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Edutainment: Taking Learning to a New Level

The first thing we learn when we grow up is how to play, we play with blocks, cars, and dolls, as we grow up we still play just the toys are more advance and complex computer and gaming consoles. Traditional ways of studying doesn't hold our students interest, Why is that? Games have change the way our students think from linear to nonlinear, with the introduction of the internet information and student collaboration have become available near instantaneous. Edutainment offers a way for our students to learn, as they know how though games. Edutainment faces many challenges; violence, social discord, using technology because it there. Those concerns are valid but I pose to you that what if those concerns were made by fearful uninformed people and the benefits such as improved cognitive thinking, improved social skills, and a better learning environment lies at the other end of edutainment learning.

Video games are they the solution to declining education in our children, according to Begona Gros they are not "Engagement and motivation are interesting benefits of the use of video games but they are not enough for education purpose" (Gros). One of the aspects many critics points out when looking at video games in education is "the violence that the children are exposed to while playing games" (DeVary). With so

any conflicting arguments which one is true “Researchers have done studies to find any correlations between video game play and violent behavior,” (Squire) and “none of these studies uncovered any correlation” (Squire). Looking at popular titles of games kids play, games like Halo, Call to Duty and Grand Theft Auto are filled with violence and inappropriate material for kids. Not surprising that those games carry a mature rating from the ESRB (Entertainment Software Rating Board). Even those games do provide cognitive skills development theses are far from educational games. Reader Rabbit, Jumpstart and Sim City are just a few games that carry everyone rating from the ESRB. These titles have real education content and contain no violence.

Another argument against video game is using technology just because it there. Traditional educators and parents are concerned that “students are playing or being entertained they are not learning” (DeVary). This argument attacks the very core of edutainment. Jane Healy an educational psychologist “the way much computer use has developed, children simply learn to guess and press buttons” (Healy) in order to get their rewards. So the argument has evolved to “using technology does not guarantee academic success” (DeVary). This arguments not new to the technology world it was made when radio and television hit the market, “ studies done by Kulik &Kulik shows that student who used computer-based instruction have significantly higher test scores then students who were taught with methods that are more traditional” (Green and McNeese). Although this argument is not taking into fact other cognitive benefits that gamers get from video games.

If we take the first two arguments we come up with third argument that

educational dollars are scarce why spend the little they have on computers and educational software. Since we don't know whether "if a learning game can be designed that can be equally engaging and while meeting the educational standards" (Warren, Dondlinger and Barab) of society. While time tested traditional schooling is still working researchers worry that "gains in students achievement attributed to computers should be attributed to a difference in the instructional method and lesson content or to the novelty of using a new medium" (Green and McNeese), which will wear off in time. Furthermore they argue that students will "be playing and being entertained they are not learning" (DeVary). While the time honored traditional schooling still works "as a knowledge acquisition view, learning involves adding new information to one's memory" (Okan) through textbooks and lectures. Unfortunately the educational level is declining in United States; students' global education level is ranked at an average score. Perhaps it time to look at a new way of teaching. Edutainment teaching methods are based off of constructivism educational theory, which is "knowledge construction view, learning involves building a mental representation that makes to the learner" (Okan) though discussion and guided discovery. This method "encourages self-directed motivation which leads to the growth of the learner motivation" (Feist), which includes trial and error and discovery that keep the player interests.

What affect does video games have on a child's social development and interaction? On average "children between 2 and 18 spend 20 to 33 minutes day playing digital games" (Green and McNeese). In one report "these artificial reinforcements strip children of the most critical ability of all, to direct their own motivation and attention"

(Healy), but in another report, “when student are having fun they are motivated to persist for longer periods of time” (DeVary). Social interaction is very important in a child development learning to communicate, and readings are crucial to students’ success. Researchers have done studies trying to link playing games to poor performance in school and in anti-social behavior but researchers have found no correlation to support this (Squire). Many of the research pertaining to this is out dated taking place in the “early 1990’s which means that that the video game research is about two generations behind home console developments” (Squire) and video games have evolved since then. Multiplayer games and online games have many benefits such as “reduction of inhibition, development of peer role models, role reversal between student and teacher” (Dickey), which create a more engaging learning environment.

Before the age of the internet information was a linear information was written in a book the passed down to the next generation to read and absorb its knowledge, but now in an age where information is non-linear by means of how information can be reached for example internet, smart phones and tablets these devices have caused students to become “more active learners and to be less tolerant of passive learning situations such as lectures” (Green and McNeese) (DeVary) and textbooks. Reasoning for this is that games have become more complex, also they have “learned to process information more quickly and to process large amounts of information simultaneously” (Green and McNeese) and players have to developed their cognitive skills of multi-tasking and visually multi-task in order to be successful. Due to the large amount of information players receive “players are required to quickly to discern what is relevant and what is not” (DeVary)and “process

large amounts information simultaneously" (Green and McNeese) Visual multi-tasking is a "more diversified form of concentration" (Green and McNeese) these skills are crucial in school when you have multiple homework assignments, it allow you to change subjects with ease.

