just that you just won that personal triumph over adversity. It’s a feeling of winning. And that’s really great, that’s selling games...

But then after you win what happens is that it’s more fun to win in the comfort of friends, so that’s where the third key comes in. And that’s People Fun—it’s a social type of fun. Cooperation mechanics and competition mechanics, the ability to work with your friends, work against your friends, communicate with your friends to achieve a common goal. All of those things are really powerful forms of engagement. In fact there’s more emotion in People Fun than the other three combined. So there’s amusement, which is the easiest one to measure, but then there’s also Amici and Amiero. Amici is another Italian word for friendliness and chumminess, and Amiero is a word I coined because that’s sort of that feeling of social bonding, that getting closer—it’s sort of the love of friendship, if you will. Game play generates really strong strength in social bonds. In fact it’s sort of like a quote that’s attributed to Plato that says, “You know more about a person in an hour of play than in a lifetime of conversation.” So there’s some really powerful stuff that happens when you play together. There’s really great rat research that
we’ve seen. Sergio Pellis, I believe, did some wonderful stuff looking at the difference of rats that experienced a lot of play growing up, social play with peer groups, versus isolated play or just adult and juvenile play and their ability to cope socially and respond to novel situations. And he found that a lack of social play for young rats really diminished their ability to have normal social relations and then also to address novel situations. Without play they tended to feel a lot more stress and were less able to cope with new situations than the rats that had the peer-to-peer, rough-and-tumble kind of play growing up. Fascinating stuff, I could go on for days about People Fun... but in any case it’s much more fun to win if your friends are involved.

And then lastly again it’s the feeling of Fiero, Hard Fun, from winning, it’s soothing, it’s a big emotion, it feels wonderful, but it goes away pretty quickly, and that’s where Serious Fun comes in. Serious Fun is a whole collection of game mechanics that create emotions that extend that feeling of winning. People have certain experiences in games and interact with games in certain ways in order to feel like they are changing themselves or they’re changing their world. So the Serious Fun of games is all about making changes inside the player, whether it’s playing Dance Dance Revolution to lose weight or Brain Age to get smarter or a training game at work to master a new piece of software. The whole gamification trend—I don’t really like the term, but that whole movement is really about Serious Fun, it’s all about those mechanics that make us more—it helps us improve ourselves and improve our world. So what we found in the research is that the best-selling games tended to have three out of four of people’s keys. And people tended to like their favorite games and tended to play those games in three out of four ways. Some games had all four and that was definitely a good sign.

The way we put it together if you’re interested, the way we did the research is that we looked at people’s favorite things—this is from 2000 to 2004. We went into where they played—home, school, and work; young and old; male or female—and a wide variety of games, everything from Tetris and Bejeweled to World of Warcraft and Call of Duty or Halo. And so the whole range—and what we did is we took those moments on videotape, those favorite moments, and then organized them by the emotions that the players were feeling at that particular time, in that particular moment. What emotion was that player experiencing? We used Paul Ekman’s facial action coding system, simplified it for games, and then did a cluster analysis for all these different favorite moments. And what we found is there’s a lot of similarities between the mechanics, the things, the types of things that people were doing at each of these moments in each of these clusters, so it went from the players—we organized these moments by the emotions they created, but we looked at the similarities between these moments in terms of mechanics, and that’s how we came across, that’s how we developed the mechanics, the play styles behind each of the Four Keys to Fun.

Given all the research that you’ve conducted—I know you’re speaking at the ASTC Annual Conference this October on gaming and on cyberlearning. How would you recommend that science centers and museums implement
games to reach their audiences and how do they bank upon the Four Keys to Fun when it comes to a scientific experience?

Exactly. The Four Keys to Fun offers a wonderful opportunity to developers of science museums and adding games is definitely all the rage right now, which is wonderful. I’ve been waiting 20 years for this kind of moment, as you’ve been hearing. We were the first Player Experience Design company. This is awesome, an awesome time. But the thing is to remember is it’s not just about points and badges. These are two things that get a lot of airplay right now in conversations about gamifying interfaces, gamifying websites, gamifying the shopping line, whatever. Points and badges are great, points especially with Hard Fun, badges especially with Serious Fun, they’re great mechanics but that’s not the end-all, be-all. What’s more interesting I think is just to take players through a journey and start that journey with mechanics that evoke curiosity because that gets attention.

Attention’s limited when you’re running through museum as an attendee, as a visitor. So getting stuff that’s got a very powerful call in to, “Hey, let’s go explore.” The opportunity to explore, to create, to personalize is what can get you involved, engaged right away. The feeling of the controls on exhibits, the way that things light up or respond to your touch can be quite powerful. And then having simple mechanics that allow you to achieve something, so it wasn’t just that I went through the entire exhibit and now I have completed it, but having stuff that rewards mastery. So because I did something in part A of the exhibit meant that I now get a better experience in part B is something that people can feel challenged over time. But you don’t want to create experiences that people will sit in front of for an hour just because of traffic flow in a museum setting but having something that is lightweight enough that they can use to master and do something a little bit later on can be really great. The most obvious thing being something you learned in exhibit A can be put to the test or challenged or helps you get more out of exhibit B. But there can also be physical interactions where they build up over time and I think that’s really powerful because of short-term memory. You can’t remember everything you experience from one exhibit to the next so there can be stuff that’s mechanical and physical that moves between the exhibits.

