Effects of Culture on the Pre-Production Design of The HIV Game

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Abstract

In this paper we documented the pre-production design process of “The HIV Game,” an interactive serious game with cultural and sociotechnological implications for youths living in the Yucatan. Students at Purdue University’s IDeaLaboratory are researching, designing, and developing the Flash animation game, which will be delivered via the Internet in Cyber Cafés set up in four third-world villages in the Yucatan. The design process combines knowledge and measures from user-centered design, serious play theory, sociotechnology, cultural implications, interactive media design, gaming, usability engineering, healthcare, and cognitive learning. While no single area is new, it is a novel approach to understanding and developing new ways of using interactive media to measure and change healthcare behavior of the Mayans and Mexicans living with HIV/AIDS in the Yucatan, and to prevent future spreading of the disease. The demographic research on the Mayan culture and the perceptions of technology survey that was implemented summer 2008 by Dr. La Verne Abe Harris, was used for the foundation of the pre-production design of “The HIV Game.”

Keywords: serious game, HIV/AIDS, Flash animation

1 Introduction

Since the discovery of AIDS in 1981, the area of land in southeastern Mexico that separates the Caribbean Sea from the Gulf of Mexico — the Yucatan Peninsula — has become a hotbed of the human immunodeficiency virus (HIV) akin to what transpired in the United States in the 1980s. Of the 8,163 cases of HIV/AIDS reported on the three Mexican states on the Peninsula (Quintana Roo, Campeche, and Yucatan), 70% have been reported since 1991 with two new cases every three days. For the past two years, Brazos Abiertos, a non-profit group from Houston, Texas (Refer to Appendix A), has been working with university and high school students to develop the only peer-to-peer educational workshops in the Yucatan. The peers are a part of Teenage Education on AIDS in Merida, Mexico (TEAMM), who have been trained by the leaders of Brazos Abiertos, Inc. The purpose of the workshops is to empower the youths of the Yucatan to learn about HIV/AIDS, while still respecting their culture. This involves U.S. students, who are trained by adult leaders, flying to the Yucatan several times a year and giving face-to-face HIV/AIDS workshops to youths, ages 12 to 18.

Since the rural villages of the Yucatan are usually closed to outsiders, HIV education is atypical in the poverty-stricken communities. Because of the support of the Mexican government and the Brazos Abiertos workshops, youths have embraced this knowledge. Parents, grandparents, and Yucatan educators have also expressed a need for the information, not only for the youths, but for themselves.

2 The Background of the Mayans

The prevailing perception of the youths in many of the small villages of the Yucatan today is that the Mayan people are lower-class human beings [Harris 2008]. In reality the Mayans who inhabited the Yucatan from approximately 300 to 1000 A.D. were accomplished mathematicians, astronomers, architects, and engineers. They were centuries ahead of their European counterparts with the current calendar system [Ames 2009]. Today the majority of the Yucatan citizens are Mayan. Spanish is their second language and English is their third language.

It is important for Mayan youths to appreciate what their people have contributed to the world: beautifully engineered architecture, sophisticated mathematical systems, carved jades, carved monuments and paintings, complex calendars, the growing of maize, chile peppers, and cacao (chocolate), the building of reservoirs and roadways, the weaving of textiles, and a unique language [Sharer 1996].

The ancient Maya were believed to be a gentle and peaceful; however, archeologists found that because of limitations of food supply and transportation, the Mayans could also be intense warriors [Palmer 2009]. Using the Shield of Protection (the Mayan calendar), the Mayan youths will have the opportunity to role play as a Mayan super hero and fight against the Virus Warriors in the HIV Game.

3 The Background of the HIV Game

3.1 Cyber Cafés and Sustainability

Through Sally Russ, Houston philanthropist and Brazos Abiertos board member, Dr. La Verne Abe Harris, Associate Professor at Purdue University’s IDeaLaboratory (Refer to Appendix A), developed a partnership with Father Bill Ault, an American priest who had been working in the Yucatan for decades. Dr. Harris invited Father Bill Ault to visit Purdue University’s IDeaLaboratory the spring semester of 2008. Father Bill had just funded and set up several Cyber Cafés in the Yucatan using satellites, since there were no phone lines available in the buildings. Dr. Harris discussed implementing “serious gaming” for the sustainability of the content of the HIV/AIDS workshops. She proposed the development of “The HIV Game,” an interactive healthcare game aimed at youth ages 12 through 18 in the Yucatan. Because the game will be web-based and in English and Spanish, the impact will be global. The HIV Game will also be the only interactive serious game of its kind focusing on the Mayan culture. Father Bill supported the idea.