Edutainment develops a players emotional intelligence. Emotional intelligence is the ability to perceive, controlled and evaluated emotion. Video games get more challenging as you progress though the levels, and the "players must keep a delicate balance between being cool and relaxed and being keen, attentive and adrenaline-driven" (Green and McNeese) in order to win. Keeping control of you emotions is not the only piece in developing your emotional intelligence but gamers also "tend to have vivid imaginations" (DeVary) since most games are set in a fantasy worlds and times. In addition to this the old saying experience is the best teacher, video games "force them to process information out side their normal experiences" (Rice), there by creating new experiences to call upon. With video games teaching emotional intelligence, learners are better able to stay focused and engaged while learning so that they will receive the internal reward of self-completion and the external reward of a new level to master.

Video games teach students how "to work well together or play alone when a partner is not available" (Green and McNeese), because players "tend to develop and participate with a network of people who share their ideas, experiences and strategies" (DeVary). This means instead of hindering social development it actually develops and encourages social interaction by "student collaboration and, fosters students taking an active role in their learning" (Dickey). This collaboration "allows learners to analyze,

synthesize, evaluate, and employ critical thinking skills" (Dickey), that are key elements in having an engaged learner. An engaged learner is the desired outcome in edutainment and in traditional education.

To better understand edutainment it is necessary to look at the correlation between traditional learning and the element of video games and why they make sense to use in education. In Kurk Squire article "Video Games in Education" he uses the video game Pac Man to compare to traditional schooling as shown in this table here

Pac-Man	**Traditional Schooling**
Player controls how much she plays and when she plays.	Groups of students learn at one pace, and are given very little freedom to manage the content and pacing of their learning.
Students are actively engaged in quick and varied activity.	Students passively absorb information in routine activities, such as lecture.
Players play and practice until they master the game; players can take all of the time they need to master Pac-Man.	Students must all go at the same pace, regardless of achievement. As Reigeluth (1992) describes, traditional schooling holds time constant, allowing achievement to vary, instead of holding achievement constant (ensuring that all students master material) and allowing time to vary.
Players have feeling of mastering the environment, becoming more powerful,	Students learn knowledge abstracted by teachers and regurgitate this knowledge on

knowledgeable and skillful in the environment.	pencil and paper tests, rarely applying it in any dynamic context.
Video game players work together, sharing tips and trading secrets.	Students perform in isolation, and cannot use one another as resources.
Performance is criterion based; each student competes against his/her ability to master the game, to reach new goals. Every student can reach a state of "mastery" over the game.	Students are graded normatively, graded against one another's performance and encouraged to compete against one another.
Games are played for the intrinsic reward of playing them, for the emotional state they produce (Herz, 1997).	Schools are structured around extrinsic rewards, such as good grades or a fear of failure (flunking).

(Squire). This table makes it evident that with respect to time constraints in traditional schooling, not everyone can master the lessons in the time allotted, that video games have many qualities that promote a great learning environment, whereas traditional schooling is supporting a poor learning environment. This table is based off a non-educational game, which leads us to question what are the characteristics of a quality edutainment game DeVary list six points:

- The education components are hidden.
- Games are interactive and nonlinear.
- Games encourage exploration by rewards.
- Player can choose between protagonist and antagonist so they experience both perspectives

- Games encourage creativity.
- Games have more then one correct answer or means to accomplish the objective.

These characteristics create a fun, interactive atmosphere where the players can relax and learn. The reason for this is that games include the “seven rhetoric of play which are: progress, fate, power, identity, imaginary, frivolous, and self” (DeVary), these rhetoric can maintain and increase motivation.

This report is in no way to say we need to do away with traditional schooling, but to introduce edutainment into our classroom. To dismiss edutainment software due to the fact that “students are having fun is unwise” (Green and McNeese) especially since if it enjoyable they will play for longer periods of time and return to it more often. If we are to achieve a higher ranking in the global educational level, we need more active and engaged learner. Also with the digital shift where computers are part of our everyday live our kids’ need to be technology savory, edutainment does both teaches kids informational lessons and how to use technology to their advantage. I firmly believe that our teachers are not the problem; just their style of teaching has just gone out of date and need to be revamped to compensate for the instant information that our children have access to via the Internet.

Annotated Bibliography

Agar, Baris, Ali Cinar and Melchor Alpizar. "PUBLISHED ONLY: Diabetes Education." Scientific Sessions 53.2 (2004): a513-a519.

