TODAY'S LEARNERS: APPLYING GAMING ELEMENTS TO ENHANCE STUDENT ENGAGEMENT IN A UNIVERSITY VISUAL COMMUNICATION COURSE

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A Thesis

Submitted to the Graduate College of Bowling Green State University in partial fulfillment of the requirements for the degree of

MASTER OF EDUCATION

August 2011

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Abstract

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New generations of learners who have grown up in a digital age have made it difficult for educators to keep students engaged in the classroom. Video games are one solution to the problem of engaging and motivating students. This study looks at current popular social video games, as well as alternate reality games, and the elements that these games possess that foster engagement in players. The purpose of the study was to identify and analyze gaming characteristics to determine how certain game characteristics could be effectively incorporated into a introductory digital photography course curriculum to create more motivation in class critiques and discussion.

A framework based on Tom Chatfield's TED Talk "7 Ways Games Reward the Brain" was used to develop a gaming model that could be applied to an Introductory Digital Photography course at Bowling Green State University. This model was reviewed by members of an expert panel through a process of alpha and beta reviews. Recommendations of the expert panel were taken into consideration for the development of the final model.

The study concluded that many tools and applications are available to assist instructors in creating personalized and engaging learning environments, but much work would still be required to develop and implement gaming elements into a course curriculum. As new tools and technology become available, the integration of such a model may become less cumbersome and more common among educational environments.
Acknowledgements

I would like to thank Dr. Terry Herman for all of her wonderful support and dedication as my chair, advisor, and instructor. I would also like to thank my committee and expert panel participants for sharing their knowledge and providing me with such powerful ideas. Finally, I want to acknowledge all of my colleagues, friends, and family members who were supportive and helpful to me throughout the entire process.
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Chapter I: Introduction

Context of Problem

Educators are challenged to teach a new generation of learners who have grown up in a digital world. The education system is struggling to keep up with technology, new learning tools, and integrating technology to increase learner engagement (Gee, 2004). Many educators still use traditional styles of teaching and they are reluctant to integrate new techniques into the classroom. Often, they are not comfortable with new technology or feel as if these new technologies are not appropriate for education (Prensky, 2010). Students may no longer feel as engaged in school as they are by all of the media and technology that exists outside of the classroom. As Marc Prensky (2005) states, “we have to find how to present our curricula in ways that engage our students” (p. 62).

Many educational designers feel that digital game-based learning may be one of many solutions for this problem (Foreman, 2004). Games provide many elements that captivate this new generation and keep their attention focused. Not only are games engaging, but they also provide an open environment where players are not afraid of failure, can explore and manipulate the virtual world, and learn from problem solving. Games provide not only engagement, but pedagogical factors as well (Brown, 2006). However, many educators are reluctant to update the classroom with new tools and technology, as they feel inadequate to use these tools themselves or feel that certain tools are not appropriate for educational purposes (Prensky, 2010).

When deeply engaged with video games, many players have gone outside of the game environment to create content such as wikis, videos, or websites, which can be considered as pedagogical outcomes. Some instructors have already begun to look at games as a way of
motivating students and have incorporated gaming elements into their classrooms (Roscoria, 2010; Tay, 2010).

The researcher was a teaching assistant for an introduction to digital photography course in the visual communication technology department at Bowling Green State University. This course has historically experienced difficulty with motivating students to participate in photo critiques and discussions. This photography course was used as the main focus in development of the research design.

**Statement of Problem**

The problem of the study was to identify and analyze gaming characteristics to determine how certain game characteristics could be effectively incorporated into an introductory digital photography course curriculum to create more motivation in class critiques and discussion.

**Significance of Study**

The current generation has grown up in an environment where they are surrounded by technology. Video games have become a prominent presence in everyday life for many students. Statistics show that the video game industry made $10.5 billion dollars in revenue in 2009 and that 67% of U.S. households play video games (Entertainment Software Association, 2010). Educational designers such as Prensky (2001b) and Shaffer and Gee (2005) feel that bringing video games into the classroom may be a solution to the current educational system and a way to engage students in school.

FarmVille and World of Warcraft are currently two of the most popular social games, each with millions of active players (Glenday, 2009; Inside Network, 2010). However, players have created content outside of these games (Dybwad, 2008). The types of content created include wikis, blogs, websites, charts, tutorials, and even writing fan-fiction and creating artwork.
based on the game (WoW Wiki, 2010a). This user-generated content could be viewed as outcomes that instructors would want in their classrooms, especially such things as collaborating, writing, creating artwork, and researching.

Jesse Schell (2010) and Seth Priebsch (2010) both share in TED Talks an idea of creating a game world on top of the real world where things that we do in our everyday lives would have gaming elements related to them. Lee Sheldon at Indiana University has done this in an educational setting. He began replacing traditional elements, such as the grading scale, with game elements, like experience points (Tay, 2010). This same idea has also been implemented in two middle schools that joined together to create a class based on the game, World of Warcraft (Roscoria, 2010) as well as at the New York school, Quest to Learn, which based curriculum on gaming ideas (Corbett, 2010).

The introduction to digital photography course, VCT2820, has had difficulty with student participation during in-class critiques and discussion. This course is designed to teach students the technical and aesthetic aspects that make a well-communicated image. Much of the learning comes from class critiques, where students can openly discuss images and provide feedback to their peers. However, students have been reluctant to participate in discussion and many critiques involve only a few members of the class.

**Objectives of Study**

1.) Identify elements of games that are most engaging and are motivational to students.

2.) Create a model using gaming elements that could be effectively applied to an introductory photography course.
**Definition of Terms**

The following terms were operationally defined for the purpose of this study:

Alternate Reality Gaming (ARG): An interactive narrative that uses the real world as a platform, often involving multiple media and game elements, to tell a story that may be affected by participants' ideas or actions (Wikipedia, 2011a).

Digital Game-Based Learning or Serious Gaming: A mental contest, played with a computer in accordance with specific rules, that uses entertainment to further government or corporate training, education, health, public policy, and strategic communication objectives (Zyda, 2005).

Experience Point (XP): A unit of measurement used in many role-playing games (RPGs) and role-playing video games to quantify a player character's progression through the game. Experience points are generally awarded for the completion of quests, overcoming obstacles and opponents, and for successful role-playing (Wikipedia, 2011b).

Leveling-Up: Characters start as fairly weak and untrained. When a sufficient amount of experience is obtained, the character "levels up," achieving the next stage of character development. Such an event usually increases the character's statistics . . . (Wikipedia, 2011b).

Social Gaming: Refers to playing games as a way of social interaction, as opposed to playing games in solitude, like some card games (solitaire) and the single-player mode of many video games (Wikipedia, 2010b).

Video Game: A mental contest, played with a computer according to certain rules for amusement, recreation, or winning a stake (Zyda, 2005).

Today’s Learners: Operationally defined as learners who are part of the Net Generation, also referred to as Generation Y or Millennials. Members of this generation are “generally
marked by an increased use and familiarity with communications, media, and digital technologies” (Wikipedia, 2011c).
Chapter II: Review of Literature

This chapter focuses on several topics that examine current educational practices, including the benefits of gaming, popular social games, and what makes gaming so compelling.

Today's learners have grown up in an intensely digital world and educators are using games as a source of engagement (Prensky, 2001a). Serious games have become a more prominent tool in our current learning environments, but have yet to attain the level of achievement of popular social games such as FarmVille or World of Warcraft (Inside Network, 2010; Glenday, 2009). These games have brought a new audience to the gaming world and have changed the way many games are played. Players are not only playing these popular social games, but are generating content that exists outside of the actual gaming environment (Dybwad, 2008). This chapter will focus on the current literature of digital game-based learning, the world of social games, and research and theories of why games are so fascinating to our learners.

Current Learners and Education

The way people interact and learn has been changing over the past several decades. New tools, technology, and a new generation of learners have brought a major push for change in our current academic system (Christensen, Horn, & Johnson, 2011). Traditional educational models may no longer be as efficient and effective as they were in the past as much of the current educational system uses the standardized lecture and testing approach. The computer and technologies associated with the computer have evolved and will continue to bring about a change comparable to the invention of the printing press (Prensky, 2001a). Shaffer and Gee (2005) state that our present academic situation has become a crisis, “The coming crisis is this: Young people in the United States today are being prepared—in school and at home—for “commodity jobs” in a world that will, very soon, only reward people who can do “innovative
work” and punish those who can’t” (p. 1). Gee (2004) believes that the current educational system is still too traditional and that we have yet to update the curriculum to fit current learners and the shift in skills needed for future jobs. Education systems should acknowledge new technology and not continue to force conventional teaching styles. “It is amazing to me that in the modern age, when we have technologies like the Internet and the hand-helds and the computers and the computer games, we are still teaching inside four walls, where all the information is coming from within those walls” (Foreman, 2004, p. 53).

Prensky (2005) refers to today's learners as having digital wisdom, as they are the generation that grew up in a media-rich age. Today's learners have grown up in a world different from prior generations, where television, games, and the Internet have always been available. These learners are accustomed to fast-paced information and current learning practices are not up to par with their needs. They want their education to be as engaging as the plethora of media and technology available to them. “All the students we teach have something in their lives that's really engaging—something that they do and that they are good at, something that has an engaging, creative component to it” (Prensky, 2005, p. 62). Students are finding themselves more engaged in activities they do out of school than inside their classrooms. It is stated that the goal for this generation of learners is to feel successful and have fun with friends. Education is competing with all of the other activities that provide students with this goal (Christensen et al., 2011). Gee also agrees with this idea saying, “Young people today are often exposed outside of school to processes of learning that are deeper and richer than forms of learning to which they are exposed in school” (Gee, 2004, p. 107). Today's learners have access to much more information and tools and these technologies provide students the ability to interact, create, and make decisions in a comfortable environment (Prensky, 2010). Prensky goes on to explain that
today's learners have so much access to information that they already have a large amount of knowledge before entering the classroom. “Consequently, learners no longer see themselves as receptacles to be filled with content; instead they see themselves as creators and doers” (Prensky, 2001a, p. 71).

Prensky (2001b) focuses much attention on the learner's experiences, wants, and needs. Learners should be the priority and learning should be based around what they need to know, how they learn most effectively, and how the learning can be engaging. Technology may be a solution to opening new doors for learners and learning styles and allow instructional designers to create learning environments more suitable for today's learners. “... the potential for learner-centered learning through technology is enormous, far greater than most of us think” (Prensky, 2001a, p. 91).

**Digital Game-Based Learning**

Although there are many ways of creating student engagement, Prensky (2001a) as well as many other instructional designers and theorists believe that one solution to the current educational problem lies within the implementation of digital game-based learning. “Before the time of printed books, learning was done primarily through questioning, storytelling, imitation, practice, and play” (Prensky, 2001a, p. 91). Games are exploratory and provide students with the opportunity to make decisions, and learn through experience and play. They are flexible in that they allow for learners to work at a personalized skill level and pace best suited for individual needs. Learning becomes more meaningful through the use of games and makes students more engaged (Van Eck, 2006). The Net Generation or Games Generation grew up with video games, playing for hours, and became a generation that is not afraid to explore and figure out problems through experience (Prensky, 2001a). Games are so appealing to education because they present
a more active style of learning. “We want games because they are the most engaging intellectual pastime that we have invented. Kids are intellectually engaged by them” (Foreman, 2004, p. 58). Video games are not only fun and attractive to students, but also have the potential to push students to learn and experiment in specialized environments.

Video games not only create an immersive environment, but they create an environment where students are constantly challenged. Many video games have a high level of difficulty where players must explore, adapt, and learn quickly in the gaming world. When players are playing a game, they must learn from failure, become fearless, and push the limits of the game. In games, players are not afraid of failure, because failure is not something that happens passively, but done in a more positive way. This optimism allows players to continue playing and stay motivated (McGonigal, 2011). Players expect failure as well as eventual success, but along the way they expect challenge, problem solving, performance measurements, and other pedagogical outcomes (Brown, 2006). As John Seely Brown (2006) states, “many gamers say that if they’re not learning—it’s not fun!” (p. 21).

Many educators still have a bias towards games and gaming, believing that they should be used as a reward rather than a learning solution and are skeptical to incorporate such learning modules into the classroom. Many have yet to embrace the idea that games can provide positive pedagogical outcomes and can be integral to the learning process (Schrader, Dongping, & Young, 2006). Also, there is a great generational divide between traditional gamers and non-gamers (Chatfield, 2010a). Gee (2004) believes that “When kids play video games they experience a much more powerful form of learning than when they're in the classroom . . .” (p. 91). Through gaming, instructors have the ability to teach any topic of study and make it a meaningful, engaging, and positive experience for today's learners (Prensky, 2001a).
Additionally, educators are reluctant to use technology such as games in the classroom because they do not feel as if they are knowledgeable enough about the technology to integrate it into the curriculum. Prensky (2010) believes that educators are not the ones who should be using the tools, but rather the students. “When it comes to technology, the teacher is the guide, the coach, and the quality controller, not the user” (Prensky, 2010, p. 100). Therefore, teachers do not need to be adept or masters of a technological tool before integrating into the classroom; it should be the role of the student to use, learn, and master the tools on their own (Prensky, 2010).