The summer of 2008, Dr. Harris was invited to spend two weeks in the Yucatan to research the Mayan culture, the preferences of the Mayan youths, and the content of the Brazos Abiertos, Inc. HIV/AIDS youth workshops. She developed a partnership with
Gordon Crofoot, M.D., one of the leading international experts in the field of research on HIV and Chronic Hepatitis, and Carlos Cabreras, M.D., the HIV/AIDS physician for the future healthcare facility in the Yucatan, who have agreed to provide and proof the content of the game.

During the summer trip to the Yucatan, 45 Mayan youths were surveyed [Harris, 2008]. Those profiled were ages 12 to 18 years of age, 53% female and 47% male. They were residents of four villages: Hunucma (44.5%), Komchen (27%), Sierra Papacal (24.5%), Pueblo (2%), Xcunyá (2%). These villages are comparable to third-world countries in their poverty levels and access to technology.

The summer of 2008 was the first time that Mayan youths were trained by their U.S. peers to lead the workshops. The Mayan youths commented that they would like to have the support of an online game at the Internet Cafés to direct people to obtain or reinforce the information. The youths in the Yucatan embraced the concept of The HIV Game and said it would reinforce their knowledge, but also reach others who cannot attend the workshops in person. Many women of all ages have expressed the need for this information and said that they would go privately to the Cyber Cafés to play the game and seek the information.

The game will also be used as a supplement to the face-to-face educational workshops for the youths of the Yucatan. The HIV Game follows the four modules of the Brazos Abiertos face-to-face workshops — anatomy, HIV/AIDS, STDs, and empowerment. The HIV Game will be an Adobe Flash-based interactive multimedia serious game geared toward Mayan and Mexican youths in the Yucatan. This technology was selected because it required no additional plug-ins or software for the Cyber Café users.

3.2 Computer Usage
The village Cyber Cafés is where 62% of the youths accessed the Internet within the past year. Nine percent of the youths reported using the Internet for gaming for more than a year, while 42% have never used the Internet for gaming. Fifteen percent reported having video gaming experiences for more than a year, while 36% had never played a video game. When the Mayan youths were surveyed, it was found that computer usage was equally divided into homework (29%), email (29%), and surfing (29%). The remaining 13% used the computer to watch television clips or play CD games or other games.

3.3 Character and Gaming Concept Survey
The Mayan youths reported that if they were to have an HIV/AIDS game to play, 67% would like it to be with cartoon-like stylized characters, 20% were neutral, 11% disagreed, and 2% did not answer. Eighty-five percent of the youths requested interactive characters, and 69% requested imaginary characters. Eighty-nine percent wanted the ability to choose a character. Fifty-six percent wanted a super hero, with 20% neutral. Forty-two percent suggested that robots might make an engaging character for the game.

The participants reported that an adventure game (85%), a “challenging” game (89%), and an action game (70%) would be most engaging. Others wanted a sports game (53%) or a combat fighting game (47%). Fifty-three percent wanted a puzzle-solving game.

Ninety-one percent wanted sound in the game, with 89% wanting music. Sixty-seven percent wanted a game in which the character gathered objects throughout the game. Fifty-eight percent wanted speaking interactions or were neutral on the idea.

4 Pre-Production Plan
4.1 Competitive Games
Prior research have reported a limited body of literature focused on the sociotechnological implications of cognitive learning based on teaching youths about the human immunodeficiency virus (HIV) through interactive media and a story line. Existing resources for youths are as follows:

