

Chapter 9

Blogging the Future from Multiple Perspectives:

Current Problems and Future Potentials for Educational Games

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Abstract

There are many issues and potentials in the field of educational games. This chapter was developed as a collaborative blogging effort among contributing authors of this book to discuss some of the current problems and the future potentials for educational games. A variety of questions were provided in a blog format to allow an evolving discussion among the authors. Topics covered within the chapter include games and the instructional design field, problems associated with games, assessment and games, cultural implications for games in education, and future potentials for games in education.

9.1 Introduction

Games in education have become a large topic of interest in the field of instructional design and education. Between numerous presentations at conferences like the Association for Educational Communications and Technology (AECT), development of gaming special interest groups, special issues of journals such as *Tech Trends*, and a variety of books, games in education have gained a spot in the collective conscious of educational technology. Now is a pivotal time in the area as a variety of research is beginning to emerge on the use of games in education. Over a period of a year a variety of blog questions were posted for participating authors of this book to provide their perspective on some of the problems and potentials within the area of games in education. While it is important for individuals to discuss specific issues, it is also beneficial to provide opportunities for open forums of discussion about issues relating to a specific topic.

9.2 Importance of Connecting Games and the Instructional Design Field

Over the past several years a lot of focus has been placed on games in education, particularly in the instructional design field. What do you see is the importance of connecting games and the instructional design field?

9.2.1 Atsusi

I believe it is essential that we connect the design of educational games with the field of instructional design. Over the past 4 years, I've found that entertaining game designers know little about instructional design, and instructional designers know little about game design. Like others, I'm afraid that if we leave the design of educational games to instructional designers, they may fail to realize the potentials of story, game, and play to create engaging and memorable experiences. On the other hand, if we leave the design of educational games to entertaining game designers, they may fail to apply key pedagogical principles for optimizing learning. I believe the best instructional games require a balance between entertainment and education, and that such balance may be best derived by facilitating collaboration between subject matter experts, and experts in interactive entertainment and instructional design.

9.2.2 Kimberely

Many educational games are often incredibly easy and not very stimulating. Strengthening the connection between creative game design and educational content should become a priority. The depth of learning that is explored in typical educational games is usually limited to choosing the correct fact and plugging it in. Capturing the interest of players and involving them as learners, requires that educational games have multi-faceted texture to them. Children are willing to go delve into engaging games by reading books and researching information to help them play. Many kids map out the many levels of games or spend time creating their own levels, as an extension of the game. This sort of passion comes with a well designed game, but rarely happens with games that are designed for educational purposes. If the two could be melded together, the use of games in education could really revolutionize learning.

9.2.3 Luca

I like being concrete, and I think that the real goal is having instructional designers (IDs) and game designers (GDs) talk together. This is a pre-condition to have the disciplines come closer.

I'm active both as an ID and GD, and I experience the fact that plugging content into a game can make it boring. On the other hand, all real experts in a subject matter have somehow created fun with it - so any content can be potentially suitable for a game.

When fun is at stake, I think creativity emerging from interactions between IDs and GDs is needed, much more than any "instructional game design model", which is useful only if people have learned to work together.

9.2.4 Lloyd

Following the comments of Luca, I'll go further to say that merging the areas of instructional design and educational game design would not be a fruitful path to take. I frankly do not think such a merger is possible or desirable, at least not at the micro-instructional design level (i.e. lesson design), though I see some potential in the use of game-based learning objects as a strategy for achieving the interaction-oriented aspects of the events of instruction. At the macro-instructional design level, I can see the importance of conducting a needs assessment to determine what learning outcomes should be targeted. Likewise, doing a learner analysis is important.

I suppose my pessimism stems from the fact that I view game design as akin to story writing. Although there is a process that can be taught and understood, the best stories are only written by a talented and creative writer who is allowed to follow a path that can not be reduced to a set of steps. If it were otherwise, we would all be Steinbecks and Hemingways. I'm also of the opinion that the field of instructional design has too easily dismissed the importance of the "art of instructional design" in favor of the analytic side. So, I would rather at this point allow educational game designers full latitude to explore the creative potential of this design challenge. Likewise, I think premature attempts to add an analytic element to these designs would largely quell the creative potential.

One of my doctoral students, David Noah, did his dissertation on the intersection between instructional design, story, and gaming and found, disappointingly, that even award-winning educational multimedia could not effectively merge these areas. Making seamless the game play and the learning, one of the hallmarks (IMHO) of exemplary educational game design, is very, very difficult. He found the best approaches were when the storyline was open-ended and largely under the control of the user, such as in simulations such as SimCity. His research has in-

fluenced me, however, I like the idea at this juncture of getting both groups to collaborate and co-design educational materials. The outcome, at least for the near-future, may not be an improvement in educational materials, but it might begin to foster an understanding between these design fields that would lead to new conceptions of design in the future.

9.2.5 *Katrin*

I'd love to be able to devise a clean, structured ID methodology for designing good educational games. Unfortunately (or fortunately, depending upon your POV) I also know something about software engineering. This is a discipline that has devoted itself to the pursuit of finding recipes for software design that do not require skilled or talented personnel. Or, to use Edsger Dijkstra's definition: "Software Engineering is programming for those who cannot." After 30+ years of trying, we still have no real evidence that our efforts are actually producing better software. I feel there are many parallels between software engineering and instructional design. Similar desires for recipes and processes we can follow that will produce reliable results.

Still the fact remains, we need to be able to design and produce good software. Ultimately, digital games are still software. True, digital games are more than software - but they are not less than software. We also need to be able to design and produce good instruction. So, our goal is to design good instructional games, when we still don't have a nice recipe for how to design good software, or good instruction, or good games. That's a tall order.

There are people now who are designing and building instructional games that look like they will be pretty cool. But, right now, most of the promising educational games are being designed by people with considerable experience, in education, software and/or games design or some combination. We can't always require that we have developers with decades of experience upon which to draw. We can't teach new people how to build instructional games by telling them to go away and acquire 20+ years of experience. SO, we have to figure out how to teach people how to do this.

In order to do that, we need to figure out how to make good games that also embody good instruction.

The point to be made in this particular context is that a significant and irrefutable aspect of designing and creating educational digital games is the design and creation of the program that is the game. I remain unconvinced that we will be able to teach people how to design educational games without also having them understand how to design digital games. Since we don't really know how to do that either our challenge is a large one.

We have other models to turn to for inspiration though. In many ways digital games share more with film and television than they do with web applications or other instructional technologies. We still don't know a formula for producing a

“good” movie, although we know some of the things that are commonly found in good movies, as well as having quite a few past and present “masters” and masterpieces that we can study. We need to study the masters (which is one of the things I am doing now).

9.2.6 Luca

I like Lloyd’s comment: analysis and recipes are not the point, also because, as Katrin points out, we do not really know how to design good instructional/educational games. Once more, I think we should simply go back: take board games or sports and only after you are familiar with those, move forward to digital games (just like you need to understand classroom teaching before doing eLearning).