Social Games

It is apparent that gaming is an emergent technology that continues to grow and become more prominent in our culture (Chatfield, 2010a). Social games or networked games have become a new and growing gaming market within the past decade. There are many definitions of what qualifies as a social game, but for this thesis a social game is one where game-play involves interaction with other players in a network. In a social game, players must be able to work cooperatively within the network in order to achieve goals, earn rewards, or advance levels. There are several sub-categories of social games and this paper will focus on two of the most popular types of social games and the two most popular social games in those categories.

The social network, Facebook, has become the host for many of the most popular social games available. In May of 2007, the Facebook Platform was released which allowed developers to create applications that would work within the Facebook network (Facebook, 2007). This led to thousands of applications and games being integrated into the Facebook network. One game development company, Zynga, had much success on the Facebook platform and released several popular games such as Mafia Wars and Zynga Poker. In June 2009, Zynga released FarmVille, which was considered a close replication of Slashkey's FarmTown, a game released a few
months prior. FarmVille managed to gain over 10 million monthly active users by August 2009 and continued earning roughly 1 million users per week (Vidyarthi, 2010). According to Inside Social Gaming, FarmVille held the title of first place Facebook application with approximately 55 million monthly active users in November 2010 (Inside Network, 2010).

FarmVille is a farm simulation where players are given their own personal piece of land where they can plant crops, grow trees, tend to animals, or even decorate (Farmville Freak, 2010c). Players must login regularly to tend to their farms or else risk crop withering and loss of virtual money. FarmVille also provides players with other goals such as running a winery, bakery, or spa; constructing buildings; participating in holiday-related events; and getting involved in cooperative farming challenges. FarmVille requires players to rely on the aid of Facebook friends or neighbors in order to receive special items, complete challenges, or earn rewards such as virtual coins or experience points (Wikipedia, 2010a). Game-play is not simultaneous among FarmVille players, but interaction can be done through gifting of items, messaging, visiting and completing chores on neighbor’s farms, and through Facebook wall posts. FarmVille is considered to be a casual social game because it resides within a social network and all social interactions are through Facebook and are not continuous (Wikipedia, 2010a).

In addition to FarmVille, another notable and widely popular social game is Blizzard’s World of Warcraft, or WoW. It is classified as a massive multi-player online role-playing game or MMORPG. Released in November 2001 for both Windows and Macintosh platforms, the game requires users to purchase a game disk to be installed onto a personal computer (PC) and pay a subscription fee of 13 to 15 dollars per month (World of Warcraft, 2010a). According to the Guinness World Book of Records, WoW claims the record of most MMORPG subscribers at
11.6 million as of January of 2009 (Glenday, 2009).

Wow is an online game where players can choose a class and race of a customizable character. The choice of race will determine which faction, the Hoard or Alliance, in which the player will side (Collins, 2009). From there, they must choose among four servers including player vs. environment, player vs. player, role-playing, or role-playing player vs. player. This allows for Wow players to have a choice of playing style that best suits their gaming interests (Collins, 2009). Once the character, faction, and server have been selected, players will be taken to the virtual world of Azeroth where they can play with thousands of other subscribers online. Players can battle game foes or even battle other live players (World of Warcraft, 2010b). Cooperation with other players within the game is crucial in order to complete tasks or go on quests, which typically require several players forming a group. Players can play in groups of five or raid groups of up to 40 players to complete challenges (World of Warcraft, 2010b). Wow provides several tools for player interaction such as a live chat and messaging (World of Warcraft, 2010b). The social aspect of Wow is much more intense than games like FarmVille, because much of the game environment and interaction is made with other players. Wow provides players with a deeper social interaction and the ability to become more personal than other social games (Chatfield, 2010a).

User-Generated Content

Both FarmVille and Wow are front-runners of the social gaming world, but many users are not only playing these games, but going outside of the virtual worlds and are generating content about the games. This phenomenon exists with many popular games, but FarmVille and Wow have each accumulated a wide variety of user-generated content. Much of this content is made up of wikis, blogs, and guides related to game play and are created to share with other
FarmVille has several blog sites dedicated to reveal new items and special updates to players. Some of these sites include FarmVille Freak, FarmVille Feed, and FarmVille Fanatic. Each of these blogs is run by FarmVille players and provides news on new items, challenges, special events, and any other FarmVille-related news. The blogs are set up where players of FarmVille can chat, post comments, and interact with other FarmVille players. The blogs also have Facebook pages that players can follow and receive FarmVille new updates right to their Facebook feed.

FarmVille Freak is a fan site maintained by a small group of moderators who are players of the game, but are not affiliated with Zynga or Facebook. It currently has approximately 330,000 Facebook fans who receive updates on their Facebook feeds from the site (Farmville Freak, 2010c). The website provides daily posts of FarmVille updates and FarmVille-related news. Many posts reveal new or unreleased items or challenges, game updates, information and guides about the game, any FarmVille related promotions, and other game FAQ (Farmville Freak 2010c). Some of the content featured on this website is sent in by other FarmVille players who are fans of the site and have spotted spoilers, issues, or other elements in the game or who have created materials such as guides, tutorials, videos, or charts that may be helpful to other players.

FarmVille Freak also provides forums and a chat area where players can communicate and share information about FarmVille or just chat (Farmville Freak, 2010a). Finally, the website also hosts FarmVille-related contests where players can decorate farms, design banners, or even make farm-related baked goods to earn FarmVille virtual money (Farmville Freak, 2010b).

Another FarmVille player and Salt Lake City native, Matt Blank, created the FarmVille Profitability Spreadsheet, which is an elaborate spreadsheet for all FarmVille crops, animals, and
trees (Blank, 2010b). He breaks down the cost of the item, takes into consideration the time it takes for the item to become ready to harvest, and calculates how much each specific item earns per hour. In addition to profit, he also included the amount of experience points earned for each item and what is required to earn a mastery reward, which is earned by harvesting a crop, animal, or tree a specific amount of times. This information is shared online on a GoogleDocs spreadsheet (Blank, 2010a) and on Blank’s personal blog website (Blank, 2010b).

Wikis have emerged as a collaborative venue for new players wishing to collect video game content whereas forum sites or other websites are being used less frequently. Wikis provide users with an open feeling environment where any user may create new pages or edit existing content contained on any other pages (Dybwad, 2008). This allows for the users to create their own personal community and have the ability to effectively share and collaborate in a medium where there is no interference from the developer allowing them to create something that is genuinely their own (Dybwad, 2008). At a 2008 South by Southwest (SXSW) conference, George Pribaul stated, “wikis not only organize information very well but allow community collaboration on data that changes over time” (Dybwad, 2008, p. 1). FarmVille and WoW both have many wikis dedicated to each game, but the 3rd largest English-speaking wiki is dedicated to the WoW universe (Dybwad, 2008).

Players of the game created a wiki, called the WoW Wiki, and is not an official wiki affiliated with WoW developer, Blizzard. “At 3 million unique users per month, a full half of English-speaking WoW players visit WoW Wiki every month” (Dybwad, 2008). From November 2004 to November 2010, the WoW Wiki has managed to acquire 87,680 articles in its database (WoW Wiki, 2010c). Content ranges from items, characters, and equipment to guides, quests, spoilers of the game, and more. The WoW Wiki is currently hosted on Wikia, a free wiki
website. Wikia was co-founded in 2004 by Wikipedia founder, Jimmy Wales. Wales stated that the gaming community had become the largest community on Wikia (Crecente, 2007).

In addition to content about WoW, WoW Wiki also shares links and information of fan sites dedicated to the series. These fan sites range from personal blogs and forums to websites that contain playing guides, reviews, fan art, and fan fiction. WoW players have created original artwork with drawing and sketches based on the game as well as written their own folklore and stories that go with the game storyline (WoW Wiki, 2010a). Fans are generating a wide variety of written and artistic content to videos, such as the viral video of Leeroy Jenkins, the infamous player who interrupts his group’s strategy session and prematurely charges into battle which results in death for the entire team (YouTube, 2006). User-generated Leeroy Jenkins gained so much popularity that the character became a card in the World of Warcraft Trading Card Game and Blizzard created an in-game achievement for WoW titled “Leeeeeeereeeoy!” (WoW Wiki, 2010b).

During the 2010 Dice Summit, Jesse Schell (2010), a professor at Carnegie Mellon’s Entertainment Technology Center, spoke about how games are no longer contained in the social world but are breaking through reality. The user-generated content as explained in the examples show that games are not only contained inside a virtual farm or the world of Azeroth, but outside of the walls of the game. Schell eludes to the idea that people no longer want their games to only be fantasy, but have a craving for “reality” and games that exist in both worlds (Schell, 2010).

**Alternate Reality Games**

World of Warcraft and FarmVille both successfully demonstrate how enthusiastically players are reacting and responding to these games. These games are examples of games that reside in virtual worlds and have overflowed from the virtual environments to the real world
through user-generated content. Alternate reality games, or ARGs, exist outside of virtual environments and may take place anywhere in the real world. Many ARGs have a storyline or plot that guides the game and directs players to clues or steps (Kim, Allen, & Lee, 2008). Players must then work collaboratively to pull together clues in order to accomplish the game's mission or goal and complete the story. Players can discover the game and clues through websites, social networking, e-mails, text messages, print materials, or even GPS coordinates (Educause, 2009). Some ARGs have users collaborate on forums, blogs, or wikis in order to help solve the problem at hand (Kim et al., 2008).

ARGs have been used to market movies such as A.I. and video games like Halo 2 (Kim et al., 2008). The ARG ILoveBees (ILB) was created to help market the new release of Microsoft's Halo 2 video game. The game began when people from the gaming industry were sent bottles of honey, which contained letters that spelled “ILoveBees.” Additionally, the URL http://www.ilovebees.com was shown during a trailer for the upcoming release of Halo 2 (Kim et al., 2008). Game participants went to the ILB website and discovered clues of their main objective. The ARG’s goals were similar to the storyline of Halo 2 and participants had to collaborate and solve the puzzles together in order to reach their final objective (Kim et al., 2008).

There have been other ARGs created that do work with a storyline or plot and are not as detailed as other ARGS, such as ILoveBees. Jane McGonigal (2011) provides a look at the ARG Chore Wars. Chore Wars is a simple game where a community of players, such as a family, dorm, office, or roommates, can create online avatars and complete chores in their home or office in order to earn experience points and other rewards for their avatar. Furthermore, players
have control on how much each chore is worth and can even add additional requirements for chores (McGonigal, 2011).

ILoveBees and Chore Wars are both interactive and collaborative games, but require no use of a virtual world. Participants are encouraged to use many different web and media tools as well as work with other players to reach a common goal or objective. ARGs have traditionally been used for promotion and marketing, but have begun to be used for other purposes. An Educause publication (2009) indicates that ARGs exhibit characteristics that may be beneficial for educational purposes.

For educators, ARGs invite students into the world of subject matter, urging them to search for and share information in the effort to solve a mystery. Such activity familiarizes students with the tools of scholarly research as it promotes collaborative learning, problem solving, and experiential learning. It may offer new ways to address different learning styles—including kinetic, auditory, or visual—in that each student in a team-learning situation can offer clues that might have been missed by others. Perhaps more to the point, ARGs open doors into the future of students’ professional lives, where they will be expected to solve complex problems by taking necessary raw materials from multiple resources, thinking critically and analytically, and putting their individual skills, interests, and abilities at the disposal of a group dedicated to a common goal. (Educause, 2009, p. 2)

**Elements of Games**

Much research has been done on the characteristics that create good games, but new research is broadening the spectrum of games and looking at characteristics of games as a whole rather than mechanics. In a 2010 TED talk, Tom Chatfield, writer and columnist for *Prospect*
Magazine, presents a list of seven items which make games so engaging and compelling to players. Much of his presentation focuses on massive multiplayer online games (MMO) and social games such as World of Warcraft, but his list of gaming elements can be applied to most virtual games (Chatfield, 2010b).