- **Playing Cricket with Condoms:** A cricket-based, team game using balls representing condoms has become a popular mobile phone game in India. It was developed by Hilmi Quraishi of ZMQ Software Systems [Ramey 2008];
- **The HIV-AIDS Simulation Game:** This game was conceived as an educational tool for use in college and high school classrooms by professors from the University of California-L.A. It is still in testing phase and models various social processes associated with the transmission of HIV [Thulin et al. 2003];
- **The AIDS Game:**
  [http://www.standwithafrica.org/ytas/games/aidsgame/index.html]
  The AIDS Game is based on AIDS in Africa. It is a simple, Christian-related game with no interactivity other than clicking on a dome [Stand with Africa 2009];
- **Health WebQuest: Grade Eight AIDS WebQuest:**
  [http://haworth.org/swaids.html]
  This game is a series of websites with HIV/AIDS information, including the AIDS quilt project website [Kahn 2009];
- **Stop, Think and Go!**
  This is an HIV/AIDS awareness game by the Evangelical Lutheran Church in America Board game [Evangelical Lutheran Church in America 2004].

Our game is different in many ways compared to the HIV games that exist today. To begin with, our game has physician-tested content, which is easily accessible online, and is based on a mystical Mayan story line that is enticing to youths, ages 12 to 18. It has both a Spanish and English version. The HIV Game is divided into four levels of completion and is challenging like a video game. It is used in conjunction with an established face-to-face HIV/AIDS workshop for youths in third-world poverty villages.

4.2 Key Game Design
The increasing popularity of computer games presents a unique opportunity to capture the power of engagement, fun, and play in a serious game [Vorderer et al. 2004]. Research has found that playing a serious game results in increased knowledge and topic interest that is sustained over time [Wong et al. 2007]. We have researched and implemented key game design principles of motivation and entertainment in order to make the game effective, while balancing education, and healthcare issues [Mitchell and Savill-Smith 2004; Okan 2003; Singhal et al. 2004; Singhal and Rogers 1999]. Form follows function, user-centered design, functional stability, and design integrity were major considerations in the game design of The HIV Game.

Form follows function in the design of this serious game that will be initially available in the Cyber Cafés in remote third-world Mayan villages of the Yucatan. The gaming technology has been adapted to the needs of the initial user group and to their expectation. Because of the technical limitations of the Internet
cafés in the remote villages, and the fact that the game will be Web-based, The HIV Game is designed as two dimensional, vector-based, Adobe Flash interactive media for accessibility.

The user-centered design was based on the preliminary demographic survey of the Mayan youths and their specific needs. The users are a part of each step of the interface design through informal feedback from the youths and the workshop leaders. The interface design is based on (1) functionality and meaning, (2) simplicity and consistency in aesthetics, (3) Mayan culture, (4) maximum functionality and legibility, (5) efficient navigation, (6) efficient feedback and dialogue, and (7) user-driven options.

The design of the game is simple and consistent. The gameplay follows the storyline. The core game is a role-playing game where the player is the green super hero avatar. In the future, we will have a green super heroine avatar for female identification.

The graphic user interface (GUI) of The HIV Game is made up of the images, interaction metaphors, and concepts used to convey functionality and meaning on the journey to collect glowing T-cells and super powers. Every component of the graphic interface and the functional sequence of interactions at each of the four levels of challenge, produces the characteristic look and feel of the game. Aesthetically, the graphics are consistent in theme, color, and illustration style. The colorful graphics are integral to the user experience. The interface metaphors are logical, familiar and simple, and are drawn with simplicity and consistency in a familiar genre and are based on the Mayan culture. For maximum functionality and legibility, the game design is built on a consistent pattern of modular units that all share the same graphic themes, basic layout grids, consistent navigation, and hierarchies of organization.

Our goal is to make navigation easy, the interface almost invisible, the interactive elements of the site work reliably and functionally stable [Nielsen 1999, 2009]. The game will offer constant visual and functional confirmation of the user's whereabouts and options, via graphics, online journal, uniformly placed hypertext links, or navigation buttons. Feedback includes responding to the users' errors through dialogue boxes and audio. Interaction with the media is entirely user-driven, and will include a keyboard control scheme and use of a mouse. User controls, such as a media controller bar and an option to turn off sound, will also be available.

4.3 The Theme of the Game
The Maya civilization is an ancient Native American culture that represented one of the most advanced civilizations in the western part of the world before the arrival of the Europeans. Ancient Mayans built the Mayan Ruins, which are evidence of mathematical genius. The predominant language today is Spanish.