Also, we need to stay interdisciplinary: ID cannot absorb everything, but must be able to keep in touch with the rest of the world. We need game designers exactly as we need graphic designers, because instructional designers are neither of them (usually, at least!).

Finally, I agree with Lloyd once more: games are aesthetic in nature, and are an artistic phenomenon - we need to leave more room for “artistry” in ID. It’s risky, you cannot “guarantee” effectiveness and need to trust the designers, but that’s the only way to think really out of the box.

9.2.7 Christopher

I believe that there should be a connection between instructional design and game design, but I also think it needs to be at the level of collaboration. I am unsure about the extent that game designers should be instructional designers or vice versa. Both groups have their strengths and they may not bleed into the other area of specialization. I think that the overall area of educational games would be strengthened if both instructional and game designers worked collaboratively through the process of game design. This would ensure that the appropriate content and sequencing is built into the game, but that the game is also engaging and connects in a meaningful way to the users so that they continue to play it.

There are many examples of educational games that tend to sway either too far to the instructional end or too far to the gaming end. In these situations you either have bored learners or engaged players that are not learning the concepts supposedly in the game. There needs to be a balance between the two and I think that is where the collaboration comes into play.

9.2.8 Sebastian

Think of the time when most computer screens were monochromatic and then the computer industry debuted monitors with 16 colors. The industries which can afford the extra premium for new monitors immediately replaced all their monochromatic monitors with the colored ones. Other industry that could not afford the premium had no choice but to wait, until the price of the 16-colors monitors became affordable ... (at which time the story repeated itself with 256 colors monitors).

I believe all of us would be familiar with stories like this, where technology replacement cycle occurs at a rate where those who have, have more, and education, lag behind... The computer games industry is the “have”, and they will always be in the fore front with new hardware, new technology, new 3D modeling, new UI design, new game design... The education sector (which houses the instructional designers) tends to belong to the other camp, the one that can only afford the second-hand technology. Would game designers want to listen to instructional designers, even sit down with them to ask how Games should be designed? The instructional designers are playing catch up... not the other way around. Moreover, the last time games companies asked teachers to help design games? The result was not pretty. Has the situation changed? Do instructional designers understand the game industry? (Not really.) Are instructional designers = gamers, and hence, understand how game work? (Not really.) Do instructional designers understand the mechanics of games? (Not many.) There are many instructional designers who play computer/video games...(but not enough - no critical mass).

Will game industry ask instructional designers how to design games (educational or not)? (Not unlikely.) I am not saying that it is not impossible, but it is not likely. Unless... unless instructional designers has something the game industry doesn't have... like the method to assess learning in games. IMHO, the future of serious games is assessment (Chen & Michael, 2005) not how to design games as instruction. Hence, I am thinking that instructional designers who are doing assessment of learning, product evaluation (even usability) may have the highest chance to “connect” with the game industry.

9.3 Problems with Games and Education

There have been many reported issues regarding games such as hidden content, violence, etc such Grand Theft Auto: San Andreas. While some of these issues may not be specific to games in education they can darken the perceptions people have of games and their benefits to education. What do you see as some of the problems associated with games and education? What are some ways that these problems could be resolved?

9.3.1 Katrin

Collateral learning is most often cited as a detractor by those who do not like the idea of games for education. There is grave concern over what ELSE students may learn and how teachers can CONTROL what students experience. One of the misapprehensions many teachers have is that learning in traditional settings is controlled while learning in games or on the web is not. Control seems to be equated with feelings of safety.

The truth is we don't have much actual control over ANY learning situation - influence yes, but control?? Hardly.

A cynical view might claim that the reason we APPEAR to have control in more traditional settings is that the environment is so boring and impoverished that there is little room for learning beyond what is being presented.

As for hidden content - I think that is a bit of a red herring. Non-gamers perceive a great deal of 'hidden' content because they have never played the game - much like people used to fear subliminal messages and brain-washing in early television and record album tricks (remember the brouhaha surrounding the album clues telling us Paul McCartney was dead?). To many gamers, the 'hidden' content consists of Easter eggs and other prizes provided for their amusement. The rest is really not hidden - it is part of the game play.

People fear what they do not understand.

I think another subtext that goes with these concerns is the fear that students may learn something dark, evil, or otherwise bad. One way to address this is to analyze the game being used. The use of games in education is not a simple, nor a quick fix. Learning through experience - which is what many games are about is not efficient or simple.

9.3.2 Michael

I co-taught an undergraduate course this past semester and we were fortunate enough to have Dr. Jim Gee speak to our class via a video conference. During the session, the issue of violence and undesirable content came up and the students asked Gee what he would say to an administrator or parent who expressed concerns about this. During that discussion we all agreed that in most video games the violence is not near the level of violence to which students are exposed by Hollywood films played in social studies classrooms such as *Saving Private Ryan*, *The Patriot*, or *Glory* - all of which are commonly shown in high school social studies classrooms.

Granted, there are critics that will still suggest that these games contain gratuitous violence and should not be promoted by educators. During our class, Gee pointed out that the vast majority of video games available on the market are non-violent in nature and cited the Sims as an example - the best-selling video game series of all time. He also said, somewhat tongue-in-cheek, that if playing video games led young people to do the activity in the game, there would be kids planting corn all over Los Angeles because of the popular game Harvest Moon.

Finally, he went on to describe a mission from Medal of Honor, in which the player has to get to the top of the hill during the World War II U.S. invasion of Omaha Beach. "When you're finished with that level, you're shaking, as it is just an incredibly dramatic movement; and you never notice that they never actually use any blood. It just seems totally horrific," he said, comparing this portrayal to the opening scene in Saving Private Ryan, where violence and blood are portrayed graphically. In a video game, players don't have time to sit back and "watch the heads rolling down the Beach, because you'd be dead if you did," Gee said. What is engaging is the strategy behind the actions and graphics. Violence is largely the "eye candy" and gamers cannot afford to get caught up in eye candy or they'd quickly lose the game (or as Gee said during the session, "you'd be dead in eleven seconds.")

Unfortunately those who do not understand the strategy, background knowledge, and skills required to successfully play these games only see the eye candy. So, I think the issue here is not what do we do about the violence and other undesirable aspects of video games, but how do we get non-gamers to understand the purposes that the different parts of the video game serve.

In the same way that someone who knows nothing about cars lift up the hood of that car and see an engine as a single unit, a mechanic lifts up the hood and sees all of the individual components. We go to the garage and say that the engine is making a funny sound, the mechanic drives the car twenty feet and says it sounds like the fan belt may be loose.

A gamer looks at a game and sees the fan belt, a non-gamer sees an engine. So how do we teach non-gamers to become mechanics of video games?