This article publish in Scientific Session was to short only being two paragraph long on the edutainment aspect of helping kids with diabetes. I found it lacking on information such as how it was working either in a positive or negative result. It did however mention two of the games they use Glucosim and Insulot both design to teach and help kids learn how to deal with type1 diabetes. They give a brief description on how the game function for instance Glucosim algorisms are the prototype of an automatic insulin machine for those how uses insulin pumps. Insulot teaches kids to correctly judge how much insulin will be need after eating certain types of food this game score 5.5 star out of 7 with 68% of the kids agreeing as this being an effective mean of teaching them how to control they insulin doses.

Devary, Sharon. "Educational Gaming: Interactive Edutainment." Distance Learning 5.3 (2008): 35-44.

In this article Sharon DeVary explores the benefit of edutainment and challenges that it faces. Benefits that exist are: improve skills for developing question, formulating hypotheses, and the ability to address new problems intelligently. Games can be created for different educational outcome for higher learning such as strategy and analytic skills. The main point of edutainment is also address when student are having fun, they are motivated to persist for longer period of time or approach the learning activity more

often. One factor is that is relevant in all cases that included edutainment game and entertainment game is that it help develop emotional intelligence by forcing the player to keep a balance between adrenaline rush in the fast pace nature of the game and keeping a cool relaxed head and focus on the task at hand. Challenges that edutainment faces it the cost of creating a video game is around 500,000 dollars to 2.5 million dollar and can take up to 2 years to complete that is base off the games that the kids play now. Some of the arugment she face in her report are: using technology does not guarantee academic success, the addictive nature of video games and the violence they are expose to, and how is the software obtain not by mean of buying but is it web base which raises internet concern and not all schools have internet, or stand alone which raises what kind of computer system do you need school budget do not allow for high end systems. Some believe order for edutainment to work programmer need to work with educational psychologist to formulate the education content. The programmers then have to create the best possible game for the low-end computer; this tends to produce low-quality educational games. The article also talk about the ecology of learning is changing by three different mean with our ever changing technology; they are the decreasing cost of computer and connectivity, software development that can translate other languages that increase communication, and accessibility new devices that can connect to the internet.

Dickey, Michele D. "Engaging By Design: How Engagement Strategies in Popular Computer and Video Games Can Inform Instructional Design." Education Technology Reseach and Development 53.2 (2005): 67-83.

This article begin off with showing the relevance of looking into edutainment games by showing how many people play video games and how big the video games business is. It also shows us the break down of what age group is playing the games. It also shows how much of the market is dedicated to edutainment. This article points out depending on what genre of games can help improve higher thinking skills such as analyzes, synthesize, and use of critical think skills. According to Dicky due to the interactive environment of video games we find that it support discovery, observation, trial and error, and problem solving. Studies have shown commonalities in game design, which are clear goals and task, reinforcing feedback, and increasing difficulties. Dicky outlines the element of engage learning these elements are crucial to creating good educational games. We go on to read about some evolution of game from pong to First person shooter (FPS), which opened the door to exploration in a virtual reality world where we can create experiences to relate to our learning goals. Narrative play a large role in video game which give the player the ability to reflex, evaluate, exemplification, and inquiry about what going on this is present in the popular games such as “Where in the World is Carmen Sandiego”. MMORPG (massive multi-player online role playing games) create a unique educational opportunities by reducing inhibition and create peer role models and role reversal between students and teachers. Video game often create hooks by giving the player choices and not all problem need to be solved one way but there are multiple way to solve a problem. This article does not include a lot of argument against edutainment but does pose the question of time. Video games require a lot of time to complete the question remains due to the length of the game can it be an effectual means of education.

Egenfeldt-Nielsen, Simon. "The Challenges to Diffusion of Educational Computer Games." European Conference on Games Based Learning. Reading: Academic Conferences International Limited , 2010. 63-IX.

This paper explores prior research done in the field of game base learning and why educational computer games are not yet more integrated into formal education. Thru diffusion of innovation this paper try to explain the lack of adaptation. One challenge that is face is the gray area because there are three kinds of usage: learning through games, learning with games, learning by making games. This paper focuses on leaning though games. It suggested that 48 to 87% adaptation of innovation must fit into one of these five category: Relative advantage proving that it better then what we are using now, Compatibility how much it matches existing forms of the norm, Complexity the ease of use, Trial ability the experimentation of the product without going all in, and Observation of the product which one can see the advantage of the innovation. This then breaks down the five categories so we can clearly understand them. He follows up his paper with a case study which h has chosen three games that have won several prestigious awards and been on the market of several years. In his case study he take the game thru the five categories. He argues that games in education at this time is a bad fit due to the fact that games do not aligns themselves well with diffusion of innovation.