1. Experience bars measuring progress. Experience bars can be used for the player to see their progress. Players can easily track and know how much they have accomplished in the game based on a progress bar. Experience bars usually show experience points, which are typically points earned by completing objectives within the game. The experience points can be used for players to advance to new levels and harder tasks. The bar is a visual representation of how much they have already earned and how much more they must earn in order to reach a specific goal or how far they have progressed in the game. Experience bars and points may also be used to compare progress with other players. Games such as WoW have experience bars that show how much a player has earned and how much more they need to earn until they reach the next level or goal. Priebatsch (2010) even uses the social networking website LinkedIn as an example of the use of experience bars. When a user registers for a LinkedIn account, their progression of providing information on their profile is shown using a measuring bar along with percentage completed. As Priebatsch (2010) states, it is so “deep-seeded” in people to accomplish a task if presented with something such as a visual progress bar that they will seek out ways to achieve this goal. Jane McGonigal (2011) proceeds to say that understanding progress leads to player motivation. “Visible results are satisfying because they mirror back to us a positive sense of our own capabilities” (McGonigal, 2011 p. 57).

2. Multiple long- and short-term goals. Having several goals allows for the players to have flexibility and the ability to choose which goals to attain and when. Goals should range
from more simplistic such as doing one task to the more elaborate, where many tasks may be required to attain a particular outcome. Chatfield (2010b) explains that by doing this, players will be completing several tasks at one time and remain engaged in the game. In addition, each player is unique in their playing style and which goals are most relevant to them. Certain players may seek out or choose to attain different goals from others, which allows them to have a more personalized experience in the game. Players like to take on different personas and playing styles throughout the course of game-play. It is important to have several goals to choose from to accommodate each of the playing styles (Neils & Scott, 2009). This diversity in goals also allows for games to be well matched for players, therefore keeping the challenge of the game appropriate for the skill and level of the player. Players will not become too frustrated or feel that the game is effortless and will continue to play (McGonigal, 2010).

3. Reward for effort. In games, every time a person does something they earn credit reward for that action. Rewards can be earning experience points and leveling up, to earning currency or items. Every action receives positive re-enforcement and players are more likely to try and earn this credit without fear of being punished for failure. Chatfield (2010b) describes rewards as the 100% rule. Each time a player does anything, such as opening a box, there will be a reward 100% of the time no matter how big or small the task. These rewards will vary in size or quality, but when every box is opened, a reward is attained.

Prensky (2001a) stated, “rewards are an incentive to go on” (p. 135). Constant rewarding motivates the player to continue the game and keep trying to earn more awards. Schell (2010) also feels that rewards are an integral part of video games, looking at things such as Xbox Achievements, which rewards players for special in-game accomplishments with trophies and points. Schell references rewards for the global sport, Geocaching, which uses global positioning
system (GPS) technology to find hidden items saying in his TED Talk, “it’s cooler to go for a walk in the woods when there’s a treasure chest at the end” (Schell, 2010). People are attracted to games because rewards are defined and attainable. “It’s not the subject matter of these games that attract . . . . It’s the reward system that draws these players in” (Johnson, 2006, p. 38).

4. **Rapid, frequent, clear feedback.** There are consequences for each action the player does in a game. This allows for the players to understand what outcomes there may be when a certain element is manipulated. Players can explore, influence, and learn from the constant feedback that a game provides. Through manipulation and this clear, constant feedback, players are able to learn how the game works and learn what course of action is needed in order to do well in the game (Chatfield, 2010b). Games continuously grant this constant feedback to players, which is something that does not exist in real life (McGonigal, 2010).

5. **Element of uncertainty.** Players are motivated by the idea that their actions will help them earn awards and achievements. One major motivator is the rewards or outcomes that are unexpected by the player. It is these outcomes that make the player more interested in the game and look forward to more unexpected outcomes (Chatfield, 2010b). McGonigal (2010) interprets this element of uncertainty as being on the verge of an “epic win.” An epic win is when a player achieves something that they did not know was attainable and are able to receive an outcome that was completely unexpected.

6. **Windows of enhanced attention.** The University of Bristol has begun doing testing on dopamine levels in the brain. They have been able to predict times of increased learning and engagement and can determine moments when a person is more likely to remember an idea. Additionally, they have also found out that these dopamine levels have an affect on the
confidence level of the player and that it makes them become braver and less likely to give up (Chatfield, 2010b).

7. Other people. Chatfield (2010b) says that the number one motivator for people is other people. All players have this sense to work and collaborate within a game. Once playing a game with someone, people become more attached to that person and trust them more, whether that person beat them at the game or not. Playing games together brings people together and people are more likely to stick with a game if they have created this social fabric with others players in the game (McGonigal, 2010).

In his talk, Chatfield also refers to the game EverQuest II, where players must defeat two difficult dragons within the game that may require up to almost 40 players to defeat. Unfortunately, after defeating the dragons, only two or three items are dropped and must be divided among the entire group. In order to make it fair, players developed their own currency to help create a fair way to distribute the special items gained from defeating the dragons. Chatfield (2010b) explains that this process has almost a perfect success rate in fairly distributing these special items. Priebatsch (2010) describes this as communal discovery where everyone works together in a society to solve the problems of the society and achieve a certain goal.

Yochai Benkler (2006) has researched why people enjoy collaboration and why they are motivated to collaborate with other people to create new items such as software or the user-generated Wikipedia. He coined this phenomenon commons-based peer production, stating that:

A networked environment makes possible a new modality of organizing production: radically decentralized, collaborative, and non-proprietary; based on sharing resources and outputs among widely distributed, loosely connected individuals who cooperate with
each other without relying on either market signals or managerial commands. (Benkler, 2006, p. 60)

People are not only motivated extrinsically but also have intrinsic motivation, which makes us want to help without the reward or goal, such as writing code for open-source software, adding content to a Wikipedia page, or developing information for a social game such as FarmVille or WoW. “Human beings are, and always have been, diversely motivated beings. We act instrumentally, but also non-instrumentally. We act for material gain, but also for psychological well-being and gratification, and for social connectedness” (Benkler, 2006, p. 6).

**Gaming in Education**

Both Schell (2010) and Priebatsch (2010) provide a view of how elements of games have already begun breaking out of virtual worlds and into the real world. Everyday items such as airline miles or credit card points have features of games integrated into their business model. However, both Shell and Priebatsch describe a future where well-developed game design will take hold of these everyday items in our lives and turn them into effective games (Schell, 2010; Priebatsch, 2010). Priebatsch (2010) believes that the past decade was focused on building the social layer on the real world, which resulted in Facebook. Now, this decade will be focused on creating a gaming layer. However, he is concerned that this gaming layer is built properly. The gaming layer should focus how games can influence our behavior in where we go, what we do, and how we do things (Priebatsch, 2010).

McGonigal (2011) points out the education and technology disconnect that is apparent in current educational systems. Educational games have been created to help foster student engagement, but feels that educational games are only a temporary solution. “The engagement gap is getting too wide for a handful of educational games to make a significant and lasting
difference over the course of a student's 13-year public education” (McGonigal, 2011, p. 128). McGonigal (2011) reveals that more measurable changes should be done in educational reform. Rather than producing games for education, apply the game elements to education. “Their ideal school is a game, from start to finish: every course, every activity, every assignment, every moment of instruction and assessment would be designed by borrowing key mechanics and participation strategies from the most engaging multiplayer games” (McGonigal, 2011, p. 128). Many educators and schools have already begun taking steps toward this new idea of education reform.

While at Indiana University, Lee Sheldon developed a class where he used video game concepts in his curriculum. He took this classroom environment to Rensselaer Polytechnic Institute where his syllabus stated that students needed to get the video game Portal (Glasser, 2010). His grading scale does not consist of the traditional point system, but is based upon experience points. Each student begins with zero experience and earns points by completing tasks such as doing homework assignments, test, and quizzes; collaborating with classmates on projects; and other school-related work. Sheldon has modeled his class to be similar to something from World of Warcraft, where he called his assignments quests and even divided his students into separate guilds (Tay, 2010).

Cape Fear Middle School in Rocky Point, North Carolina (NC) and Suffern Middle School in New York, New York (NY) formed a World of Warcraft club where students would play with each other in a guild they formed called The Legacy. Teachers saw the engagement that students had to the game and converted the playtime into an elective language arts course called WoWinSchool (Roscoria, 2010). In the course, students would play the game and learn about economics, problem-solving, teamwork, and leadership skills, and write about their
experiences in the game through their avatar’s eyes. Similar to Sheldon’s course, assignments have become quests and grades have been replaced with experience points. Lucas Gillispie, a creator of the course, wants to share their course curriculum with other schools under a Creative Commons license (Roscoria, 2010).

Quest to Learn, located in Manhattan, is the most prominent example of integrating game concepts into education. Quest to Learn was led by Katie Salen, from the Institute of Play, and developed with aid from a team of educators and game designers (Corbett, 2010). The school opened September 2009 and taught only one sixth grade class; the following year a seventh grade class was added. The goal of Quest to Learn is to add a new grade level each year until the school is able to provide education for students throughout their junior high and high school careers (Corbett, 2010).

Quest to Learn allows students to use many types of multimedia in their education, such as SMART Boards, laptops, and gaming consoles (Corbett, 2010). The course assignments and curriculum are different from traditional school as well. Students at Quest to Learn do learning exercises to level up until they reach a “mastery” of that particular skill (McGonigal, 2011, p. 130). For homework, a student may have to complete a secret mission or may have to teach math to an online interactive agent. Final and midterm exams and projects are portrayed as “boss levels” that one typically complete at the end of a video game (McGonigal, 2011, p.131).

Salen expresses that many schools provide only one classroom and time frame where a subject will be taught (Corbett, 2010). Quest to Learn breaks those boundaries and provides learning spaces all around students where they can bring together all school subjects. In the Corbett (2010) article, Salen says, “the fact is that kids are doing a lot of interesting learning
outside of school. We acknowledge that, and we are trying to bring that into their learning here” (p. 3)

**Learning Tools**

Many learning tools are available that instructors may be able to use to create collaborative learning environments. Such web tools include social networking sites where instructors can set up personalized online communities. These can be used to help integrate gaming elements into the classroom with ease of use for both instructors and students.

The popular social network Facebook provides users with many features and tools that may be used aside from personal interaction with friends and family. Many users create profiles on Facebook, where they can share basic background information, images, and make status updates (Phillips, Baird, & Fogg, 2011). Facebook has begun to see use in educational institutes where instructors are taking advantage of the plethora of tools offered through the free social networking site (Salaway, Caruso, & Nelson 2008). Facebook offers a variety of tools that may be useful for educators and students such as personalized groups where students and instructors can post images and videos, comment and make posts, create documents, make events, and create quizzes (Facebook for Educators, 2011). Facebook also allows users to configure their own privacy settings, news feeds, and filters (Phillips et al., 2011). Facebook also provides continuous updates and notifications to users through the Facebook Website and applications on mobile devices such as cell phones and tablets (Phillips et al., 2011).

Edmodo is another social networking website that was designed primarily for educational use. The site allows instructors to create classrooms where students and instructors can create blogs and post discussions, images, videos, and presentations. The website also offers instructors a gradebook and place to post assignments and digital content for the class (Zwang, 2010).
Edmodo also offers a mobile application, but does not have the notification capabilities of Facebook (Zwang, 2010).

**Summary**

Traditional education styles and lack of engagement of students may benefit from the integration of games into the class curriculum. Digital games have proven to be a beneficial source of engagement as well as provide pedagogical outcomes for today’s learners. Players of games are also creating content outside of the game’s virtual worlds and creating this game layer that exists within the real world. Chatfield (2010b) provides a framework as to what characteristics of games make them so motivating and effective. Schell (2010) and Priebatsch (2010) have both proposed that this game layer is already being created, and it has been seen in the use of alternate reality games (McGonigal, 2011). Indiana University, Cape Fear Middle School, and Sufferon Middle School have already experimented with integrating game elements into the course structure (Tay, 2010; Roscoria, 2010). Quest to Learn has become the first school to fully integrate gaming concepts into the entire school design (Corbett, 2010).
Chapter III: Methodology

Traditional learning styles are still being used in many educational environments and students are no longer as engaged in the classroom. Instructional designers believe that video games could be a possible solution to create more engagement for today's learners who have grown up in a world full of technology (Prensky, 2001a; Gee, 2004). Several educators have already begun integrating video games into the course curriculum with some success (Roscoria, 2010; Tay, 2010).

The VCT2820 course teaches the basic concepts of the digital photography as well as knowledge of postproduction of images. Coursework involves weekly photography shooting assignments as well as class critique and discussion of images taken by students in the class. Instructors of VCT2820 had expressed difficulty in motivating students to participate in class critiques and discussions. This chapter will describe the research design, data collection, expert panel, and timeline in creating a gaming model that can be applied to the VCT2820 course.

Purpose

The problem of the study was to identify and analyze gaming characteristics to determine how certain game characteristics could be effectively incorporated into an introductory digital photography course curriculum to create more motivation in class critiques and discussion.