9.3.3 Kimberely

I think that educators have to be very careful to look for hidden content in all of the materials they use in their classrooms. Games are no different. It is easy to shrug off objectionable content in something and say, "It's not as bad as...", but we are in an age where educators have to critically examine what they are using in their classroom. Teachers must evaluate everything: books, websites, movies, music, and games. They are professionals who are responsible for student learning. To not address hidden content would be irresponsible.

The interesting thing about violence is that so many people have different tolerance levels for it. Cartoons, like Bugs Bunny and the Road Runner, had to have

many violent scenes edited out of them. For those of us who grew up watching the more violent versions and never once thought of dropping an anvil on someone's head, the idea of editing out the violence seems extreme. Whether this made them safer for children to watch is debatable. Many children feel there is a difference between cartoons and real people. Put any six-year old boy in front of a Power Ranger program and they will be karate chopping and kicking all over the place. There is a difference in the reality factor between cartoons and live action. Currently, games are viewed much like cartoons: not as real. As video games become more and more sophisticated, however, this may change. There are those that feel that video games with violent content actually provide an outlet for aggression.

If we are using games to teach, we need to know what we are teaching. I once had a parent upset at some of the pictures used in an elementary science book. The family picture looked as if Mom was going to work and Dad was staying home. He found the hidden message offensive for his daughter to see. I had never looked at the photos in the book in that way. Although I did not agree with his criticism or mind set, I still had to defend what was being used in the classroom. No matter what tools we use in the classroom to educate children, we need to be sure it is best for the job.

As a parent I would be very angry if my children were picking up racist messages from something a teacher assigned. Educators walk a fine line, because so many people have different values of what is acceptable. In these days of school accountability, teachers need to know if they use an educational game, it will enhance the curriculum they are required to teach. Second, parents can expose their children to a violent game, but teachers have to use materials that are not offensive to many sensibilities.

Games can be wonderful in the classroom, because they provide connecting experiences for learning. Games that are enriching and have many layers for learners can be powerful.

9.3.4 Sebastian

Many people like fast food: such as hamburgers and fries. Many people like bacon. Fast Food joints (or is it Fast Food "restaurant"?) sell whatever that sells (A restaurant is packing 6 strips of bacons onto 2 beef patties, with no vegetable). Taste good? (Probably.) Popular? (You bet.) Healthy? (You must be kidding.) Cause obesity in children? (Errr let's not talk about that in the public...) Launch an investigation into Fast Food industry? (This is hate speech!)

In a parallel universe: Many children like video game meals, some video games meals are almost like a balanced meal: with Bacon, Lettuce, Tomato. They taste good, and are children approved. A very select few even have the Parents/Teachers approval seal.

But children, being children, choose the meal by their taste. They care not about the amount of calories, nor do they read the nutritional indexes listed on the packing.

Some children can survive on video game meals alone. Some children grow fat (too bad), some become malnourished, some are bulkier, some appeared stronger, and some looked sick. Some children throw a fit if you try to remove a video game meal from their diet... Some start stealing to get the money to get a quick fix for their burger addiction... Sometimes, a child becomes so jealous of the other kids who have burger meals, so much so that he killed... Suddenly, the parents are up in arms. "Down with the video game meals!" they shout.

Is the meal at fault? Is the one who killed at fault? Is the industry that produced the meals at fault? Is the society that condones the meals at fault? Depending on your point of view, you may think it is nobody's fault... if so then the situation remains unchanged, and continues to deteriorate.

If everyone becomes a responsible citizen, then maybe there is a chance. Do all children start planting farms after playing Harvest Moon? Do all children become killers after playing Doom? Do children jump off tall buildings after watching Superman? Do children start "kicking" one another after watching Power Rangers?

While we hesitate to label all video games/movies as "bad" because of one or two bad incident, can we turn the other way and label them ALL as "healthy" and ignore the "outliers" evidence?

I am afraid if we do so, we are no less myopic.

Back to this universe: I believe the Game Ratings need a big overhaul: The "hidden agendas" need to be uncovered and rated.

9.3.5 Luca

The issue is complex, really... I'll just make 3 small points and 2 considerations.

1. I like the concept of COLLATERAL LEARNING. But watch out! A nervous and emotionally frigid history teacher can send a much worse message than any videogame just being there, even if she's a certified teacher. It's true, we never control learning because learning is part of life, and we cannot control life!
2. On the other hand, we can control videogames, and I support the idea that there should be an ethic of videogames. Game designers should be aware of that, and realize that not all tricks are usable. It's easy: sex sells, but it is not really ethical, in the sense of honorable and finally good, to use sex to sell anything.
3. I agree with Katrin and Michael - people fear what they do not know. As people get acquainted with videogames, the buzz will get clearer.

My other 2 constructive points:

1. It's true, children do not work "I see X", "I do X". Some children work like that, and those are the lonely ones. The study of radio and TV tells clearly that the impact of media messages depends on the strength of the social environment of the receivers. If some values (love, life, health, etc.) are strong in a family that really stays together, no violent videogame can crush that. This means the big point is not videogames (violence is everywhere!) but the actual context in which education takes place. EDUCATION is the point.
2. Videogames are different from movies because in movies you SEE violence, in videogames you ACT violently. This is paramount not to discuss in vain. So it's true, videogames are not the real point. But if the social environment (families in the first place) is weak, they can actually be extremely dangerous as long as designers do not develop an ethic view.

9.4 Understanding the Benefits of Games

While games have been used as resources within the classroom the concept of games and video games as a truly powerful instructional technology resource has not been fully acknowledged. Keeping this in mind what needs to be done to increase institutional and societal understanding of the benefits of using games in education?

9.4.1 Luca

I think a first key message concerns GAMES - i.e., fun is not the opposite of learning, but is the natural reaction to a full experience. Ancient Latin said "Gaudium de veritate", that is "the joy of truth". This means re-understanding both fun (which is not drunkenness or the nirvana) and learning (which is not boring).

The second message concerns videogames, which are not only games, but also a particular kind of INTERACTIVE MEDIA. As such, they are complex and - as said discussing the previous issue - both powerful and dangerous.

Summary:

1. True fun has to do with e-learning, and so do games.
2. Videogames are a kind of games to be understood in their peculiarities.
3. Some of the problems with videogames (e.g., violence) are not a problem with other kinds of games

And for researchers:

1. When studying videogames, do not ignore games. When studying games, do not assume they are all like videogames.

9.4.2 Kimberely

Using a learning game in the classroom can be difficult. One reason why educators don't use them is because it is hard to focus learning in a game with many variables... and many states are very concerned that teachers are teaching the curriculum, not extra material. Games are considered the dessert, not the main meal in the classroom.

The time involved in learning how to play a game and then learning content from it, can take more time than a teacher with a 50 minute class period is willing to spend. In order for games to become successfully integrated into the curriculum of classrooms, games need to be designed for classrooms. They need to be engineered to take into account their purpose. Good design is essential.