4.4 Cast of Characters
Mayan Super Hero (El Dios Verde) (Refer to Figure 2) The Hero is of Mayan origin. He is calm and collective, but can be more than a handful when he needs to be. His power comes from his Shield of Protection, which draws power from the sun. Since his shield was broken, and the four pieces stolen, he is not at full power at the beginning of the game. Each piece of his shield gives him a unique special power. Special powers include super strength, enhanced speed and agility, increased lung capacity, flight and the power to manipulate the energy from his shield. At full power, the virus warriors are no match for our hero. His costume is inspired from actual Mayan motifs and costumes worn by the Maya. Feathers replace the traditional cape and an amulet on his chest gives him additional power in the absence of his shield.

Virus Warrior (Refer to Figure 3) The Virus Warriors were spawned from everything that is evil. They play the antagonist in the game and they will stop at nothing to stop you from your goal. These maniacal creatures resemble insects with six scrawny arms with dagger like claws protruding from the ends. They drool a putrid acid and have a green haze which follows where ever they go. They are extremely agile and dangerous creatures; however they lack intelligence. They act on instinct alone.
Serpent (Refer to Figure 4)
The Serpent is the level host for the first level, Lithic Lair. The Serpent is another much venerated animal in the Mayan culture. The mythology describes the serpents as vehicles by which celestial bodies cross the heavens. The Serpent lies atop the tree of life, in the center of it all. The Serpent in the game symbolizes how the supernatural forces come through to the physical, which helps you navigate your way to success in the level.

Jaguar (Refer to Figure 5)
The Jaguar is the level host for the Mystic Ruins. Although the jaguar has been associated with caves and the underground, the Mayans used the Jaguar to denote high rank, power and authority. It was usually the rulers who wore garments that resembled Jaguars. The Jaguar were also protectors, who watched over the Mayans. The Jaguar was chosen for the temple as a sign of power for the Mayans, with a massive temple as proof of their might. The protector Jaguar was portrayed with vines and water lily’s on their head. They are also masters of camouflage, where his garment helps them hide amongst the heavy forest.

Caiman (Refer to Figure 6)
The Caiman is the level host for the Cenote level. The sixth day on the Mayan calendar is “Imix” or the Void. The symbol for this is the alligator. This is the Caiman where all creation has been made, often depicted where everything is built on the back of an alligator. Deep underground is the cenote is where you will find our host, who helps you get to the end of the cenote. The adornment of the Caiman takes actual glyph symbols included in its costume.

Quetzal Bird (Refer to Figure 7)
The Quetzal Bird is the level host of the Cave. The Quetzal is one of the most revered creatures by the Maya. He has been inspired by a children’s book of Mayan fables called “The Bird Who Cleans the World” (Montejo, 1991). The feathers were used in royal costumes and ceremonial garb for kings and priest. The Quetzal symbolizes the movement of creation and the will of the creator to come to earth. The Quetzal also for the purpose of the game symbolizes empowerment and this is why it was chosen for the last Level. When the Quetzal flies off with the hero, it is meant to show that you now have the knowledge to create a better life for yourself and others. The Quetzal takes actual temple and glyph motifs in its costume along with long, beautiful flowing feathers.

4.5 Synopsis of the game
Several of the Mayan youths said that they thought about changing their name to a name that didn’t sound so Mayan, because in the Yucatan today many youths view Mayans as second-class citizens -- “less than animals.” In order to develop pride in their culture, the decision was made to follow a Mayan theme throughout the game, and have the super hero be Mayan. The youths were given three choices of the Mayan super hero for the role-playing game and they selected the green version. He will be named by the Mayan youths. The next version of the game will give the players the choice to select a Mayan super heroine instead of the male counterpart.

At the beginning of the game, the super hero is very weak and has lost his powers of strength, speed, powerful lungs, and ability to fly. The Virus Warriors have stolen the four parts of his Shield of Protection, which symbolizes the Mayan calendar. The super hero must regain his super strength and be in harmony with nature by collecting glowing T-cells, which give him power. At each level a Mayan guide in the form of a symbolic animal will help the super hero through the challenges. At each level he is met with challenges and the Virus Warriors, whom he must fight off. The player must complete one level in order to move to the next one. At the successful completion of each level, he is awarded one of the parts of his shield by the Virus Warriors.
4.6 Gameplay

The four levels of challenges he must conquer are: (1) Level 1: Lithic Lair (anatomy module), (2) Level 2: Mystic Ruins (HIV module), (3) Level 3: Viral Cenote (transmission module), and (4) Level 4: Limestone Cave (empowerment module).