People Fun is wonderful because you can have real social interaction like in a couple years ago, Farmville and the different social games on Facebook really exploded out of the gate. It’s really great to involve your friends and interact with them. There are opportunities to do that in one’s social circle or sharing from the exhibit into a social platform like Facebook or Twitter or Everloop or some of the other more kid-friendly social networks. So you can involve people that way, but also the internet-active exhibits—you can have this long-term relationship with the attendee and that can be really powerful and help get them back, because if they’ve come once maybe they’ll come again. And so having some stuff that they can do outside of the exhibit—offline, if you will, or online, an online component at home or at school. And something they can do with their friends is really powerful because then their friends can get interested in that experience and they can go to that experience themselves.
But probably the most obvious application is of course Serious Fun, which is all about creating a learning opportunity because most museums/“wonderhouses” are about creating opportunities for learning and experience. And so the use of collection and completion mechanics, which are badge-like in their nature, is great, so that you feel like you’ve accomplished something by attending the exhibit or participating in the exhibit—even better. But then there’s repetition and rhythm and other things that can create different brain states, different emotions. We see this in music and in games especially but the music and other aspects that might create a sensorial experience that enhances the learning or the message behind the exhibit. And that can be done through audio guides in the case of audio but it also can be done visually through pattern matching, collecting, and stuff like that. There’s something really powerful about creating experiences around collecting. For example, on the iPhone, when it first came out there were no apps. There was just one screen. It just had the basic set of six items, plus some in the tray at the bottom. And so it was a very basic setup and now that they did this though, they designed the UI so that when you have the opportunity to buy additional applications for your device, for the iPhone, and it became this collecting quest of collecting brightly colored, gem-like apps that you put in that device. That user interface has a collection mechanic. As you buy more apps, you get more colored gems, just like the stones on a Bejeweled board, so that rewards people for participating in a way that Apple likes, which is buying more apps, or downloading more apps. And so that’s kind of a collection mechanic that can be done on an exhibit overall, like you’re collecting badges or stamps or something like that, or within a few exhibits, you can use these collections to fill something up, and that creates a very powerful experience that creates focus and during that focused state you can be more attentive to the message that is being conveyed.

That reminds me of the iPhone—that reminds me of another example of game-like interaction outside of games, creating powerful emotional states and that’s with the iPhone operating system itself—the gestures you use create strong, emotional responses. If you think about it, you might think, “What? Really?” but if you think about it, think about if I were to share my photos with you, I might hold out my iPhone and what would you do? Well, you would pat and pinch and move with your fingers, you’d stroke the screen to slide back and forth. If you were to do those same gestures but on the back of my hand, we better be on a date or something, right? Because they have very strong social emotions associated with them. So what better thing than having—what better gesture could you use for a device that has your contact list, your email, your Twitter feed, your Facebook, your photos, all those—your phone. All of those things have a lot of strong social emotions from reaching out to your friends and then you’re getting social emotions just from petting the device. In fact players tell us that “petting my iPhone makes me happy.” And so that’s pretty amazing when you think about it, and there are a lot of lessons for exhibit designers, especially when you can do stuff that’s hands-on. The power of touch is really phenomenal. You can design that into exhibits in really compelling and interesting ways.

That’s a lot of great ideas, I can’t wait to hear your full talk in October.
Oh yeah, it’ll be fun. There’s lots of stuff to cover, and there are white papers on our website at XEOdesign.com, and there’s a short link you can go to for the Four Keys to Fun at 4k2f.com. And you can download some models and some white papers and stuff on some of this research.

**Excellent, I’ll include that. Well, thanks so much Nicole, I really appreciate your time.**

You’re welcome. I love games and we’re at this wonderful point of time, going back to your original question about in 20 years, how games change: We’re in this great moment where games can actually become something new. It’s a whole new art form. And more than just gamifying things—what it’s really all about is it’s something I call playsourcing, where we’re using the power of play inside and outside of games to be the source of human motivation and growth, to help us change our world basically, unlock human potential to improve quality of life, the quality of our lives through play. And that’s the kind of thing that we’re doing with our consulting with clients, with game companies, as well as with our game called *Tilt World* on iOS, on the iPhone. And in *Tilt World*, the virtual seeds that players collect in this eco-game actually plant trees in the real world. So we’re going to plant up to one million trees in Madagascar with our friends at WeForest from the combined efforts of people playing the game. This is really just a first step in a larger vision of what playsourcing’s all about but I think that—along those lines is where the power of exhibits connected to the real world could indeed change our planet for the better.