Cost is another important factor to consider when using games in the classroom. Even using a popular board game can be costly, for a teacher, since several games have to be purchased in order for all students in the classroom to play at one time. Computer games are much more expensive to license. Unlike a book, which can be easily evaluated by most educators, an electronic game is much more time consuming and difficult to evaluate for content. Most games must be purchased in order to evaluate them, whereas a book store allows one to skim through a book.

One way to bring games into the mainstream of the classroom is through better marketing and evaluations. Teachers need to know how to handle malfunctions with an electronic game, they need to know the game's curriculum content, and they need to know how to help students navigate through many levels, if the need arises. As with any instructional strategy, teachers need to feel comfortable using it. A teacher who cannot explain to the public why a particular game is being used in the classroom, will not use one. This has important implications for marketing strategies of game manufacturers.

While every new teacher wants to make their lessons "Fun", in games, the word "Fun" can be exchanged for "absorbing". This is the strength of games. This is what needs to be shared at workshops, in journals, and studied through research. As students play games, they become focused on the content within the game. This is why games become effective learning tools. They allow people to become immersed in the parameters of the game. As players become absorbed in a game, learning takes place without difficulty. Games provide quick feedback and reinforcement for successful mastery.

One way to help educators understand the importance of games in education would be to include games into the pre-service teacher curriculum. The more

teachers understand how powerful games can be as a learning tool, the more likely they will be mainstreamed into classrooms.

9.4.3 Katrin

There are a whole host of things to be done to increase institutional and societal understanding of the benefits of using games in education. However, as with any other technology, some people will never be convinced. But, just the same, we must still try.

Obviously, much research needs to be done using games in the classroom - we need both quantitative and qualitative studies. There are also other things that we can do.

Here are a few suggestions:

1. Showcase “good” games. It really does not help in educational circles when people keep using war games, shooters, and violent action games as examples. I am already convinced and am a big proponent of games, but even *I* get tired of hearing about GTA, Medal of Honor, etc. These may provide many players with rich, highly compelling experiences but they are not appropriate for most classrooms.
2. Help teachers, administrators, parents, etc. gain some first-hand game-playing experience. Again - I’d suggest staying away from all M-rated games, and most war games and shooters. There are SO many games out there to choose from - there were over 2500 titles released last year.
3. Create and provide teacher support (lesson plans etc.) to go with games that could be useful in the classroom.
4. Show other ways of bringing games into the classroom (as subject matter for reports, presentations, research activities, even data gathering).

9.4.4 Michael

I’m not sure if this directly addresses the question, but it is an example of a game being used as an effective instructional technology. It was sent to me by a colleague of mine:

— — — Begin forwarded message — — —
From: Peter Rich
Date: Aug 14, 2007 9:50 PM
Subject: How’s this for using games in the class?

The entire class is a game

http://www.boston.com/news/globe/living/articles/2007/08/14/helping_students_stay_the_course/

--- End forwarded message ---

My question is what is he doing that others find so difficult? What barriers did he overcome and how did he overcome them? If we can answer these questions, particularly the second, I think we have the answer to your original question.

9.4.5 Sebastian

There is currently a mismatch between what commercial video games do and what serious games proponents (like us) would like to see happened in classrooms. The former aimed to continue pushing the edge of technology and make money from the process: (1) pushing for bigger and “badder” hardware, faster VGA cards and processor speeds, (2) Proprietary software (MMO client, DirectX10, vs. Mac, and so on. Case in point: Halo3 can only be played on Vista, Crysis won’t even run on most high-end machines upon debut - it needs ultra high-end stuffs. The latter continue to hope for the best, while lagging further behind in terms of technology, support, hardware/software, resources...

Another level of disconnect exists between what serious games researchers would like to see happened and what educators want happened in the classrooms. We see the potentials of video games for serious use, and try to promote it, convince other, while desperately not wanting to appear as overselling games (and appeared as a less-than serious researcher)... Most educators are concerned about finishing the curriculum on time, seeing their students getting a good grade (or not failing), meeting demands from parents and administrators, and count-down to the arrival of the deserving school holidays. There are no games for them in their horizon.

The benefit of games in education is to find a way to address the differences in expectations, and to connect the dots to create the big picture.

9.5 Integrating Games into Teacher Preparation and Education

The game industry is growing quickly as a multi-billion dollar industry with computer and video games sales coming in at \$9.5 billion during 2007(ESA, 2007). This is just behind the motion picture industry with \$9.63 billion in U.S. box office sales (MPAA, 2007). Beyond sales there are also many higher education programs developing that are focused on game creation and development. Games have always had a place within the classroom whether it is Heads-Up Seven-Up or a modern computer game, yet many teacher preparation programs may not actively recognize the role of games in education. If games are to be a part of teaching, how should they be integrated into teacher preparation and edu-

cation? Are there are examples of how teacher preparation and education programs are addressing games in education?

9.5.1 Katrin

Teachers need a chance to play games and they need to see what's happening - most people, teachers included don't really know what's going on in serious games - most have never even heard the term. We also need to create opportunities for parents to see ad experience some of the better games. We also need to pay some attention to giving Education faculty a chance to become more familiar with the medium.

I've taught a class on game-base learning - I still have the course website up: <http://www.minkhollow.ca/EdTech/DGBL/index.html> and I've done several workshops at conferences as well as doing talks on why and how teachers should play (Becker, 2005, 2006, 2007a, 2007b, 2007c; Becker & Jacobsen, 2007).

9.5.2 Elizabeth

I see the problem, of the difficulty of moving games into teacher pedagogy and methodology as one of how the teacher views their role in the classroom. How they are professionally socialized into the community and culture of teaching. We currently hand down pedagogy that has been basically unchanged for the past 60 years. The current political climate has caused teachers to embrace pedagogies that lead to ultimate control over the learning and behavior of their students. The student's however, live in a different world, which encourages them to be autonomous and self-determined. We are seeing the fall out from the clash of student expectations vs. teacher control by the increasing numbers of dropouts, 88% of whom had a GPA of C or better (Bridgeland, DiIuio, & Morison, 2006) These are not the typical dropouts. These are kids who can "play the game of school" but choose not to because they do not see the relevance. The other fall out is that more and more students are being labeled as "learning disabled" by the public schools. My research shows that these "LD" students are very capable learners in the complex learning environments of videogames. In those environments they are able to read for information, communicate ideas, be effective problem solves and utilize resources appropriately. So the question is, is it the student who is disabled or the environment? Jim Gee once said to me that it was going to have to come from special education. He might be right. I think we are reaching a crisis point.

So what can we do?