Level 1: Lithic Lair (anatomy module) (Refer to Figure 8)

Lithic Lair, a Mayan village containing the secret knowledge of sexual anatomy, is home to the Serpent animals. The village has been rampaged by the Virus Warriors, who have stolen the Shield of Protection and broken it into four parts. The cackling Virus Warriors are hidden within the razed village. On the west side of the village, the player will find a bridge that links Level 2 (Mystic Ruins) to Lithic Lair. However, a giant Virus Barrier is blocking the way. In order to pass, the player must collect at least 10 T-Cells (There are 10 T-Cell slots on the barrier). Upon seeing the barrier, the Serpent will give the player a spear — the strength related item for this level. The first mini-game appears as a part of the cobblestone road in the form of a puzzle with magical cobblestones that can be shifted horizontally or vertically. This puzzle is focused on the male anatomy, and when the puzzle is solved, the player collects five glowing T-cells, and engages in a matching game of labels and body parts in order to receive the second glowing T-cells. Half of the village repairs itself magically and some of the Virus Warriors flee in distress. The second mini-game appears as a cobblestone puzzle focused on the female anatomy. The player receives another five T-Cells upon completing the second puzzle. With ten T-Cells, the player receives the first part of the shield, and can now break down the first barrier.

Originally, this module was not taught in the Yucatan workshops, but the physician and the TEAMM-USA leaders found that many of the students did not have this basic scientific knowledge. This level must be completed first to ensure that the player has the basic knowledge about sexual anatomy before he or she can learn how diseases like HIV can affect the human structure. It is in this level that the Mayan Super Hero gains strength through knowledge.

Level 2: Mystic Ruins (HIV module) (Refer to Figure 9)

The Jaguar guides the player through Level 2: The Mystic Ruins, which have been captured by the Virus Warriors, who escaped the Lithic Lair. This level challenges the player to find out basic information about HIV and to dispel myths. The player is challenged to race to the top of the ruins by climbing the steps, as limestone pieces that have been broken from the temple are tossed at him. Each time he misses the limestone, he can continue up the stairs. When the player gets hit by a limestone or provides the wrong response, he must correctly provide the response to another answer in order to successfully recover from the limestone hit and continue. The game is repeated until the Mayan Super Hero (the player) gets all the questions correct. The player must face the following challenges: (1) What is HIV? (2) What is AIDS? (3) What is the cause of HIV? (4) How do you get HIV? (5) Is it curable? (6) Is it common? (7) What are the symptoms? Successful completion of this level results in gathering seven more glowing T-Cells. The Virus Warriors flee to Level 3, leaving behind the second part of the shield.

Level 3: Viral Cenote (transmission module) (Refer to Figure 10)

The Caiman will guide the player through this third level. In the Yucatan there is a scarcity of surface water, so caves and subterranean chambers (cenotes) are the primary sources of water. A cenote is like an underground pool. The Virus Warriors have managed to find their way into the cenote.

The player dives into the underground pool of purified water to collect the glowing T-cells, while the Virus Warriors are hanging on to the stalactites and stalagmites and throw broken pieces at the
The player needs super lung capacity to travel through the water. The player must try to eliminate the Virus Warriors by leaping up on them and knocking them down by holding his partial shield up as he leaps. Keyboard strokes will be used for the player control. When a Virus Warrior is knocked into the water, it dissipates. Then the player collects a glowing T-cell. In order to keep the T-cell, he must solve a challenge on how to avoid transmission of sexual disease. Successful completion of this level results in super lung capacity. The remaining Virus Warriors flee to Level 4, leaving behind the third part of the shield.

**Level 4: Limestone Cave (empowerment module)**

*Refer to Figure 11*

Through a secret passageway and with the guidance of the Quetzal Bird, the super hero is able to find his way from the cenote to a cave. The exit to the cave, which leads to freedom from HIV, has been blocked by boulders held in place by the cackling Virus Warriors. The player’s goal is to eliminate the boulder by making the right decisions and turning them into glowing T-cells. Each time a rock is turned into a glowing T-cell, a Virus Warrior dissipates.