Feist, Manuela. "Journey to the Galapagos Islands- A Game-Based Learning Application for Children, on the Subject of Charles Darwin and his Evolution Theory." European

Conference on Games Based Learning. Reading: Academic Conferences International Limited, 2010. 78-IX.

This article explores an interactive game about Charles Darwin in children 8-12 years old. In order to increase their motivation the educational content needed to be shown in a more entertaining way. The approach the use was discovery learning a concept in constructivist learning theory. Discovery learning encourages self-directed active learning, which leads to the growth of the learner's motivation. She states that the idea of fun should ideally enhance ant interfere with learning by turning it into gaming. Due to the fact that not all schools have the Internet and top end computers the game was design on adobe flash. It explains that for effective learning that the learning material should be repeated in different context. The article has some part unrelated to this research such as the system design and the game system requirement. Her researches then go off in a different direction testing the student ability to interact with the game. This article was good in the beginning but lost it usefulness to my research at the end.

Green, Mary and Mary Nell McNeese. "Using Edutainment Software to Enhance Online Learning ." International Journal on ELearning 6.1 (2007): 5-16.

This article shows a lot of promise because it used as reference in other article I have read. Video game have been around for 25 years and kids to day it has become part of their culture. The main purpose of edutainment is to promote student learning through exploration, interactivity, trial and error and repetition in such a way that student get lost in the fun and they don't realize that they are learning at the same time. Education

through video games are not limited to kids the United State government institution such as the military, medical and dental school use games in adult education though simulation. One of the problems edutainment faces according to this article is how inferior edutainment games are to popular titles largely affected by the graphic and cost of creation. They look at what skills are uses in each genre for instance action games require fast reflex, coordination ability and tactical reasoning; adventure games require logical thinking and persistence; strategy game require analytical skills and coolheaded tactic to be successful; and simulation that give the look and feel of actually being there. They bring up multi-player were players can navigate interact with other student as they complete learning quest. Important factors in edutainment games is that it arouses their curiosity, develop their creativity and a sense of completion when they finish. Since it is fun that means that their stress level is lower, more willing to pay attention, and enthusiastically participating, they are more receptive to learning. Argument against game usage is in education are pointed out that the general public is concerned that technology is sweeping though education without their input on shaping or restraints on it the article refute this argument by saying the same was true for other media out put example print media, and television. Another concern is using technology for the sake of technology while refuted by studies shown they differ on how large the impact is in education. In all of the studies it show that kids where more motivated and excited about learning. It point out the difference in learning between traditional schooling verse constructivist classroom where as traditional class room can better mastery to recall information and the constructivist class can produce improve skill of question

formulating, hypothesis generation and ability to address new problems intelligently. Traditional teacher and parents are concern about student being entertained and not learning which would be a waste of education dollars. The article explains that there is very little research to adequately explain the behavior between learning motivation and play. It does how ever say it is unwise to dismiss edutainment base on that fact or just because the kids are having fun for the reason that it is proven that while having fun they are more motivated to persist for longer periods of time and return to it more often. It explains in the article the cognitive effect and benefits on gamer such as information processing is increase, multitasking, non-linear thinking patterns, informational networking because the are connected synchronically, and asynchronically providing them with instant access to information, hypothesis test thru trial and error. It also touches on emotional intelligence by having player keep a balance between the adrenaline rush and being cool and relax. Because game require player to discern what is useful and what is not they are good at dealing with new situation. The article explains the characteristic of a high quality game whereas the educational component is hidden. They interactive and non-linear, encourage exploration thru rewards, can chose the role of the protagonist or antagonist, encourage creativity, and there are more then on correct answer or way of doing something. It tells us about the role of the game developer and how educational game should be approach. By working with educator and other professional to create education content, and how the game need to be capable of extensive medication for update to keep information current.

Gros Begona. "Digital Games in Education: The Design of Games-Based Learning Environments." Journal of Research on Technology in Education 40.1 (2007): 23-38.

This article Begona states that video games are not the solution to our educational problems, but she agree that there is a way to use videogames in education such as other media such as television. She mentions with increase capabilities of today computer we should have accurate simulation to simulate real life experiences. Video games oppose narrow focus, skills and learning attitude. Research in this field is disjointed and lack well-defined boundaries. The article show the evolution of edutainment; generation one was to practices a certain skill over and over again, second generation is base on a cognitive approach where information is presented in a way appropriate to specific learner, the third generation look to a broader process of educational use. It shows us the seven major genres of video games and the different taxonomies used. She looks at three aspect of learning and game 1) sociological approach 2) the effect of learning with digital games and 3) learning with games in school.

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