1. Continue the research, if we believe that teaching with games is better for students, we must understand how and why that might be the case. For reasons too numerous to mention here, all students can and do succeed in a game environment. I don't believe we can label students as disabled learners if we have not tried to teach them in learning environments where we know they can be successful.
2. We must model how to use technology in our higher ed teacher prep classrooms and to talk about each of the components of games as they are related to learning theory, so that our pre-service students can make linkages when they are in their methods classes.
3. We must collaborate as professionals (IT, Special Ed. Content Methods). We must insist on an integrated pre-service system so that we can collaborate and work together, co-teach rather than each having one shot at the pre-service teacher as they move through the program.
4. We must work with school districts to in-service the teachers regarding the learning inherent in the video games. We have to empower teacher by scaffolding to structures the teachers are familiar with such as lesson plans and evaluation tools, and showing them how to create them around the tool, the game. We have to acknowledge the barriers the teachers face and be willing to go with them to the administration and school boards. We have to provide safe opportunities that allow us to model how work with students in immersive environments by working side by side with teachers in their classrooms.
5. We have to share with teachers how to give the control to the students (the students will be the experts on the game) and how the teacher's role is to be the content expert to bridge the students learning to the standards and to connect the student's experiences to the big picture. Games are tools, just like textbooks, it is the lack of teacher control that is the problem. We have to model for our pre-teachers how to share the "mission" with the students.

Our teacher education programs must prepare teachers to be educators who can take advantage of learning opportunities as opposed to teachers as technician and task master.

9.5.3 Luca

I think the problem that Elizabeth points out is real. I'm aware of many experiences of programs for drop-outs in Europe, and they use more "advanced" pedagogy - experienced-based, active learning, and games. So I agree, the school system is somewhat worn-out.

However, I do not think games would solve the issue - game-based pedagogy can be part of a novel "stream" in pedagogy. In order to do that:

1. Primary school teachers (at least in Europe, most of all Northern Europe) use games - and that's a start.

2. Teacher should not (only) be taught the value of games, should be “re-taught” to play and value fun as a primary experience.
3. We need to develop sound “learning games” that teachers can use

9.5.4 Michael

I think that one of two things needs to happen. The first would be that the education system in the United States needs to get past this fact fetish that it has and focus upon deeper learning. But that takes political will and getting rid of all of these silly standardized tests.

Since that probably isn't going to happen as the United States falls more and more on PISA rankings, the second thing would be for gaming companies to design games with the classroom in mind. A good example of a company doing this is Muzzy Lane Software.

Muzzy Lane is a good example for two reasons. The first is if you look at their premiere game, *Making History* (see http://www.muzzylane.com/ml/making_history), it is a really good strategy game that people would want to play that is also closely aligned to actual state history standards that teachers must cover.

One of the problems with this particular game is that it is still a game that takes 50-100 hours to successfully play. As Charsky and Squire noted in their dissertations dealing with the use of *Civilization* and teaching history, the time commitment just wasn't realistic for a classroom environment. This is another reason why Muzzy Lane Software is a good example.

When I spoke with their reps at the e-Learn (see <http://www.aace.org/conf/eLearn/default.htm>) conference in Quebec City in 2007, they told me that they are shifting their focus from long, involved games like *Making History* to games that can be successfully played in 3-5 hours. The idea behind this was to essentially bundle a bunch of thematically tied mini-games together that followed the same strategy, role-playing model that made *Making History* so successful. But to do so in short games that a teacher could use in their classroom effectively because they are actually able to give their students enough time to finish the game and get the full benefit of the game play.

Once game companies begin to move to a model that is more conducive to the classroom, than we'll start to see the real power of this form of learning - cause God only knows that the classroom isn't going to change anytime soon.

9.5.5 Kimberely

Teaching through games needs to become part of teacher training, but in methods courses, it is important to focus on how to use and assess students through the use of games. Pre-service teachers must develop skills in evaluating the content and effectiveness of games. Part of training good teachers is to ensure that evaluation of all materials is balanced with student needs. Games should be treated the same way. I think game companies will have to develop venues for teachers to examine and evaluate games. Using games as an instructional strategy in method courses should not be centered on learning to play one or two games, but should make pre-service teachers aware of the instructional value of games.

9.5.6 Michael

I think that many universities have some aspects of this in their curriculum. I know that when I was a pre-service teacher at Memorial University of Newfoundland, in both my social studies teaching methods courses and my effective teaching course, simulations and how they could be an effective tool in the classroom were discussed. I know at the University of Georgia the professor (Dr. Ron van-Sickle) who teaches the “Economic Education in the Social Science Curriculum” course includes a paper-based simulation of how the Federal Reserve works. Continuing with the University of Georgia, as that’s a program I know fairly well, the Social Studies Education program has a graduate course in “Simulations and Role Playing in the Social Studies” that is taught by Dr. John Hoge on an irregular basis. Only a year ago now, Mark Evans (a fellow doctoral student) and myself taught an undergraduate special topics course in that same department entitled “Simulations and Gaming in Social Studies” (see http://www.coe.uga.edu/syllabus/esoc/esoc_4000_evans_sp07.pdf) for a copy of the syllabus.

So I think that the simulations (and to a lesser extent gaming) is included in some programs - and I would argue that this is more notable in the social studies because of the larger number of social studies simulations, electronic and otherwise, available - but I think that you have to look within the teaching methodology courses to find those examples.

9.5.7 Sebastian

I am doing the following within my capacity:

- Teach a number of “game courses” in pre-service teacher preparation classes (both grad and undergrad levels).
- Conduct interesting research and invite pre-service teachers to join me in exploring what video games can do and finding new insights
- Encourage my students to enter serious games competitions /showcases, such as the International Student Media Festival (ISMF) (<http://ismf.net>) and I/ITSEC (<http://sgschallenge.com>)
- Disseminate locally what games can do for schools (I asked local newspaper to come and interview school teachers who are taking my classes. Once, we were even featured in the regional evening news (TV).
- Publicize as much as possible about your classes (handing brochures and flyers to local game stores)
- Consider the venues of your publications (book chapters are good ways to reach a bigger audience than specialize journal papers)
- Include my students (pre-service teachers/in-service teachers) in these kinds of publicity as much as possible
- My children would talk about what their daddy do for a living all the time to their friends at school (stress: without any coercion on my part)

9.6 What are the Cultural Implications of Increasing the Use of Games in Education?

Games have not garnered the best portrayal in the news especially in light of violence level or hidden sexually focused mods such as in Grand Theft Auto: San Andreas. Even with the negative imagery that some have towards games they are an increasingly large part of the lives of children growing up in the 21st century. Games are also increasingly being considered as a part of the educational toolkit that teachers have, particularly with next generation games such as Dance Dance Revolution and console systems such as the Nintendo Wii that incorporate a wide variety of body movements to control the game. What are some of the cultural implications if there is an increasing use of games in education?