The objectives of this study were to

1.) Identify elements of games that are most engaging and motivational to students.
2.) Create a model using gaming elements that could be effectively applied to an introductory photography course.

Research Design

This study was conducted using educational research and development design to produce
a model that could be applied to a course structure. An expert panel provided recommendations and feedback through two review stages of the proposed model.

The model was developed using framework based on Chatfield’s 2010 TED Talk “7 Ways Games Reward the Brain,” as well as supporting ideas from Prensky, Gee, Schell, Priebatsch, and McGonigal. Chatfield’s TED Talk describes seven video game characteristics that reward the brain and make video games compelling to players. The model design used six of Chatfield’s seven elements of games and determined how they could be applied in an educational setting.

1. *Experience bars measuring progress.* Experience bars are used as a visual stimulant for players to see their progress.
   - Show experience points or points earned by completing objectives.
   - Can be used to advance to new levels and harder tasks.
   - Representation of how much experience a player has already earned or needs to earn in order to reach a specific goal.
   - Measure progress of game or task.
   - Used to compare progress with other players.

2. *Multiple long- and short-term goals.* Providing several goals, long- and short-term, to allow for continuous play and flexibility.
   - Ability to chose which goals to attain and when.
   - Goals rage from simplistic to elaborate.
   - Complete several tasks at one time.
   - Accommodate unique playing style and level of difficulty for each person.
   - Overall more personalized experience.
3. **Reward for effort.** Credit is rewarded for each positive action.
   - Uses positive re-enforcement.
   - Less fear of being punished for failure.
   - Provide incentive to continue.

4. **Rapid, frequent, clear feedback.** Constantly provide feedback based on all actions.
   - Understand outcomes of each action.
   - Learn from constant feedback.
   - Ability to explore and problem-solve.

5. **Element of uncertainty.** Unexpected rewards or outcomes.
   - Provide motivation to continue and explore.
   - Create interest and wonder.

6. **Other people.** People are motivated by other people.
   - Bring people together.
   - Work and collaborate with others.
   - Build trust and relationships.
   - Gain motivation from others.

These six characteristics were applied to an existing course curriculum for an introductory digital photography course, VCT2820, available at the Bowling Green State University (BGSU). The researcher created a model that could be applied to the current course curriculum that would help foster motivation in students to become more involved in the class critiques and discussion. The model uses Chatfield's characteristics as well as online learning tools to create a more interactive environment. No new or existing video games or virtual worlds were used in the creation of the model, but only the game elements. The model alters the current
course curriculum by making changes in the course schedule, adding and modifying assignments, introducing teams and experience points, and providing an online collaborative environment.

Data Collection

The research included an alpha and beta review process. Each member of the expert panel was presented with the instructional design model developed by the researcher. Through e-mail, the participants were sent a copy of the course syllabus (Appendix A), a PDF of the alpha model (Appendix B), and an alpha questionnaire regarding the model (Appendix C). All panel members provided an assessment of the alpha model and gave feedback with the alpha questionnaire. The researcher used the panel feedback from the alpha review to make revisions to the beta model (Appendix D). The beta model was then sent to each panel member in addition to a beta questionnaire (Appendix E) with which panel members could provide any further feedback. Recommendations from the expert panel in accordance to the beta review were taken into consideration during the development of the final model (Appendix F).

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Expert Panel

An expert panel of five members was convened to review the instructional design model and provide the researcher with feedback. These members were selected based on their experience and knowledge in relation to the subject of study. All panel members have acquired Master’s Degrees in fields of instructional design, higher education, and education psychology and one member was a doctoral candidate during the time of the study. The expert panel members are knowledgeable in the fields of game theory, educational design, photography, and educational psychology. Collectively, the expert panel members have experience in online and blended learning, higher education instruction, and digital photography.

Timeline

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| January | Confirm members of expert panel  
Alpha model development |
| February | Present alpha model to expert panel for review  
Document panel feedback |
| March | Revise model  
Present revised model to expert panel for beta review |
| April | Document panel feedback  
Make any necessary final revisions to model |
| May | Complete chapters 4 and 5  
Submit thesis to committee |
| June | Final thesis defense  
Submit error free thesis to ETD |
Chapter IV: Findings

This chapter presents the findings of the alpha and beta review phases. As stated in the previous chapter, expert panel members were instructed to review the VCT2820 course syllabus (Appendix A), alpha and beta models (Appendix B, Appendix D), and answer questions on the alpha and beta questionnaires (Appendix C, Appendix E). The questionnaire answers are outlined for the alpha and beta reviews respectively.

Alpha Review

Members of the expert panel received the VCT course syllabus, alpha model, and alpha questionnaire during the first round of review. The responses from the alpha review, listed below, were then used to develop the beta model and questionnaire.

1. Upon review of the course model, do you see any modification(s) that may have negative outcomes for students or instructors?

   Several panel members expressed concern with the use of Facebook as an online environment used for course critiques. “FERPA [Family Educational Rights and Privacy Act] laws and forcing students into signing up for accounts that BGSU does not control. Currently, you can not force a student to sign up for an account that gives out personal information outside of BGSU.” Suggestions were made to provide an alternate solution of an online environment that was owned by Bowling Green State University. In addition to FERPA laws, Facebook was also a concern because of its privacy settings. One member of the panel felt that discussing Facebook's privacy settings would be necessary before implementing Facebook into the course. Lastly, one member was concerned that using an online environment will cause a loss of face-to-face interaction.
Another major concern was in regard to students earning experience points (XP) that would count as a grade in the course. Students who take points and grades very seriously may not approve of the experience point system, especially if they are not interested in the gaming elements in the classroom. This may cause issues for the instructor and create a negative impact rather than positive.

Finally, additions of gaming elements would add more work for the course instructor and the course schedule would allow students more time to complete assignments, but is also more meticulous and may be confusing for students.

2. Do you feel that the proposed modifications successfully create a more game-like environment and have potential to motivate students?

The overall consensus was that the model did create a game-like environment, especially through the use of experience points and the online Facebook critiques. One panel member felt that more game elements could be used, such as achievements, to add for more engagement and competition.

3. What modification(s) do you feel will prove to be the most beneficial to students or instructors?

Several panel members felt that allowing students more time to complete each photographic assignment would be more beneficial to the students. They also felt that the progress bars would help students visualize their progress and add some motivation for students to push themselves. “It serves both as a ‘game’ element, but also as a potentially useful self-evaluation and self-regulation tool for students. I also think it might motivate some students to push themselves harder than they would if they were just trying to satisfy minimum requirements
on an objective rubric.” However, the creation of the progress bars may be cumbersome for the instructor.

Overall, the panel liked the Facebook critiques and that it could create a more engaging atmosphere especially because of the accessibility of Facebook. Students would receive continuous notifications via the web or mobile devices, which would keep them constantly engaged and could receive peer feedback instantaneously.

4. **Facebook and charts are used for this model, however, do you feel that there may be other applications that could be used or implemented for this model?**

Other photo-blogging tools such as FlickR could be used for an online environment where students could share, critique, and comment on each other’s images. Likewise, other tools such as Twitter or Foursquare could be used to add photo updates and geo-tagging to the students’ images. Nonetheless, many panel members felt that Facebook was still a good solution as it allowed for groups, events, and more constant notifications.

However, the key advantage of Facebook seems to be that it’s likely that almost every student would already be using it, so instructors that wanted to focus just on teaching photography (but not technology) could do so. Additionally, now that items posted to groups of which a user is a member now appear in their news feeds, it seems likely that students would interact online more often related to the class (at least the ones who are already in the habit of checking Facebook on a daily basis), simply because they wouldn’t have to be conditioned to go to an online destination that they’re not already visiting regularly.

5. **Do you have any further suggestions on how Chatfield’s outlined game characteristics may be integrated into the course model?**
One person felt that all of Chatfield's characteristics were integrated, but felt that long and short-term goals for students were underrepresented. A suggestion was made to create alternate options for the final exam that students may choose.

Another suggestion was to have students participate in weekly photo contests in addition to the leader-boards. For each contest, students could be given a particular object to fill. Such contests could be done at http://www.photofriday.com, http://www.dpchallenge.com or http://www.dailyawards.com.

Lastly, it was suggested to integrate game elements into the photography assignments rather than only the class. A recommendation was made to add other challenges for students, such as create a portrait gallery or geo-tagged photos. Another suggestion was to integrate a voting system where students could vote on images that use the best photographic techniques or creativity to add randomness and incentives for students.

6. Do you have any general comments or suggestions for the proposed model?

There was a general concern with the experience point graphs that showed students' grades throughout the semester. It was stated that the graph would provide a nice visual for students, but distribution of grades cannot be sent through e-mail. Solutions to this included using Blackboard, the Learning Management System used at BGSU, to display grades in a more visual way, or creating a Microsoft Excel template the instructor could use and print out. Another panel member felt that the visual graphs should be displayed more often to students in order for it to be most effective. This person suggested creating a bar that would start at zero points and grow as the students completed each assignment or create a “health bar” where students would start at 100% health and lose health as they miss points on assignments.
Concern was again stated that if the class schedule had too many assignments at once, it may be confusing and overwhelming for students. One person proposed having the weekly assignments, but also including mini-assignments that could be completed throughout the semester. Also, experience points could be used to “unlock” new, more challenging assignments for students. Perhaps, allowing students with a high amount of experience points to create their own assignment. Another suggestion was to add a multiplayer element to the course. This could add more competition and motivation for students to thrive in the class and challenge themselves with the assignments.

Furthermore, an evaluation application should be considered when implementing this model to an actual course. This would allow instructors to monitor the progress and find whether the gaming elements were truly helping students participate more in critiques and discussions as well as improved photographic work created by the students. This could also determine which tools and techniques students liked or disliked so that they could be altered for future application. There were suggestions for creating a community of current photography students, alumni, and professionals who could interact instead of using the private Facebook group which encompassed only the current photography students. Also, that the double points should contain more of a risk in order to truly motivate students to thrive and compete. Finally, a question arose on what options would be available for students with disabilities who are enrolled in the course.

**Beta Review**

Recommendations from the alpha review were taken into consideration for development of the beta model. The beta model contained an altered course schedule to still allow fluidity in assignments, but to be less confusing for students. Experience points were separated from graded points and experience points are used to earn incentives rather than a grade. The class will divide
into teams and compete between one another to earn experience points for rewards. New bonus assignments and alternate final projects were added to create new incentives for students and act as rewards for earning experience points. Finally, BGSU Blogs became an alternative to Facebook for the online critiques if any students chose not to use Facebook.

Expert panel members received a beta model in addition to a beta questionnaire for the second part of the expert panel review. Outlined below are the questions and responses from the beta questionnaire in regards to the beta model.

1. Upon review of the course model, do you see any modification(s) that may have negative outcomes for students or instructors?

There is still concern about the increased workload for the instructor, as they will have to tabulate experience points for each student each week. Facebook serves well as the critiquing environment, however, it does not have any automated tools or plug-ins that may be used to tabulate comments or points. Not only is there increased work for instructors, but the students will not receive instant feedback on how many experience points they have earned until the instructor tallies the points each week. Also, submission was made to further explain the rubric of the critique discussions and awarding of experience points, so that it is clear to students.

In relation to separating the class into teams, there is concern that one team may be overwhelmingly stronger than the other team, thus allowing the weaker team to become unmotivated about critiques and earning experience points. A suggestion is to create several smaller teams to compete for experience points and the ability to chose an alternate final project. One person did bring up the issue that students on the losing team may become upset about not having the ability to choose an alternate final project, especially if students on the losing team have put in much effort in the course and feel they are being punished because of other students’
lack of involvement. Students may begin to see the course as being unfair because of the integration of the gaming elements. They recommended that the winning team be able to trade in their experience points for perks such as the chance to re-do an assignment or earn bonus points. Finally, a suggestion was made to use the teams not only for critiques, but have them do a couple of assignments together as well.

2. *Do you feel that the proposed modifications still capture Chatfield’s gaming characteristics, yet remain appropriate for classroom use?*

   All respondents felt that the beta model better encompassed Chatfield's elements compared to the alpha model. The use of experience points will be new to students, but will provide them with the element of uncertainty, give them a reward for their efforts, and creates a competitive environment. The course assignments and schedule do allow students to pursue both long- and short-term goals and the online critiques give students frequent feedback.

3. *What modification(s) do you feel will prove to be the most beneficial to students or instructors? Least beneficial?*

   The instructor workload was still a concern to the panel members, though the inclusion of experience points, the uncertainty of the double experience point week, and addition of leader-boards were all still strong points of the model. One person felt that using BGSU Blogs as a Facebook alternative would help the instructor if they have students who are not willing to use Facebook.