There is no word for “empowerment” in the Spanish language, so “the power within” is used. This final level is a decision-making level. The player learns how to make decisions pertaining to how to say, “No,” healthy and unhealthy relationships, lifestyle, respect, positive and negative influences — all which determine their chances of contacting HIV.

When the super hero collects a certain number of glowing T-cells, all the Virus Warriors are destroyed, and he has gained all his super powers. The cave entry opens up, revealing the final quarter of the shield. The Mayan Super Hero rises to power with his Shield of Protection, which now resembles a complete Mayan calendar. The Quetzal Bird flies free. Successful completion of this level results in the super hero also gaining the power of flight.

Fourteen T-Cells will be available per level in the game. With four levels, the game will have a total of 56 T-Cells. Ten T-Cells will be required to move from one level to the next.

- Level 1 = 0 T-Cells
- Level 2 = 10 T-Cells
- Level 3 = 20 T-Cells
- Level 4 = 30 T-Cells

Eight of the 14 T-Cells in each level will be very apparent to the player. For example: in Level 1, the player will receive four points for completing the male anatomy puzzle and four points for completing the female anatomy puzzle. The player must seek out at least two additional T-Cells through exploration of the level and encounters with the Virus Warriors (see combat documentation for more details).

The skill tree is an object of the game that allows the player to customize the abilities of the avatar. The player can upgrade one of the avatars four abilities:

1. **Strength** – Integral to Level 1
2. **Speed** – Integral to Level 2
3. **Air/Lung Capacity** – Integral to Level 3
4. **Flight** – Integral to Level 4

Different abilities require a different amount of T-Cells to obtain. Once a certain number of T-Cells has been used, they cannot be reused. For example: a player with five T-Cells cannot spend five on a strength ability and five on a speed ability, he or she must choose one or the other.

### 5 Outcomes

In 1984 Ryan White of Kokomo, Indiana, was expelled from school, because he was diagnosed with an HIV infection from a contaminated blood treatment he received as a hemophiliac. At the time, AIDS was associated with the male homosexual community, since that it where the disease was originally diagnosed. Even though physicians said White posed no risk to others, the people in the Indiana community feared a disease they did not understand and did not want their children exposed. It seems appropriate that The HIV Game should originate from Indiana as a tribute to the teenager.

The overall goal of The HIV Game will be an engaging, interactive, online serious game that has the potential of modifying the behavior of youths on an international scale to improve the quality of their lives.

The outcomes of The HIV Game are as follows:

#### 5.1 Pre-production Outcomes
- We will assess the technology acceptance of the interface design.
- Gameplay acceptance will be assessed.
- Character and game level environments will be tested for appeal.

#### 5.2 Production Outcomes
- We will test the application of culture on game playing for user task performance and appeal in order to improve the game quality. The game will preserve culture, not change it.

#### 5.3 Cognitive and Social Outcomes
- Players will gain knowledge of basic sexual anatomy and HIV.
• Players will identify the risks of transmission, and understand safe sex.
• The game will empower the youths and people of the poverty-stricken villages of the Yucatan, as well as empower other youths globally.
• Players will learn to face the stigma and ignorance of HIV in the Yucatan (and the rest of the world).
• The game will be accessible in the Mayan Cyber Cafés to all Mayans, and usage will increase.
• The game will reinforce knowledge from the Brazos Abiertos workshops (for those attending workshops, those not in workshops, those needing privacy).

6 How Outcomes will be Measured and Evaluated
Full-scale evaluation of the design of the game will be done in collaboration with Brazos Abiertos, Inc. of Houston Texas. Brazos Abiertos adult leaders and TEAMM-USA leaders will fill out surveys indicating to what extent the game will help communication and teaching of HIV/AIDS, and suggestions for desired changes (in design and content) necessary to increase game appeal and effectiveness. Additional test subjects for this project will be Purdue University students, who are eligible to participate according to Purdue University’s Internal Review Board; and youths, ages 12 to 18, who have permission from their parents/guardians to participate. Approval of human subjects testing will be obtained from relevant oversight committees both at Purdue University and participating partner educational institutions.

6.1 Pre-production Assessment
Pre-production assessment of the design of the game will take place spring semester 2009 through the use of a clickable medium-fidelity prototype, heuristic assessments, and review of the game trailer. We will test interface design, gameplay, and character acceptance.