9.6.1 Katrin

We all know digital games have had an impact on western society, and though some vilify games as the current cause of society’s ills, the truth is that we do not yet know what the impact of games actually looks like nor what its ultimate significance will be. The focus on sex and violence is a common one, and there is a very good chance that this focus obscures our ability to comprehend the real ef-

fects of games. The public (i.e. media) image of digital games tends towards the sensational and bears a striking resemblance to the kind of media coverage allotted to television when it was new as well as virtually every other new media form dating as far back as we can remember (Williams, 2005). What we are only beginning to understand is how to use this new medium of videogames for serious purposes, in other words, as a means of expression and communication. Some of this work is being done by the games industry itself which is involved in various endeavors. For example, “Square-Enix has joined with a leading Japanese textbook publisher to make teaching games, EA has licensed the Madden franchise to a coaching software company, Konami has partnered with West Virginia to rollout a DDR-based exercise program. It’s not a very big leap to say every major development shop will have at least one serious game under its belt in the near future” (Sawyer, 2007).

“So this is the backdrop for the rise of social gaming: a decline in civic and shared spaces and a decline in real-world places to meet and converse with real people. As these go down, gaming goes up. Neither event is likely causing the other. Instead, here is a hypothesis about what is happening: Humans, whose need for social contact has never changed, find themselves with a desire for community and social interaction but with fewer and fewer real-world outlets. The demand for human connection has been static but stymied by the real, it has moved into the virtual. As a result, social ties have moved online as part of a virtual community trend (Rheingold, 1998). As one of the most popular online functions that bring people together, games are a particularly important site of activity to consider.” (Williams, 2006, p.15)

9.6.2 Luca

Games are a particular form of human cultures, since ever. It is true, some video games (only videogames!) are under attack because of sex and violence - but the point is not the games themselves, rather the trash that they contain (as it was with movies, TV, rock-n-roll).

Using games in education in a way will make games more positive in the eyes of the society, if they can bring some advantage. As it was with sports, which have always, been part of education.

On the other hand, there is a risk: relying too much on games could make education just “fun”, that is, deprive students from the ability to learn from hard work and even pain. It is true, we learn from having fun, but also from tragedies, and life is made of both. We live in a “happy thoughtless society”, pushing us to play all the time. Learning to have responsibilities and to live through sufferings is also something that, as educators, we should not forget.

9.6.3 Michael

I think that each new form of media is vilified to some extent until it become either mainstream or the next new media comes along. First it was rock and roll, then television, then heavy metal and the likes of Marilyn Mason (and many others before him), then rap/hip hop, then gangster rap, and now we have video games. Many of these forms of media found their appropriate place in the classroom. Video games will follow the same pattern.

Personally, I'm much more concerned with the potential of games to change the nature of the classroom experience (i.e., that learning interaction). As Luca mentions, the possibility of school not to be a thoughtless or mindless activity, but to be an engaging experience. My fear is that games will follow the same classroom pattern as all of the other media that have been introduced, as an extension of the same old way we've always done things... Nothing more than the typical experience students have had in school for the past decade with Oregon Trail.

9.6.4 Kimberely

First, I think that we have to look at who is comfortable with playing games and make sure that the games used in education are equitable. Games will need to be used early and often in schools so both boys and girls, from many different socio-economic backgrounds develop the necessary skills to navigate through games. From the outset, attention to bias towards one gender or population must be addressed, so that culturally, we don't unintentionally create an unnecessary schism. Michael fears that they may be an extension of the same old thing in the classroom, but I envision good educational game design as calling for more interaction between teacher and students. To have real cultural impact, games will have to make the shift from drill and practice to instruction. The role of teachers will also adapt to the media. Good teachers know their students and games and teachers cannot be used interchangeably. Educational game design will need to provide teachers with ways to manipulate the parameters of a game to address individual student needs. A new dimension to differentiated instruction will open when teachers can adjust reading times, vocabulary, font size, or complexity of ideas.

9.6.5 Sebastian

One positive sign I have observed is that increasingly game magazines and web sites have chosen to use the term "casual games" – presumably to distinguish themselves from "serious games"? I see this as a positive sign because it tells me

the industry is open to the idea, even though that does not mean they will support serious games (to begin creating applications and tools to help it become a success). The industry is still driven by profit margin, and it is a very competitive market!

Another positive sign is that a number of “big guns” have shown their supports to the movement – e.g. George Lucas (edutopia.org) and Microsoft (XNA studio).

Now, if only “all of us” will begin making games (instead of continue to talk about it), perhaps we can also help change the perceptions of others... Ya?

9.7 How Can Assessment be Conducted When Using Games?

We live in an age of assessment, particularly high stakes testing. Assessment can come in many forms, but oftentimes when you think of the word assessment it brings to mind some type of test. These could be instructional tests, placement tests, and achievement tests to list a few. While testing is one form of assessment there are many other forms of assessment. If games continue to grow in popularity and use in education then assessment becomes one of the important questions to ask. How can and will assessment be conducted? Should the assessment related to using games in education be different than assessments currently look? If it is going to be different how would it look?

9.7.1 Luca

Games are holistic learning environments, that is, they tend to involve the person as a whole - you cannot play and think of something else, you wouldn't be really playing...

So, they foster competence learning in the sense developed in some European research about the Bologna process and mobility: while skill means being able to perform a task, competence means creatively dealing with some kind of situation. Consequently, games support “real-life testing” such as running a project or simulation. But the learning that happens in game can concern smaller objectives, so I think that simpler forms should not be disregarded: a quiz can be good to test knowledge of some facts learned from a game.

9.7.2 Katrin

Modern commercial games are **already** pretty good at assessment. All we really need to do to create a solid foundation for assessment in digital games is to study

how the good games do what they do. Many are competency based and players do not get to the next level until they have demonstrated a certain level of proficiency. That's not to say we can not build upon what there is - we can and should, but it would be a waste of time, knowledge and resources to ignore that which good games already do.

9.7.3 Michael

This is an interesting question, because while most games don't have the content that one would find on a high stakes test, they do help develop the skills that would make one successful in the current school environment. So there are two ways to think about this.

One is to look to see what effects games can have on students' performance in high stakes testing. This is something that we have started to do with the home-made PowerPoint games project (see the e-Learn and National Association of Laboratory Schools Symposium presentations at <http://it.coe.uga.edu/wwild/pptgames/pubs.htm>).

The other is the argument that is often used by social studies educators when you look at the amount of social studies being taught at the elementary and middle school levels. Most schools have pretty much cut out social studies at these levels, giving it one hour of instruction every one to three weeks depending on the area, because social studies isn't directly tested at those levels. However, if you examine the tests that are given and look at the content of the questions themselves (particularly for the English language arts exams) you'll see that much of the content of the questions are taken from the social studies disciplines (as much as 60% according to some studies).

So if you took a game like SimCity or Civilization or the Sims or Guild Wars or Grand Theft Auto and tried to find the content that actually matched up with the standards that students need to cover, then you would have a guide that teachers could use to tap into the schema that students already possess (cause let's face it, they're already playing these games, we don't need to bring them into the classroom) then you have a powerful learning tool.

I mean does it matter if the student understands the concept of opportunity cost because you used an example of the local factory or you used an example from a video game like Guild Wars or Grand Theft Auto. Isn't the main point that the student understands the concept in a way that has personal meaning to them so that they'll be able to remember it come test time?