   The supplemental bonus assignments will allow students to practice their photographic skills as well as have more long- and short-term goals as explained in Chatfield's TED Talk. It was felt that the option of students being able to choose alternate final projects would create a more enjoyable experience for students. “This will allow students to be creative with their final
project and be excited to complete it, something that always isn’t the case in an intro level course.”

4. Do you feel that the changes made from the alpha to beta review are an improvement? Are there any changes you feel are not an improvement?

Overall, the panel felt that the changes from the alpha review to the beta review were all improvements. Some felt that the “other people” element in Chatfield's framework was weaker in the alpha model, but much more clear and stronger in the beta model. All of Chatfield's elements are apparent in the beta model, but the model should still be open for any improvements for each course where this model may be applied.

5. Do you have any general comments or suggestions for the proposed model?

A proposal was made to have students gain experience points as a group for competition as well as to allow them to use individual experience points to earn additional rewards. Also, there is a suggestion to not focus only on a class group, but to create a photography community where past graduates and professionals can contribute as well.

Suggestions were made about the BGSU Blogs as an alternate to Facebook. If students chose to use the BGSU Blogs, they should be informed of privacy settings and notification settings to ensure that the students can keep their post private for only classmates if they choose. Additionally, the instructor may contact the BGSU Blog administrator to add a blog template, which may be used to implement such things as photo portfolios. Finally, if Facebook is used for the course as the critique environment, it was recommended to use Facebook events to post class assignments and projects.
Final Model

The researcher used recommendations made by the expert panel from the beta review to create a final model that may be applied to the VCT2820 course. The researcher made some alterations of the experience points, allowing students to use individual XP that they have earned to trade in for perks, such as the chance to re-do an assignment, drop a quiz grade, do an alternate final project, or earn bonus points. Teams would no longer be randomly selected, but separated under the discretion of the instructor to ensure that teams contain students of equal skill sets and that teams are closely matched. The online critique rubric and progress charts were further explained with examples of how they may be used. Finally, the researcher added an evaluation element that should be applied in each class where the model is used.
Chapter V: Summary, Conclusion, & Recommendations

This chapter provides a summary, how the objectives were achieved, and conclusion of the study. The researcher also provides recommendations for further research and development in regards to this study and the proposed gaming models created for application to the VCT 2820 introductory photography course.

Summary

The problem of the study was to identify and analyze gaming characteristics to determine how certain game characteristics could be effectively incorporated into a introductory digital photography course curriculum to create more motivation in class critiques and discussion. The researcher developed a model that contained gaming elements that could be applied to the introductory digital photography course. This model was developed from the researcher's knowledge of current literature and with recommendations from members of an expert panel with background in game theory, educational design, photography, and educational psychology.

Current literature showed that educators are facing a challenge of teaching today's learners as this new generation of learners have grown up in a more digital world and find more engagement outside of the classroom (Prensky, 2005; Gee, 2004). One solution is to bring the engagement that learners find in other objects, such as video games, to the classroom (Prensky, 2001a).

Popular social games such as World of Warcraft and FarmVille have exhibited impressive number of players and have even had players create content such as wikis, blogs, and videos outside of the games (Inside Network, 2010; Glenday, 2009; Dybwad, 2008). Alternate reality games, or games that do not exist in a virtual world, have also begun to build momentum in the gaming world. A popular alternate reality game, ILoveBees, was created to help promote
the Microsoft game, Halo 2 (Kim et al., 2008). Tom Chatfield (2010b), gave a TED Talk about seven ways video games reward the brain. This TED Talk outlined seven elements that games possess and how they promote engagement in players. Each of the elements described could be found in popular games including World of Warcraft, FarmVille, and I Love Bees.

**Objective 1.** Identify elements of games that are most engaging and motivational to students.

Tom Chatfield's (2010b) TED Talk provided the framework for the gaming model that would be applied to the introductory photography course. His TED Talk contained seven ways video games rewarded the brain; however, the researcher utilized only six of the seven elements, as one of the elements, windows of enhanced attention, related to testing of dopamine levels in the brain and was not considered relevant to the model design. The following six elements were used as the basis for model development: experience bars measuring progress, multiple long- and short-term goals, reward for effort, rapid and clear feedback, element of uncertainty, and other people. All six of the elements are found in many of today's most collaborative games, including World of Warcraft and FarmVille. The researcher felt that these six elements best identified the elements that created user engagement in games and could create engagement for students.

2.) Create a model using gaming elements that could be effectively applied to an introductory photography course.

By identifying the most engaging elements of games, a model could then be created which utilized these gaming elements. An introductory digital photography course was selected as the course to use the developed model because of the lack of student participation in class critiques and discussions. The researcher used Chatfield's six elements as well as research of current learning tools to create an alpha model that could be applied to the course structure to create a gaming environment. This model included an integration of experience points, bonus
assignments, and updated course calendar, and online critique environment housed on Facebook. An expert panel reviewed this alpha model and their recommendations were considered for the development of the beta model.

The beta model included changes such as introducing alternate final projects, dividing the class into teams to compete with experience points to earn an additional incentive, changes to the course calendar, and suggesting BGSU Blogs as an alternative to Facebook as an online photo critique environment. An expert panel reviewed the beta model and provided the researcher with recommendations to be created for the final model.

The final model was developed to encompass all six of Chatfield's elements, as well as have the ability to be applied to the introductory photography course. Adjustments to the final model included students using personal experience points for incentives, more defined critique rubric and recommendation for progress chart development, and implementation of an evaluation tool.

**Conclusion**

The use of video games in education to create student engagement has long been a popular topic and has been done in many circumstances (Tay 2010; Roscoria, 2010). However, one school, Quest to Learn, has been the leader in transforming the course curriculum into a game rather than using games in the course (Corbett, 2010). The model developed in this study was based on Chatfield's gaming characteristics and the ideas of Quest to Learn's gaming curriculum.

Many tools and applications are available to assist instructors in creating personalized and engaging learning environments, but much work is still required to develop and implement engaging elements into a course curriculum. With educational tools and the world of gaming
rapidly changing as technology become available, the integration of such a model may become less cumbersome and more common among educational environments. New forms of gaming have emerged, such as alternate reality games, which may create new views on gaming and help close the divide between games and education.

**Recommendations**

The researcher believes that as technology shifts and more learning tools and gaming applications become available, the following recommendations may be used to further develop the idea and design of this study.

1. Application and evaluation of the proposed model used in the VCT2820 – Introductory to Digital Photography course.

2. Use alternative tools in place of Facebook, BGSU Blogs, and Excel in this model as new technical tools become available.

3. Creation of an online course environment which contains tools that would contain the social network, notifications, groups, events, and ability to upload and comment of photo such as Facebook, but also include automated tools for instructors to track and chart experience points, create leaderboards, show achievements, and provide students with instant feedback.

4. Incorporation of alternate reality game characteristics into the course model to develop further interactive characteristics.
References


Appendix A: VCT2820 Course Syllabus

Photography I VCT 2820

General Information - 3 Credits
Instructor: 
E-mail: 
Phone: 
Office Hours:

Course Description
Basic photographic techniques: camera, lighting, exposure and composition. Experiences with camera operation and working with digital images. Four hours of lecture/lab

Course Objective
Upon completion of VCT 2820, students will be able to manipulate the tools and materials necessary to consistently produce quality photographs. They will have an understanding of the photographic processes that will enable them to communicate visually. Students will distinguish what is to be communicated and how that information or attitude is to be communicated to their audience using the medium of photography.

Areas of concentration:
- The use of aperture and shutter speeds and the effects that these controls have on the outcome of the final photographic image.
- Proper light metering techniques and an understanding of metering systems and exposure systems.
- ISO speeds, characteristics and their advantages and disadvantages.
- Output of the final print using basic Photoshop techniques, manipulating and correcting tools.
- Rules of composition and photographic elements and design
- Communication through the visual medium of photography

At the completion of the course students will have a basic understanding of the SLR camera and be able to produce a credible portfolio of work that can become part of his/her professional portfolio.

Required Text:
• "Picture Yourself Getting the Most Out of Your Digital SLR Camera" by James Karney and Terrance Karney

Course Material:
Digital camera with manual control of apertures and shutter speeds (must have for the first assignment). Strongly recommend a Digital SLR.
Color film Processed and put on a photo CD
Flash drive

Optional but recommended
Tripod - Can be checked out at the Tech store.

Participation

Attendance is mandatory. Much of the material presented in lecture and lab demonstrations is not covered in the textbook. Therefore, you must attend every class to obtain all pertinent information that will be covered on the semester exams and the final exam. You must notify the program services office (and/or instructor) in advance with written documentation of any University excused absences. If you have 3 unexcused absences, your grade will drop one letter grade. Lateness to class/early departure from class: consequence is up to the discretion of the instructor.

Evaluation and Grading

Because photography is both a technical and subjective discipline, grading will be based both on the images’ technical qualities, and on the communication quality, composition, light, and other subjective factors. It is very important that you pay close attention to the requirements of the assignment because different assignments emphasize different areas of knowledge, skill and technique. All images taken for this class must be taken during this class. Assignments are due, as scheduled, any late assignments will not be accepted and a “0” will be given. Anyone missing exam will receive a “0”. Make-up exams are given in only two cases: Medical emergency or an official University conflict. Documentation is expected in both instances. The instructor must be notified prior to the exam about such occurrences. No assignments will be accepted by email or the digital dropbox, without permission of the instructor.

University Closure

In most cases, the University will not close for winter conditions unless the Wood County Sheriff’s Department declares a Level 3 emergency. Information about University wide closures is communicated by the Office of Marketing and Communications, which will notify the University Fact Line, local FM & AM radio stations and the four Toledo television stations (see Weather Policy: http://www.bgsu.edu/downloads/execvp/file8135.pdf for lists). For changes in individual class meetings, please refer to the class Blackboard site for postings by the instructor.

Verification of Medical Illness Policy

Copies of this procedure may be given to the student upon request. In no way does a copy of this procedure exempt the student from class without approval from the professor. This procedure has been reviewed and approved by the Health Service Advisory Committee (a Faculty Senate standing committee), the Student Affairs Advisory Board (a Faculty Senate standing committee), and Dr. Edward Whipple, Vice President for Student Affairs. July 2005
A Handbook of Commonly Shared Employment Policies for BGSU Faculty, Administrative and Classified Staff, “Severe Weather Closing Policy and Procedures,”

Summary of Grading
Looking Assignment 20pts
Exposure Demo 30pts
Photographic Assignments 210pts - (30pts each)
Midterm Exam 100pts
Final Exam 100pts
Final Project 100pts
Quizzes (POSSIBLY 4, UNANOUNCED) 25pts each (LOWEST GRADE WILL BE DROPPED)

92%-100% A
82%-91% B
72%-81% C
65%-71% D
64%-0% F

Academic Honesty
This course is conductive in accordance with the Internet and Equipment Policy, Code of Student Conduct and the Code of Academic Conduct of Bowling Green State University. Copies of these codes and policies are located in the BGSU Student Handbook.

Students with Disabilities
In accordance with the University policy, if the student has a documented disability and requires accommodations to obtain equal access in this course, he or she should contact the instructor at the beginning of the semester and make this need known. Students with disabilities must verify their eligibility through the Office of Disability Services for Students, 413 South Hall, 419-372-8495. (http://www.bgsu.edu/offices/sa/disability/)

Syllabus is subject to change.
Appendix B: Alpha Model

CONTEXT

The increase of new technology and a new generation of students have made it more difficult for educators to captivate students in higher education. One solution to reach out to these students is through the use of video games. Video games have characteristics that are captivating to players and can provide motivation for students. Tom Chatfield, a game theorist who was featured in the TED Talk, 7 Ways Video Games Reward the Brain, outlines seven characteristics in how games can affect the player’s reaction and motivation. Six of Chatfield’s outlined characteristics will be used as a framework for the proposed model and are listed below.

1. Experience bars measuring progress. Experience bars are used as a visual stimulant for players to see their progress.
   - Show experience points or points earned by completing objectives.
   - Can be used to advance to new levels and harder tasks.
   - Representation of how much experience a player has already earned or needs to earn in order to reach a specific goal.
   - Measure progress of game or task.
   - Used to compare progress with other players.

2. Multiple long and short term goals. Providing several goals, long and short term, to allow for continuous play and flexibility.
   - Ability to chose which goals to attain and when.
   - Goals rage from simplistic to elaborate.
   - Complete several tasks at one time.
   - Accommodate unique playing style and level of difficulty for each person.
   - Overall more personalized experience.

3. Reward for effort. Credit is rewarded for each positive action.
   - Uses positive re-enforcement.
   - Less fear of being punished for failure.
   - Provide incentive to continue.