6.2 Production Assessment

Production evaluation of The HIV Game will be formative. The formative evaluation will focus on the design features of the game and will be an ongoing activity throughout the development stage, with the bulk of the production activity during the fall semester 2009. We will evaluate the success of the game design by determining: (1) ease of use; (2) users’ reactions (willingness to use, time on task); and (3) feedback on students' use of the program. We will evaluate the users’ reactions by determining: (1) number of times each participant logs in to use the program; (2) duration of each session; (3) time spent on each activity; (4) number of attempts at solving each problem, and (5) subjects’ overt responses to survey questions about how they like the program and what their favorite things are.

6.3 Cognitive and Social Assessment
Cognitive and social evaluation of The HIV Game will be summative. It will test the efficacy of using computer animation-based interactive games for teaching HIV/AIDS concepts to youths (ages 12 to 18). Evaluation of The HIV Game aims to answer three main questions:
(1) Does using the game lead to a learning effect?
(2) Is learning through the game more efficient than standard techniques?
(3) What factors affect learning through the game?

7 Conclusions

This paper describes the research, pre-production design, and decision-making process that went into designing The HIV Game, which has the potential of having a significant global social impact on the prevention of the spread of the human immune virus for youths ages 12 to 18. New interactive media, such as gaming or simulation, can play a significant role in encouraging underserved populations to understand and change unhealthy behaviors, such as those related to HIV. Specifically, the study investigated the application of culture on game playing for user task performance and appeal.

References


APPENDIX A:
ABOUT BRAZOS ABIERTOS, INC.

*Brazos Abiertos, Inc.*, a non-profit corporation in Texas, is associated with the Yucatan Secretary of Health, the Oasis de San Juan de Dios A.C., and the University of Mérida Medical School. It is “a catalyst for change where knowledge, prevention, and treatment of HIV/AIDS replace fear, discrimination, prejudice, and AIDS-related death.” The mission of Brazos Abiertos is:

1. To understand the level of HIV infection in Mérida, Yucatan, Mexico;
2. To improve access to healthcare for those already infected;
3. To decrease the spread of sexually transmitted disease;
4. To educate the community about HIV and the people who are infected. Brazos Abiertos is in the process of gathering information, implementing HIV testing, counseling, and creating safe sex and general health programs for the people of the Yucatan (Yucatan Peninsula and Mérida in Mexico).

The treatment and educational approach is based on proven care models developed in the United States and other international medical and psychological programs. American high school and university students (ages 17 to 25) make up the TEAMM Texas (Teenage Education on AIDS in Mérida, Mexico. These young people are being trained to work with local Mayan youth leaders (ages 12-21), who are designated leaders in the neighboring villages, to educate them about HIV/AIDS.

ABOUT THE IDEALABORATORY

**Organization’s history**
The IDeaLaboratory began at Arizona State University by Dr. Harris and was moved to Purdue University in 2007. Her Purdue laboratory partner is Professor Nicoletta Adamo-Villani. The IDeaLaboratory focuses on creative thinking, interactive media and animation research and development. The computer graphics technology laboratory is located in Knoy Hall (376) at Purdue University in West Lafayette, Indiana. With the creative and technical skills of faculty and students at Purdue University, the IDeaLaboratory partners with federal agencies, foundations, industrial corporations, national and international universities, and research centers.

**Mission statement**
The IDeaLaboratory mission is to apply new models of creative thinking that seek to produce interactive media and animation products and procedures to improve the lives of people in our society. The laboratory research is based on a STEM (science, technology, engineering, and mathematics) agenda.

**IDeaLaboratory Faculty**
Dr. La Verne Abe Harris is the creative director and founder of The HIV Game. Professor Nicoletta Adamo-Villani is the animation director.

**IDeaGurus**
The IDeaGurus are the students working out of the IDeaLaboratory on funded and proposed projects. The student researchers and developers for the pre-production phase are as follows:
- Brian McCreight, project manager for the pre-production phase
- Marcus Oania, game character and environment creator
- Jacob Brown, production manager, storyteller and gameplay lead
- Michael Hoerter, lead animator
- Marin Petkov, technical director for game trailer

The production phase will begin in fall 2009.