9.7.4 Kimberly

I agree with Michael that games can provide connections to concepts that students are expected to develop for assessment. There needs to be a better understanding of what concepts are within the design of a game before teachers use it for concept development. Many questions have to be examined. How clearly are concepts explained to players? Is concept development based on prior knowledge or is it learned during playing? How long does a student need to play the game to fully understand the concept? What other concepts are students developing? How much time is needed for students to learn to manipulate and play the game? Quite frankly, if it takes too many class periods, teachers will probably choose to use something besides a game to develop a concept. If games become a mainstream instructional strategy then the gaming industry will need to provide teachers with more information so they can fill in the gaps and help students develop conceptual frameworks.

Using games as an important piece of curriculum development will change assessment. Just as assessing cooperative learning groups or performance based projects requires a different form of assessment, an assessment model for games will need to be developed. While students interact with a game, teachers will have the opportunity to individually assess student knowledge through conversations and observations. Assessment questions could be built into games to check level of understanding so that skill level does not become synonymous with learning. Instructional games could provide a better assessment model to track student learning if it is carefully developed as an integral part of the game.

9.7.5 Sebastian

Katrin was absolutely right that “modern commercial games are already pretty good at assessment.” Whether the players realized or not, they are being assessed by the computer games as they progress from level to level, beating boss after boss. However, educators and school system need a “scoring/rating system” to show “how good James is compared to Sally or...” Everybody related to the education system: parents, administrators, even students, all want that piece of data. The current trend of data-driven school and education improvement through data warehouse and data mining will accentuate the situation even more.

Based on my experience as a school teacher, I want to be assured that Johnny has been “measured” according to some known learning standards should I let him play games in class. These games must be created by people who are trustworthy (to balance learning with fun in the games) and with credentials (like textbook publishers). In addition, I would really appreciate it after Johnny played the game, he would be “evaluated” immediately (just like divers and ice-skaters receiving scores after a judging). These scores can then be kept as a record of his perform-

ance. In that way, I could compare the students and spot if anyone is lagging behind and provide necessary remediation.

Using these guidelines, I formulated the conceptual design framework known as “Information Trails” (Loh, 2007; Loh, Anantachai, Byun, & Lenox, 2007). My aim is to create a serious game design methodology for others to create serious games that can be used in the classroom. The “Information Trails” methodology assesses the learning performance of players based on the decisions they made throughout the game. I am happy to report that the design framework has been completed and my development team is now working on the application for creating after-game “status reports” (a.k.a. After-Action Report (AAR) in military training).

Readers who are interested in sharing their thoughts on assessment in serious games are invited to check out the Consortium for Instructional Design, Evaluation, and Assessment Strategies (I.D.E.A.S.) in Serious Games web site (<http://idt.siu.edu/ideas>).

9.8 What Are the Future Potentials for Games in Education?

The idea of games has changed over the years. Early games were played with sticks and stones, in the 70s and 80s was the advent of the arcade game, and now games can be conducted online and with hundreds and even thousands of people playing at the same time. As games have increased and evolved so also have games in education, but where will they go from here? What do you see as the future potentials for games in education?

9.8.1 Michael

There are a couple of things that should come out here... The first is the evolution of games by companies like Muzzy Lane Software, that I described in my second comment to the Integrating games into teacher preparation and education prompt (see <http://edgames.ed-u-tech.net/2007/10/03/integrating-games-into-teacher-preparation-and-education/>). If we can start moving more in this direction, I think that the political will needed to get more games into the classroom will be there with these short games that are closely aligned to state standards.

The second is that games need to be seen as just another arrow in the teacher’s quiver. Let’s not forget that there are some teachers out there that are master story tellers and lecture works for them and their students because the teacher is just that engaging and that thought provoking and that entertaining. But that’s not every teacher and that’s not even the great story teller on every day. In the same way we

find the use of games and simulations often included in teaching methodology classes in schools of teacher education, we need to remember that this is just another pedagogical strategy that a teacher can employ in the right situation, with the right tools, with the right group of students - and teachers are the best ones to make that kind of informed decision.

Finally, I think the article that Squire published in *Ed Researcher* in 2006 is a good place to look in response to this question. The main theme of that article, at least from what I took away from it, was that the politics of education right now isn't conducive to bringing video games into the classroom (at least not the way video games are currently constructed - the Muzzy Lane vision may serve to change that). He seemed to be advocating that those of us interested in gaming in education, particularly over the counter or commercially successful video games, focus our attention on working with youth in after school programs and using the schema that students gain from their own game play at home.

9.8.2 Katrin

"We need to consider whether we are educating children for their futures or our pasts."

Geoff Southworth 2002

In his studies of engineering education, Richard Felder found that "learning styles of most engineering students and teaching styles of most engineering professors are incompatible in several dimensions. Many or most engineering students are visual, sensing, inductive, and active, and some of the most creative students are global; most engineering education is auditory, abstract (intuitive), deductive, passive, and sequential. These mismatches lead to poor student performance, professorial frustration, and a loss to society of many potentially excellent engineers (Felder, 1988, p.680)". Just as Felder finds it appropriate to advocate for inductive teaching styles for all types of learners, it may also be appropriate to advocate for supported learner control for all. That learning is more effective and learners more amenable and responsive when they are given greater control over their learning environment is now a widely endorsed tenet. Games already do this. Control over one's environment is a key aspect of virtually all popular games, from *Lord of the Rings*, to *Paper Mario* and *Metroid Prime*.

Among the things successful games do effectively is teach, whether or not we as a society value what is being taught. In games, for the most part, failure is free, but allowing mistakes takes time and this runs counter to the goal that many educators espouse, namely to make education more efficient. With budgets being continually eroded, it is hard to argue for anything in education that does not increase efficiency. Learning as defined by the first two levels of understanding in Bloom's taxonomy (Bloom, 1964), which are knowledge and comprehension, has formed the backbone of formal education since the turn of the 20th century. It is

no longer sufficient. Learners today need to be able to synthesize and evaluate information and knowledge in the face of a constantly changing technological environment. The virtual worlds of massively multi-player environments and modern digital games provide diverse environments in which this approach to learning can take place, provided educational game designers are up to the challenge of designing and using games and environments that retain those qualities of games that make them compelling, while at the same time offering sound instructional interventions. One of the ways this can happen is through a balanced synergy between game design and instructional design.

9.8.3 Katrin

An issue that was brought up in the first post is one that may well be unique to the U.S. - namely the effect of the current preoccupation with standardized (and traditional) testing in light of NCLB. Many other countries either already have or are in the process of moving beyond the notion that education can be improved by rigid standards and enforced adherence. While there is an understandable call for the development of games that adhere to U.S. state standards, other countries are finding ways for games to help advance our understanding of teaching and learning rather than trying to force games to be adapted to what many consider to be an outdated model of formal education.