4. Rapid, frequent, clear feedback. Constantly provide feedback based on all actions.
   - Understand outcomes of each action.
   - Learn from constant feedback.
   - Ability to explore and problem-solve.

5. Element of uncertainty. Unexpected rewards or outcomes.
• Provide motivation to continue and explore.
• Create interest and wonder.

6. Other People. *People are motivated by other people.*
• Bring people together.
• Work and collaborate with others.
• Build trust and relationships.
• Gain motivation from others.

The researcher will be applying the six game characteristics to the Intro to Digital Photography course (VCT 2820) at Bowling Green State University. She will do this by making adjustments to the course and proposing additional tools and activities that may be used throughout the course. One of the weaknesses of the course is student participation in peer critiques. For many students, this is their first course where they must participate in critique sessions and are often disengaged in the conversation. The researcher’s goal is to not only make the course more captivating, but to encourage more engagement from students.

**EXPERT PANEL**

Expert panel members were chosen based on their knowledge and background in education and gaming. The expert panel will be asked to review the researcher’s model and provide feedback for an Alpha review. The researcher will take the recommendations of panel members and make changes to the course model. The expert panel will then do a Beta review and the researcher will use the panel’s recommendations to complete a final model. As a panel member, please review the original course syllabus and the researcher’s development process for the model. A questionnaire about the model can be found in the attached e-mail folder.

**DEVELOPMENT**

The researcher has considered the six Chatfield characteristics and has developed ways to integrate each of these characteristics into the introductory photography course. Outlined in this model are several ways the course could be altered to encompass all six of the gaming characteristics.

**Alteration of Assignments and Course Calendar**

**VCT2820 Assignments:**
World’s Greatest Photographers – Introductory assignment on famous photographs/photographers.
Exposure Demo – Interactive demo on how shutter and aperture works on a DSLR camera.
7 Photographic Assignments – Weekly assignments to show basic technical aspects of photography.
1. Self-Image
2. Environmental Portrait
3. Texture
4. Motion
5. Advertising
6. Movie Title
7. Bonus Assignment – incorporates and element of uncertainty

Final Project – Photo Essay – Consists of 8-10 images that tell a story of an event, person, or object.

New Assignments:
Weekly Photo Critiques – Each user must critique images of three other classmates. Must show knowledge of photographic techniques, technical camera usage, post-production work, and be able to provide any outside suggestions.

Course Schedule
With the current course schedule, photographic assignments are given only one week prior to their due date. To create a more flexible environment and allow for students to have several goals to work on at a time, the researchers suggest introducing shooting assignments earlier. Not only will this provide students with multiple goals but also allow them more time to plan their shots for each assignment.
### Original Schedule

<table>
<thead>
<tr>
<th>Week 1</th>
<th>Week 2</th>
<th>Week 3</th>
<th>Week 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Syllabus</td>
<td>Watch National Geographic Movie</td>
<td>Present World's Greatest Photographs</td>
<td>Camera Demo Due</td>
</tr>
<tr>
<td>Introductions</td>
<td>Assign World's Greatest Photographs</td>
<td>Assign Interactive Camera Demo</td>
<td>Photoshop Demo</td>
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<td></td>
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<td></td>
<td>Assign Photographic Shot 1</td>
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<tr>
<td>Week 5</td>
<td>Week 6</td>
<td>Week 7</td>
<td>Week 8</td>
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<tr>
<td>Photographic Shot 1</td>
<td>Photographic Shot 2</td>
<td>Photographic Shot 3</td>
<td>Midterm Review</td>
</tr>
<tr>
<td>Due</td>
<td>Due</td>
<td>Due</td>
<td>Watch Video</td>
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<tr>
<td>Assign Photographic</td>
<td>Discuss Shot 1</td>
<td>Discuss Shot 2</td>
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<tr>
<td>Shot 2</td>
<td>Assign Photographic Shot 3</td>
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<tr>
<td>Week 9</td>
<td>Week 10</td>
<td>Week 11</td>
<td>Week 12</td>
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<tr>
<td>Photographic Shot 4</td>
<td>Photographic Shot 5</td>
<td>Photographic Shot 6</td>
<td>Photographic Shot 7</td>
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<td>Due</td>
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<tr>
<td>Discuss Shot 3</td>
<td>Discuss Shot 4</td>
<td>Discuss Shot 5</td>
<td>Discuss Shot 6</td>
</tr>
<tr>
<td>Assign Photographic</td>
<td>Assign Photographic Shot 6</td>
<td>Assign Photographic Shot 7</td>
<td>Assign Final Project</td>
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<tr>
<td>Shot 5</td>
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<td>Photo Essay</td>
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<tr>
<td>Week 13</td>
<td>Week 14</td>
<td>Week 15</td>
<td>Week 16</td>
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<tr>
<td>Discuss Shot 7</td>
<td>Work on Photo Essays</td>
<td>Photo Essays Due</td>
<td>Finals Week</td>
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<tr>
<td>Work on Photo Essays</td>
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</tbody>
</table>
Integration of Online Critiques

In this class, the instructor will normally conduct an in class critique session each week to look over and discuss the past week’s assignment. However, all critiques are done only in class and many times students are reluctant to participate. One solution to help students become more comfortable with critiquing work of their classmates is to have them critique in an online environment. After much research with applications such as Edmodo, CritiqueIT, and PhotoSig, the researcher selected Facebook as the online environment where class critiques can be held.

The researcher chose Facebook for several reasons.
• Facebook as an education environment.
Facebook allows for the creation of private groups that can be monitored by the instructor. Within the group, instructors can edit permissions and security settings and invite students into the class group. Groups also allow for the sharing of many elements.

1. Posts – Posts could be made as course reminders to students.
2. Links – Instructors and students could share link related to the course such as links to images or tutorials.
3. Photos – This is how students can share each of their photos online to be critiqued.
4. Video – Videos can be uploaded that may contain Photoshop tutorials, camera demos, etc.
5. Events – An instructor can create events to remind students of assignments, tests, or even events on campus.
6. Documents – Documents could be uploaded that contain assignment information or additional course information.

- Facebook usage and notifications.

Facebook began as a social network for higher education, but has grown to over 500 million active users. Many students already have Facebook accounts and these accounts are linked with an actual name rather than with a username. This makes it easier for students who are
reluctant to sign-up or register on a new Website.

The researcher wants to incorporate Chatfield’s characteristic of rapid, frequent, and clear feedback. With Facebook, users will instantly receive notifications for any group activity. Users receive these notifications on their Facebook pages and even through e-mail and mobile devices. Unlike other Websites, such as Edmodo or PhotoSig, students may not see feedback until they log into that particular Website.

- **Facebook for photo critiquing.**

  Within the Facebook group, students are able to upload images to the group page to be critiqued. Other users in the group can then add comments or their critique of the image. Users can also “like” the image if it’s an image that stands out to them.
The instructor can then browse the images and see which students have participated in the critique for that week and which ones have not. Students will be graded on their quality of critique and will be awarded points for their effort. The rubric for points awarded is shown below.

**Rubric:**
1 Point – Make one comment including the technical, formal, or process of shot.
2 Points – Make two comments including the technical, formal, or process of shot.
3 Points – Make three comments about the technical, formal, or process of shot.
4 Points – Make four comments about the technical, formal, process of shot as well as outside suggestion.
Examples:
1 Point - I like the angle in which you shot this image.

2 Points - You did very well using the rule of thirds and your white balance looks good and your colors look very natural.

3 Points - This is a great subject to use a close-up shot. Your levels are done well to create good contrast. However, I dislike the color cast and tone that is on this image.

4 Points - The vast depth of field used to show more of the subject really works for this image. I like how you experimented with different lighting, but I would like to have seen this image with a bit softer light. I feel that it may have softened your subject more and create the mood that I feel you were trying to achieve. Your image tones look slightly off and I would suggest using a custom white balance for this situation.

Midterm Grade Reports
Currently, students can view their grades online through the use of BGSU Blackboard academic site. However, Blackboard shows only a spreadsheet of grades and does not allow for any visual representation of grades and progress. In order to provide the experience bars, which measure progress, midterm grades can be placed into a graph that will create this visual representation. The instructor can generate a graph for each student and ensure that this information is seen only by the instructor and that particular student to ensure confidentiality. A visual representation will hopefully provide the student with a better idea of how well they are doing in the course and where their strengths and weaknesses in the class may be.
**Other Additions**

- **Leader-board**

  A leader-board would be incorporated into the course to display example images from each assignment. These images could be displayed on the Facebook critique site, in class, or in the building where the class meets. Images would not only showcase the best images, but also show images that represent good photographic techniques and even the most improved photographer. This can prevent more experienced photographers from continuously being on the leader-board and make it more fair for all students to have their work displayed.

  The use of a leader board is to motivate students to produce high quality images that will be shown to their peers. This falls under Chatfield’s characteristic of being motivated by other people. It will provide a light competitive element to the course, but in a safe atmosphere.
• **Double points week**

Inspired by other video games which award players with double experience points during certain time frames, tasks, or challenges, double points could provide students with an extra incentive and also create a level of uncertainty. Double points week would happen twice throughout the semester but only one of the weeks will be counted for actual credit. This is to ensure that students are not penalized for having a bad week, but have another chance to earn full points. These double points will only be applied to the weekly Facebook critique to make sure students keep on top of the critiques and to reward them for their constant efforts.
Appendix C: Alpha Questionnaire

QUESTIONNAIRE
1. Upon review of the course model, do you see any modification(s) that may have negative outcomes for students or instructors?

2. Do you feel that the proposed modifications successfully create a more game-like environment and have potential to motivate students?

3. What modification(s) do you feel will prove to be the most beneficial to students or instructors?

4. Facebook and charts are used for this model, however, do you feel that there may be other applications that could be used or implemented for this model?

5. Do you have any further suggestions on how Chatfield's outlined game characteristics may be integrated into the course model?

6. Do you have any general comments or suggestions for the proposed model?
Appendix D: Beta Model

CONTEXT

The increase of new technology and a new generation of students have made it more difficult for educators to captivate students in higher education. One solution to reach out to these students is through the use of video games. Video games have characteristics that are captivating to players and can provide motivation for students. Tom Chatfield, a game theorist who was featured in the TED Talk, 7 Ways Video Games Reward the Brain, outlines seven characteristics in how games can affect the player’s reaction and motivation. Six of Chatfield’s outlined characteristics will be used as a framework for the proposed model and are listed below.

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   • Measure progress of game or task.
   • Used to compare progress with other players.

2. Multiple long and short term goals. Providing several goals, long and short term, to allow for continuous play and flexibility.
   • Ability to chose which goals to attain and when.
   • Goals rage from simplistic to elaborate.
   • Complete several tasks at one time.
   • Accommodate unique playing style and level of difficulty for each person.
   • Overall more personalized experience.

3. Reward for effort. Credit is rewarded for each positive action.
   • Uses positive re-enforcement.
   • Less fear of being punished for failure.
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4. Rapid, frequent, clear feedback. Constantly provide feedback based on all actions.
   • Understand outcomes of each action.
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• Provide motivation to continue and explore.
• Create interest and wonder.

6. Other People. People are motivated by other people.
• Bring people together.
• Work and collaborate with others.
• Build trust and relationships.
• Gain motivation from others.

The researcher will be applying the six game characteristics to the Intro to Digital Photography course (VCT 2820) at the Bowling Green State University. She will do this by making adjustments to the course and proposing additional tools and activities that may be used throughout the course. One of the weaknesses of the course is student participation in peer critiques. For many students, this is their first course where they must participate in critique sessions and are often disengaged in the conversation. The researcher’s goal is to not only make the course more captivating, but to encourage more engagement from students.

EXPERT PANEL

Expert panel members were chosen based on their knowledge and background in education and gaming. The expert panel will be asked to review the researcher’s model and provide feedback for an Alpha review. The researcher will take the recommendations of panel members and make changes to the course model. The expert panel will then do a Beta review and the researcher will use the panel’s recommendations to complete a final model. As a panel member, please review the original course syllabus and the researcher’s development process for the model. A questionnaire about the model can be found in the attached e-mail folder.

DEVELOPMENT

The researcher has considered the six Chatfield characteristics and has developed ways to integrate each of these characteristics into the introductory photography course. Outlined in this document are several ways the course could be altered to encompass all six of these gaming characteristics. Instructor will have the ability to modify the following model in order to better meet the needs of the course, instructor, or any students.

Alteration of Assignments
Current VCT2820 Assignments:
World’s Greatest Photographers – Introductory assignment on famous photographers.
Exposure Demo – Interactive demo on how shutter and aperture work on DSLR cameras.
7 Photographic Assignments – Weekly assignments to show basic technical aspects of photography.
1. Self-Image
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7. Photo Contest – incorporates and element of uncertainty

Final Project – Photo Essay – Consists of 8-10 images that tell a story of an event, person, or object.

New Assignments:

Weekly Photo Critiques – Each user must critique images of three other classmates. Must show knowledge of photographic techniques, technical camera usage, post-production work, and be able to provide any outside suggestions. Though photo critiques will be done online, there will continue to be class discussion of images.

Bonus Assignment - Students will have the option to do extra credit work to earn up to 10 bonus points in the course. Bonus points can be earned by doing an additional shooting assignment, presenting a Photoshop or camera demo, or showcasing 3 Websites that are related to photography and new photographers.

Alternate Final Projects:

Photography Portfolio - Student must create an online portfolio which showcases their photographic works. This portfolio must consist of at least 6 additional images that were not shot previous to or during the course. Portfolio must look professional and images must be saved and edited for online display and use.

Reverse Engineer - This assignment requires students to reverse engineer 5-7 images. These can be famous images or images from their favorite photographer. Students should be able to mimic lighting, composition, environment, subject, and additional technical aspects of the image.

Stop Motion Video - This assignment will require students to create a short stop motion video consisting of original photographs. The video must be at least 20 seconds in duration and topic must be approved by instructor. Students may compile the video using available software in the photo lab.
Catalog - Students may design a catalogue for a product or service of their choosing. The catalogue will consist of 3 spreads and must contain at least 7-9 original images shot and edited to the correct specifications for print. Students will be responsible for design and content of their catalog.

Integration of Online Critiques

In this class, the instructor will normally conduct an in class critique session each week to look over and discuss the past week’s assignment. However, all critiques are done only in class and many times students are reluctant to participate. One solution to help students become more comfortable with critiquing work of their classmates is to have them critique in an online environment. After much research with applications such as Edmodo, CritiqueIT, and PhotoSig, the researcher selected Facebook as the online environment where class critiques can be held. The researcher chose Facebook for several reasons.

Facebook as an educational environment

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6. Documents – Documents could be uploaded that contain assignment information or additional course information.
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4 Points - *The vast depth of field used to show more of the subject really works for this image. I like how you experimented with different lighting, but I would like to have seen this image with a bit softer light. I feel that it may have softened your subject more and create the mood that I feel you were trying to achieve. Your image tones look slightly off and I would suggest using a custom white balance for this situation.*

**Alternate for Facebook**

If any students in the course refuse to join Facebook for the course critiques, BGSU Blogs may be used as an alternate Website where photo critiques can take place. BGSU Blogs will have limited features compared to Facebook; however, students will still have the ability to post photos, descriptions, and comments to complete the critique requirement.
Leaderboard

A leaderboard would be incorporated into the course to display example images from each assignment. These images could be displayed on the Facebook critique site, in class, or in the building where the class meets. Images would not only showcase the best images, but also show images that represent good photographic techniques and even the most improved photographer. This can prevent more experienced photographers from continuously being on the leaderboard and make it fairer for all students to have their work displayed.

Potential Leaderboard Categories:
Top 3 images of the week
Most original subject
Best use of color
Most unique composition
Most improved photographer
Best use of light

The use of a leaderboard is to motivate students to produce high quality images that will be shown to their peers. This falls under Chatfield’s characteristic of being motivated by other people. It will provide a light competitive element to the course, but in a safe atmosphere.

Addition of Experience Points (XP) and Teams
Experience points and teams will be integrated into the course to create a more dynamic gaming environment. The class will randomly be divided into two separate teams at the beginning of the semester. Students will earn experience points or XP for their team by doing tasks throughout the semester. XP can be earned by doing task such as participating in class discussions, getting their images on the leaderboard, and shooting over 50 images for each weekly assignment.* The team with the most XP by week 11 will then earn a special reward. Students in the winning team will have the ability to choose from a list of alternate final projects that they may do. (These alternate final projects are defined under Alteration of Assignments section). The losing team will be assigned the Photo Essay as their final project.

*Each weekly shooting assignment requires students to turn in one final image for grading. Students also hand in all images shot for the assignment in the form of a contact sheet. They are encouraged to shoot many images for each assignment in order to get comfortable with using the manual camera settings as well as experimenting with composition, subjects, and lighting.

The addition of XP and teams are used to promote cooperative and competitive play within the classroom. The integration of XP will not be used for grading nor will students be able to earn any additional course points that may affect their grades.

Double XP Week
Inspired by other video games which award players with double XP during certain time frames, tasks, or challenges, double XP could provide students with an extra incentive and also create a level of uncertainty. There will be two weeks during the semester that will be counted as double XP. Students will not be informed in advance of when double XP weeks will be in order to add an element of surprise.

XP Progress Report
In order to keep the competition of XP more engaging, a chart showing XP progress of
each team will be updated weekly. This provides a visual representation for students and lets them know how well their team is performing throughout the semester.

Course Schedule

With the current course schedule students have less time to plan for and work on their final projects. Additionally, students have only weekly assignments and do not have other outside assignments including a bonus project and integration of XP which go throughout the semester. The new schedule is still based on each week in order to make it easier for student to know when assignments are due, but the addition of other assignments creates more goals for students during the course.
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Appendix E: Beta Questionnaire

QUESTIONNAIRE

1. Upon review of the course model, do you see any modification(s) that may have negative outcomes for students or instructors?

2. Do you feel that the proposed modifications still capture Chatfield’s gaming characteristics, yet remain appropriate for classroom use.

3. What modification(s) do you feel will prove to be the most beneficial to students or instructors? Least beneficial?

4. Do you feel that the changes made from the alpha to beta review are an improvement? Are there any changes you feel are not an improvement?

5. Do you have any general comments or suggestions for the proposed model?
Appendix F: Final Model

CONTEXT
The increase of new technology and a new generation of students have made it more difficult for educators to captivate students in higher education. One solution to reach out to these students is through the use of video games. Video games have characteristics that are captivating to players and can provide motivation for students. Tom Chatfield, a game theorist who was featured in the TED Talk, 7 Ways Video Games Reward the Brain, outlines seven characteristics in how games can affect the player’s reaction and motivation. Six of Chatfield’s outlined characteristics will be used as a framework for the proposed model and are listed below.

1. Experience bars measuring progress. Experience bars are used as a visual stimulant for players to see their progress.
   - Show experience points or points earned by completing objectives.
   - Can be used to advance to new levels and harder tasks.
   - Representation of how much experience a player has already earned or needs to earn in order to reach a specific goal.
   - Measure progress of game or task.
   - Used to compare progress with other players.

2. Multiple long and short term goals. Providing several goals, long and short term, to allow for continuous play and flexibility.
   - Ability to chose which goals to attain and when.
   - Goals rage from simplistic to elaborate.
   - Complete several tasks at one time.
   - Accommodate unique playing style and level of difficulty for each person.
   - Overall more personalized experience.

3. Reward for effort. Credit is rewarded for each positive action.
   - Uses positive re-enforcement.
   - Less fear of being punished for failure.
   - Provide incentive to continue.

4. Rapid, frequent, clear feedback. Constantly provide feedback based on all actions.
   - Understand outcomes of each action.
   - Learn from constant feedback.
   - Ability to explore and problem-solve.

5. Element of uncertainty. Unexpected rewards or outcomes.
• Provide motivation to continue and explore.
• Create interest and wonder.

6. Other People. *People are motivated by other people.*
• Bring people together.
• Work and collaborate with others.
• Build trust and relationships.
• Gain motivation from others.

The researcher will be applying the six game characteristics to the Intro to Digital Photography course (VCT 2820) at the Bowling Green State University. She will do this by making adjustments to the course and proposing additional tools and activities that may be used throughout the course. One of the weaknesses of the course is student participation in peer critiques. For many students, this is their first course where they must participate in critique sessions and are often disengaged in the conversation. The researcher’s goal is to not only make the course more captivating, but to encourage more engagement from students.

EXPERT PANEL
Expert panel members were chosen based on their knowledge and background in education and gaming. The expert panel will be asked to review the researcher’s model and provide feedback for an Alpha review. The researcher will take the recommendations of panel members and make changes to the course model. The expert panel will then do a Beta review and the researcher will use the panel’s recommendations to complete a final model. As a panel member, please review the original course syllabus and the researcher’s development process for the model. A questionnaire about the model can be found in the attached e-mail folder.

DEVELOPMENT
The researcher has considered the six Chatfield characteristics and has developed ways to integrate each of these characteristics into the introductory photography course. Outlined in this document are several ways the course could be altered to encompass all six of these gaming characteristics. Instructor will have the ability to modify the following model in order to better meet the needs of the course, instructor, or any students.

*Alteration of Assignments*
Current VCT2820 Assignments:
World’s Greatest Photographers – Introductory assignment on famous photographs/photographers.

Exposure Demo – Interactive demo on how shutter and aperture work on DSLR cameras.
7 Photographic Assignments – Weekly assignments to show basic technical aspects of photography.
1. Self-Image
2. Environmental Portrait
3. Texture
4. Motion
5. Advertising
6. Movie Title
7. Photo Contest – incorporates an element of uncertainty

Final Project – Photo Essay – Consists of 8-10 images that tell a story of an event, person, or object.

New Assignments:

Weekly Photo Critiques – Each user must critique images of three other classmates. Must show knowledge of photographic techniques, technical camera usage, post-production work, and be able to provide any outside suggestions. Though photo critiques will be done online, there will continue to be class discussion of images.

Bonus Assignment - Students will have the option to do extra credit work to earn up to 10 bonus points in the course. Bonus points can be earned by doing an additional shooting assignment, presenting a Photoshop or camera demo, or showcasing 3 Websites that are related to photography and new photographers.

Alternate Final Projects:

Photography Portfolio - Student must create an online portfolio which showcases their photographic works. This portfolio must consist of at least 6 additional images that were not shot previous to or during the course. Portfolio must look professional and images must be saved and edited for online display and use.

Reverse Engineer - This assignment requires students to reverse engineer 5-7 images. These can be famous images or images from their favorite photographer. Students should be able to mimic lighting, composition, environment, subject, and additional technical aspects of the image.

Stop Motion Video - This assignment will require students to create a short, stop motion video
consisting of original photographs. The video must be at least 20 seconds in duration and instructor must approve topic. Students may compile the video using available software in the photo lab.

Catalog - Students may design a catalogue for a product or service of their choosing. The catalogue will consist of 3 spreads and must contain at least 7-9 original images shot and edited to the correct specifications for print. Students will be responsible for design and content of their catalog.

Integration of Online Critiques

In this class, the instructor will normally conduct an in class critique session each week to look over and discuss the past week’s assignment. However, all critiques are done only in class and many times students are reluctant to participate. One solution to help students become more comfortable with critiquing work of their classmates is to have them critique in an online environment. After much research with applications such as Edmodo, CritiqueIT, and PhotoSig, the researcher selected Facebook as the online environment where class critiques can be held. The researcher chose Facebook for several reasons.

Facebook as an educational environment

Facebook allows for the creation of private groups that can be monitored by the instructor. Within the group, instructors can edit permissions and security settings and invite students into the class group. Groups also allow for the sharing of many elements.

1. Posts – Posts could be made as course reminders to students.
2. Links – Instructors and students could share link related to the course such as links to images or tutorials.
3. Photos – This is how students can share each of their photos online to be critiqued.
4. Video – Videos can be uploaded that may contain Photoshop tutorials, camera demos, etc.
5. Events – An instructor can create events to remind students of assignments, tests, or even events on campus.
6. Documents – Documents could be uploaded that contain assignment information or additional course information.
• Facebook usage and notifications

Facebook began as a social network for college students, but has grown to over 500 million active users. Many students already have Facebook accounts and these accounts are linked with an actual name rather than with a username. This makes it easier for students who are reluctant to sign-up or register on a new Website.

The researcher wants to incorporate Chatfield’s characteristic of rapid, frequent, and clear feedback. With Facebook, users will instantly receive notifications for any group activity. Users receive these notifications on their Facebook pages and even through e-mail and mobile devices. Unlike other Websites, such as Edmodo or PhotoSig, students may not see feedback until they log into that particular Website.

• Facebook for photo critiquing

Within the Facebook group, students are able to upload images to the group page to be critiqued. Other users in the group can then add comments or their critique of the image. Users can also “like” the image if it’s an image that stands out to them.
The instructor can then browse the images and see which students have participated in the critique for that week and which ones have not. Students will be graded on their quality of critique and will be awarded experience points, or XP, for their effort. (The use of experience points is discussed in further detail under the Addition of Experience Points (XP) and Teams section of this document). The rubric for experience points awarded is shown below.