When it comes to “getting a education”, learners have more choices now than they ever have in history. Many kids already do most of their schoolwork away from school, where they have access to their own technology and are subject to far fewer restrictions than they are in the classroom. Games offer an opportunity for us to move beyond the Taylorian factory model of formal education. If we insist on ‘fitting’ games into a century old model, we run the risk of re-creating the situation we had in the 80’s when digital games first gained the attention of formal education resulting in the ‘edutainment era’. This approach failed before; it is unlikely it will succeed now - learners will simply turn to alternative forms of education.

As I see it, our choice is to work towards moving formal education into the 21st century, or watch it become irrelevant.

9.8.4 Kimberely

Perhaps the biggest potential I see for games in the future is the way they have the potential to reach so many students at so many different levels. Games can provide the vehicle to reach students who are disenfranchised or stymied by learning disabilities. Games can provide motivation for learning. Games can change the way

students see learning and themselves. I have heard very young children talk about their “Evil Minions” or “Devastating imperial Starship cruisers”, based on their interaction with popular media. It’s fascinating to hear and realize children really know this vocabulary. They have picked it up through contact with media. Games can provide this same collateral learning.

Games in the future could also change the ways we assess students in the classroom. In many ways, formative assessment is an inherent part of games. Players receive reinforcement as they move through levels of play. Educational games could be designed with assessment as part of the game package. A simple player survey at the beginning of the game could gather demographic information. By providing pre-game questions that collect data on reading levels, processing abilities, and reaction time, the game could adjust itself to the learner. As students play the game, the game could continuously assess information on cognitive ability. It would be possible to gather information on problem solving ability. Games could adapt to students’ abilities, so that both obstacles requiring problem solving and situational success could be built into the program. Games could become more adaptable and capable of enhancing programmed learning than any learning machine dreamed up by Skinner.

Schools begin embracing games as an instructional strategy, one of two things will happen. Either games will be watered down and become generic (boring?) to meet curriculum standards or they will change the way students learn concepts. With visuals, music, and movement, students will be able to assess curriculum content in new ways that were totally unimaginable 50 years ago.

9.8.5 Sebastian

Even though Guitar Hero is a major hit, none of the “heroes” (i.e. players) would be able to play a “real guitar” (unless they also have real-life guitar learning experience using a real guitar). Virtual experience is only transferrable to real-life which occur under strict circumstances (like using a high-fidelity flight simulator to train pilots). Simplified simulators like Guitar Hero can only provide players the fun, and the illusion of success, not the actual skills.

When we create serious games for education (classroom learning), we need to bear these restriction in mind. The illusion of “success” for players is what makes games motivational (even addictive). Stick within that boundary and find an appropriate situation in education to introduce games for learning (or to create a game for that “moment”) and your students will love and praise you.

On a separate note, let’s not turn everything into games. In that situation, innovative ideas will turn into clichés, and game won’t be fun anymore. While one can certainly make games to teach, anything under the sun (when motivated by profits), they may not be the best use of the media to teach the “content.” If serious games “companies” begin running around with the video game hammer in search of nails, shoot it! We don’t need a repeat of the edutainment history.

9.9 Conclusion

This chapter has focused on providing a dialogue between the contributing authors about issues related to games in education as well as some of the future potentials. While there were several issues discussed in this chapter about games in education one problem that stands out is the public image of games.

Over the past several years there have been many reports about inappropriate content, violence, and hidden content. Katrin mentions in an early posting that the issue of hidden content is a red herring, but maybe that red herring goes beyond just the hidden content. What seems to have occurred in recent history is that games have been singled out as having a variety of inappropriate content, but couldn't that be said of other media forms. How many television shows present inappropriate content and violence during the typical family evening hours of television? What about the hidden messages that used to be embedded in films to encourage trips to the snack counter? In some ways it almost seems that there is more a focus on games, because it is the newest media on the block. It appears that our society has become numb to the inappropriate content that appears in music, television, and movies, but it is something new for games. When you begin to look at the stories about inappropriate content is it really that there are a lot of cases of inappropriate content or is it many stories about a few cases that then expand the issue? Ultimately, when it comes to education, the teacher needs to appropriately select the material that will be used in the classroom whether it is video, music, or games.

This leads into another issue that was addressed in this chapter relating to the benefits of games. When educators are inundated with stories of inappropriate content in games it clouds the understanding of benefits in games. Several of the contributing authors outlined some ideas for helping people to understand the benefits of games in education. These benefits include:

1. Showcasing good games;
2. providing first-hand gaming experience to colleagues, administrators, and parents;
3. showing examples of the fun that can be connected to the learning, and
4. training individuals in the careful selection of appropriate games.

While it is important for those in P-12 education to understand the benefits of games in education, it is equally important that these benefits are understood in teacher preparation programs. Some of the ways that this could be achieved is:

1. teach about game-based learning in teacher preparation technology courses;
2. embed game-based learning within teaching methods courses;
3. make game-based learning programs available in the teaching section of libraries for student evaluation; and
4. establish graduate level game-based learning courses for graduate level teacher programs.

As the benefits of games become accepted in educational practice there will inevitably be questions about whether games can be used in assessment, particularly in an age of high-stakes testing. Concerns about assessment with games are important, but also somewhat answered in the games themselves. As Katrin describes in her posting games already conduct assessment and could even be seen as an assessment form. When playing most games an individual cannot advance a level until it has been mastered. Strikingly this sounds like what occurs in various instructional design models. What needs to be considered is how to create new ways to incorporate alternate assessment methods beyond the in-game assessment to gain a broad understanding of student mastery. Some of the ideas suggested by Kimberely are to assess through conversations, observations, and building assessment questions along with the game to gauge the level of understanding along with skill mastery. Most importantly, as Katrin established in her posting, educators need to study games and learn from the assessment models within games to develop new ideas for assessment.

Games are becoming a part of culture and as they become more mainstreamed greater acceptance will occur. That mainstreaming in fact is already occurring. Just take a look at some of the commercials for online games that feature prominent personalities participating. As the mainstreaming of games and games in education occurs, the potentials for them will grow. It is important also to keep in mind that the games will evolve as new technologies are created. As an example look at the Nintendo Wii, which incorporates a variety of body motions to control the on-screen actions.

While games will continue to evolve there are several things that need to be kept in mind. First, as Michael stated in his post, games need to be seen as just another arrow in the teacher's quiver. There are many other tools that can also be used to enhance education. Second, as Kimberely and Sebastian both discuss, educators need to exercise caution when using games in education so as to not water down the experience and thus become generic and potentially boring. Third, as Katrin describes, it is important that we explore new ways of learning with games rather than forcing it into an old model of education and thus allowing it to become irrelevant. Finally, we need to exercise caution utilizing games in education and remember one important rule: games like education have been part of human experience throughout history. And just as the games we play have evolved with changes in society and technology, so too must education respond to these forces. By exploring the potential of games in education and how games are creating their own forms of learning educators can enhance their own forms of instruction to better address the learning styles for the 21st century and beyond.

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