**Rubric:**
1 XP – Make comment(s) including the technical, formal, or process of shot.
2 XP – Make comment(s) including the technical, formal, or process of shot.
3 XP – Make comment(s) about the technical, formal, or process of shot.
4 XP – Make comment(s) about the technical, formal, process of shot as well as outside suggestion.

**Examples:**
1 XP - “I like the angle in which you shot this image.”
2 XP - “You did very well using the rule of thirds and your white balance looks good and your colors look very natural.”
3 XP - “This is a great subject to use a close-up shot. Your levels are done well to create good contrast. However, I dislike the color cast and tone that is on this image.”
4 XP - “The vast depth of field used to show more of the subject really works for this image. I like how you experimented with different lighting, but I would like to have seen this image with a bit softer light. I feel that it may have softened your subject more and create the mood that I feel you were trying to achieve. Your image tones look slightly off and I would suggest using a custom white balance for this situation.”

Each student will be required to critique at least 3 different images per week in order to receive any XP. Critiques should be in complete sentences and use proper spelling and grammar. Critiques should not be biased based on the person and any personal comments will not receive credit. Students should try to critique on images that have fewer than three comments to ensure that everybody’s images receive feedback.

**Alternate for Facebook**

If any students in the course refuse to join Facebook for the course critiques, the whole class may use BGSU Blogs as an alternate Website where photo critiques can take place. BGSU Blogs will have limited features compared to Facebook, such as fewer notifications; however, students will still have the ability to post photos, descriptions, and comments to complete the critique requirement. Wordpress templates may also be added to the BGSU blogs in order to create a more personalized webspace that will encompass the needs of the students and instructors.
Leaderboard

A leaderboard would be incorporated into the course to display example images from each assignment. These images could be displayed on the Facebook critique site, in class, or in the building where the class meets. Images would not only showcase the best images, but also show images that represent good photographic techniques and even the most improved photographer. This can prevent more experienced photographers from continuously being on the leaderboard and make it fairer for all students to have their work displayed.

Potential Leaderboard Categories:
Most original subject
Best use of color, repetition, or shape
Most unique composition
Most improved photographer
Best use of light

The use of a leaderboard is to motivate students to produce high quality images that will be shown to their peers. This falls under Chatfield’s characteristic of being motivated by other people. It will provide a light competitive element to the course, but in a safe atmosphere.

Addition of Experience Points (XP) and Teams

Experience points and teams will be integrated into the course to create a more dynamic gaming environment. The addition of XP is used to promote cooperative and competitive play within the classroom. Experience Points are separate from course points and are not counted as a grade. Students will earn experience points or XP by doing tasks throughout the semester. XP can be earned by doing task such as participating in Facebook critiques, getting their images on the leaderboard, and shooting over 50 images for each weekly assignment.*

Students will earn XP individually and also as a team. The class will be divided into two separate teams at the beginning of the semester. The course instructor will do this once students have shared photographic experience during introductions on the first day of class and have completed the first photographic assignment. The instructor will then select students based on their skills to ensure that each team contains students with equal amounts of advanced to novice skills. The team with the most XP by week 11 will then earn a special reward. Students in the winning team will each have the ability to choose from a list of alternate final projects they may do. (These alternate final projects are defined under Alteration of Assignments section). The losing team will be assigned the Photo Essay as their final project.

Students can also trade in XP that they earned individually to earn class rewards. This XP they trade in does not take away from the team’s total XP and students on either the winning or losing team may have the ability to trade in their individual XP. This XP may be traded in for perks, which are outlined below.

100 XP - Drop an additional quiz grade
90 XP - Ability to do alternate final project (if on losing team)
80 XP - Re-do an assignment (excludes quizzes and tests)

10 XP - 1 bonus point added to lowest assignment grade (For each 10XP a student trades in, they will earn 1 bonus point. Example: 20XP - 2 bonus points, 30XP - bonus points, etc.)
*Each weekly shooting assignment requires students to turn in one final image for grading. Students also hand in all images shot for the assignment in the form of a contact sheet. They are encouraged to shoot many images for each assignment in order to get comfortable with using the manual camera settings as well as experimenting with composition, subjects, and lighting.

**Double XP Week**

Inspired by other video games which award players with double XP during certain time frames, tasks, or challenges, double XP could provide students with an extra incentive and also create a level of uncertainty. There will be two weeks during the semester that will be counted as double XP. Students will not be informed in advance of when double XP weeks will be in order to add an element of surprise.

**XP Progress Report**

In order to keep the competition of XP more engaging, a chart showing XP progress of each team will be updated weekly. This chart can be posted on the course Facebook page and on Blackboard. This provides a visual representation for students and lets them know how well their team is performing throughout the semester. Several applications are available to organize points and create graphs. The instructor may choose a program that they like better. Such programs that can be used to do this include Microsoft Excel or Google Docs.
**Course Schedule**

With the current course schedule students have less time to plan for and work on their final projects. Additionally, students have only weekly assignments and do not have other outside assignments including a bonus project and integration of XP that go throughout the semester. The new schedule is still based on each week in order to make it easier for student to know when assignments are due, but the addition of other assignments creates more goals for students during the course.
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<tr>
<td>• Photographic Shot 4 Due</td>
<td>• Photographic Shot 5 &amp; Photo 4 Critique Due</td>
<td>• Photographic Shot 6 &amp; Photo 5 Critique Due</td>
<td>• Photo Contest Shot &amp; Photo 6 Critique Due</td>
</tr>
<tr>
<td>• Discuss Shot 3</td>
<td>• Discuss Shot 4</td>
<td>• Discuss Shot 5</td>
<td>• Discuss Shot 6</td>
</tr>
<tr>
<td>• Assign Photographic Shot 5</td>
<td>• Assign Photographic Shot 6</td>
<td>• Assign Final Project</td>
<td>• Work on Final Project</td>
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<td></td>
<td></td>
<td></td>
<td>END XP</td>
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</tbody>
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<table>
<thead>
<tr>
<th>Week 13</th>
<th>Week 14</th>
<th>Week 15</th>
<th>Week 16</th>
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<tbody>
<tr>
<td>• Work on Final Projects</td>
<td>• Work on Final Projects</td>
<td>• Work on Final Projects</td>
<td>Finals Week</td>
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<td>• Final Projects Due</td>
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</tbody>
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Appendix G: VCT2820 Updated Syllabus

Photography I VCT 2820

General Information - 3 Credits

Instructor:
E-mail:
Phone:
Office Hours:

Course Description
Basic photographic techniques: camera, lighting, exposure and composition. Experiences with camera operation and working with digital images.
Four hours of lecture/lab

Course Objective
Upon completion of VCT 2820, students will be able to manipulate the tools and materials necessary to consistently produce quality photographs. They will have an understanding of the photographic processes that will enable them to communicate visually. Students will distinguish what is to be communicated and how that information or attitude is to be communicated to their audience using the medium of photography.

Areas of concentration:
- The use of aperture and shutter speeds and the effects that these controls have on the outcome of the final photographic image.
- Proper light metering techniques and an understanding of metering systems and exposure systems.
- ISO speeds, characteristics and their advantages and disadvantages.
- Output of the final print using basic Photoshop techniques, manipulating and correcting tools.
- Rules of composition and photographic elements and design
- Communication through the visual medium of photography

At the completion of the course students will have a basic understanding of the SLR camera and be able to produce a credible portfolio of work that can become part of his/her professional portfolio.

Required Text:
• "Picture Yourself Getting the Most Out of Your Digital SLR Camera" by James Karney and Terrance Karney

Course Material:
Digital camera with manual control of apertures and shutter speeds (must have for the first assignment). Strongly recommend a Digital SLR.
Color film Processed and put on a photo CD
Flash drive
Facebook or BGSU Blogs account (used for image critiques)
Optional but recommended
Tripod - Can be checked out at the Tech store.

Participation
ATTENDANCE
Attendance is mandatory. Much of the material presented in lecture and lab demonstrations is not covered in the textbook. Therefore, you must attend every class to obtain all pertinent information that will be covered on the semester exams and the final exam. You must notify the program services office (and/or instructor) in advance with written documentation of any University excused absences. If you have 3 unexcused absences, your grade will drop one letter grade. Lateness to class/early departure from class: consequence is up to the discretion of the instructor.

ONLINE CRITIQUES
Students will be required to participate in online peer critiques of images. Each student must post his or her weekly shooting assignments on the VCT2820 Facebook page. Each week, students will be required to make at least 3 critiques on images of peers. Experience Points (See Evaluation and Grading) will be earned based on the thoroughness of each critique.

1 XP – Make comment(s) including the technical, formal, or process of shot.
2 XP – Make comment(s) including the technical, formal, or process of shot.
3 XP – Make comment(s) about the technical, formal, or process of shot.
4 XP – Make comment(s) about the technical, formal, process of shot as well as outside suggestion.

LEADERBOARD
Each week, five students’ images will be selected for the class leaderboard. Earning a spot on the leaderboard will provide students with an additional 4XP that week for themselves and their team. Leaderboard images will be selected based on the following categories.

Most original subject
Best use of color, repetition, or shape
Most unique composition
Most improved photographer
Best use of light

Evaluation and Grading
GRADING
Because photography is both a technical and subjective discipline, grading will be based both on the images’ technical qualities, and on the communication quality, composition, light, and other subjective factors. It is very important that you pay close attention to the requirements
of the assignment because different assignments emphasize different areas of knowledge, skill and technique. All images taken for this class must be taken during this class. Assignments are due, as scheduled, any late assignments will not be accepted and a “0” will be given. Anyone missing exam will receive a “0”. Make-up exams are given in only two cases: Medical emergency or an official University conflict. Documentation is expected in both instances. The instructor must be notified prior to the exam about such occurrences. No assignments will be accepted by email or the digital dropbox, without permission of the instructor.

EXPERIENCE POINTS (XP)
Experience points will be earned for participation of weekly online critiques and for images that make the class leaderboard. Experience points will NOT count as a grade, but be used as a way for students to earn additional incentives. Students will be divided into two teams to earn XP for their team. The team with the most XP by Week 11 will win an opportunity to do an alternate final project. Students may also use individual XP to purchase rewards. See below:

100 XP - Drop an additional quiz grade
90 XP - Ability to do alternate final project (if on losing team)
80 XP - Re-do an assignment (excludes quizzes and tests)
10 XP - 1 bonus point added to lowest assignment grade (For each 10XP traded in, 1 bonus point will be earned. Example: 20XP - 2 bonus points, 30XP - bonus points, etc.)

NOTE: There will be two unannounced double XP weeks during the semester. During these weeks, students will earn double XP for online critiques and leaderboard images.

University Closure
In most cases, the University will not close for winter conditions unless the Wood County Sheriff’s Department declares a Level 3 emergency. Information about University wide closures is communicated by the Office of Marketing and Communications, which will notify the University Fact Line, local FM & AM radio stations and the four Toledo television stations (see Weather Policy: http://www.bgsu.edu/downloads/execvp/file8135.pdf for lists). For changes in individual class meetings, please refer to the class Blackboard site for postings by the instructor.

Verification of Medical Illness Policy
Copies of this procedure may be given to the student upon request. In no way does a copy of this procedure exempt the student from class without approval from the professor. This procedure has been reviewed and approved by the Health Service Advisory Committee (a Faculty Senate standing committee), the Student Affairs Advisory Board (a Faculty Senate standing committee), and Dr. Edward Whipple, Vice President for Student Affairs.
July 2005

Summary of Grading

Experience Points
Photo Critiques 108XP – (12XP each week, plus two double XP weeks)
Leaderboard - 4XP for each image on leaderboard

Graded Points
Looking Assignment 20pts
Exposure Demo 30pts
Photographic Assignments 210pts - (30pts each)
Midterm Exam 100pts
Final Exam 100pts
Final Project 100pts
Quizzes (POSSIBLY 4, UNANOUNCED) 25pts each (LOWEST GRADE WILL BE DROPPED)

Bonus Assignments
Students will have the option to do extra credit work to earn up to 10 bonus points in the course. Bonus points can be earned by doing an additional shooting assignment, presenting a Photoshop or camera demo, or showcasing three Websites that are related to photography and new photographers.

92%-100% A
82%-91% B
72%-81% C
65%-71% D
64%- 0% F

Academic Honesty
This course is conductive in accordance with the Internet and Equipment Policy, Code of Student Conduct and the Code of Academic Conduct of Bowling Green State University. Copies of these codes and policies are located in the BGSU Student Handbook.

Students with Disabilities
In accordance with the University policy, if the student has a documented disability and requires accommodations to obtain equal access in this course, he or she should contact the instructor at the beginning of the semester and make this need known. Students with disabilities must verify their eligibility through the Office of Disability Services for Students, 413 South Hall, 419-372-8495. (http://www.bgsu.edu/offices/sa/disability/)

Syllabus is subject to change.