

SICaL: Simulated Interactions in Culture and Language

by

Aaron J. Fahrman

Digital Natives and Digital Immigrants: Human Development in Cyberspace

LS 5100 - 101

Arthur M. Harkins

June 22, 2005

## INTRODUCTION

There is a growing necessity for understanding world affairs on an individual level. Americans exist in an over-insulated culture that is physically isolated from other international viewpoints. Multi-lingual people are the norm in Europe, but the exception in the United States. Culture and language skills will be invaluable tools as we watch globalization progress. In travel and in business, by email or by plane, we are all American ambassadors. It is imperative that we be ready to live in an emerging global macro cultural society. Multilingualism will be the card of respect one plays in business and among their new diversity of international friends.

By using a digital game-based (Prensky) language and culture immersion simulation, one can become an innovative player in the new macro culture. Simulated Interactions in Culture and Language, or known hereafter as SICaL, will be a language and culture immersion project that evolves with the times. In 2005, it will start its life as a research project, eventually becoming a simulation game for existing computer platforms. In 2010, the landscape of SICaL will drastically change as it becomes a resort destination hotel simulation, and by 2015, simulation users will be able to enter another culture remotely and virtually.

Personal computer gaming environments will be the first phase of development. It has the widest degree of application for the general population and can exist on the backbone of existing technologies. The software development will start with the major consumer market languages first. The phase one software module can serve as a source of funding for the development of the second and third phase training simulations. Expansion of the phase one module to include more and more interactive data will commence the genesis of the Hotel SICaL and remote immersion technology.

Foreign culture research and testing has to be done. International relations experts, cultural anthropologists, and language translators will be major contributors to the software development team. Testing would be conducted with native focus groups to determine the accuracy of the immersion experience within the gaming environment.

SICaL Personal will allow culture and language parameters to be loaded into the environmental hardware, so that travelers, dignitaries, soldiers, and interested souls can experience cultures in a controlled environment prior-to, or in-lieu-of, experiencing it first-hand.

This simulation would create a safe place in which to explore exotic cultures and languages without real-world awkwardness or the potential for an international incident. The gaming experience would require the learner to interact with the people in the culture in a positive way to succeed. The immersion simulator will allow learners to build their language and culture confidence, while removing fear as a barrier to exploration.

## APPLICATIONS

Applications for this simulator could be as specific as foreign-service officers' training or as general as travel agents' services. A business might use such a simulation to train its workers in overseas business relations or inter-company overseas communications. Children could use the simulator for global studies courses. It could even be tasked for the person with a limited budget who wanted a taste of their travel dreams.

## IMPLEMENTATION OF SICaL PERSONAL 2005: PHASE ONE

SICaL Personal is a game-based segment wherein the learner plays an interactive computer based action game (Prensky) designed to teach skills in multiple proficiency levels of language and culture interaction. The learner interacts directly with the programmed characters in the simulation via facial emotion recognition software and a web camera (Poulsen). The characters would interact based on their perceptions of the player's actual facial gestures and language abilities. One will have the option to have an avatar (Howe) in the program to represent their movement in the game. Their gaming avatar could also use a series of scanned photographs or video clips to create movement and postures that generally reflect the body language of the player.

Once the players have reached the intermediate level of play, they will have the option of multi-player Internet networked play. The Internet will allow the player to play in their home country website as a native, or play in another country's website as one of many incoming archeologists. This environment would further institute competition among the other players to

learn the language and culture quickly. There is less structure under this scenario, which might create a more realistic simulation for the gamers.

### SICaL PERSONAL GAMING SCENARIO

One opens a door and enters an environment of bustling people who are trying to find their seats on an airplane. The learning begins with an initial Indiana Jones: Raiders of the Lost Ark style (Spielberg) immersion phase. It's an archaeological treasure, which holds the secret to prosperity and peace for those who look upon it.

The game starts when the gamer gets on a virtual airplane. The gamer begins to have conversations with other passengers, each of whom have clues to the final destination of the treasure, however the passenger themselves don't know it (Redfield). The game play at this point is similar to The Sims 2, wherein the gamer can interact with the other passengers in any manner they would like. One has the option to speak nicely, flirt, fight, tease, or any of a number of real human interactions (The Sims 2). The passengers have varying degrees of English speaking abilities, so it is up to the gamer to learn the language quickly without creating an insulting situation that would stop the conversation or keep the conversant from revealing the clue. Since the gamer is not sure what scenarios he will encounter upon touchdown, he must gain as much knowledge as possible before deplaning. One of the passengers holds the clue to the first destination in the form of a map that they are carrying, but is not aware of its importance. A passenger who is insulted or treated rudely may provide misleading directions. This will result in a much more difficult experience once the search begins. The learner may even be able to invite a select one or two of their new friends to join in the adventure if they feel their skills might be complementary. In the online version of the game, this will most likely be commonplace.

The deeper the gamer's understanding of the country's language and culture, the more clues he will receive. The more he attempts to communicate with other passengers, the more clues he will get for subsequent adventures. Since the plane ride is a finite time, the gamer's success once on ground will be based on his success in the air. His proficiency will be monitored, and the interactions will increase in difficulty as the game is played. An advanced user for example would be able to get much more information if he advanced his speaking

capabilities to a higher level of fluency, but his challenges will be increase exponentially to keep him interested in the game.

Part two: The learner has arrived and must navigate the airport and taxis on a limited budget and within the language skills he has acquired on the plane. He has hopefully determined their first destination from the passengers' clues. Similar in plotline to Run Lola Run (Tykwer), the gamer will need to work within a confined period of time, completing nearly impossible tasks while working with various natives to find the lost artifact. There are many different tasks to complete, all with time limits to keep the game intense and to reward ingenuity. The closer to the archaeological item he gets, the more difficult and tricky the clues, interactions, and the language become, requiring higher and higher degrees of social innovations, fluency and cultural understanding.

#### IMPLEMENTATION OF HOTEL SICaL 2010: PHASE TWO

The second phase of development is an amusement park-style hotel, which draws on the culture and language development database created for the SICaL Personal computer game. The entertainment complex, however, removes the personal computer gaming environment and inserts them into a walk-in simulated immersion. The environment will be suitable for commerce and vacation functions. The basis of this system is that it is non-invasive, non-implanted, and technologically transparent to the user. It uses body language analysis as its basis for creating interactions with the system that will stimulate your personal learning experience.

People check into the hotel complex, which doubles as a simulation environment. This format builds on an entertainment climate, which allows for a short or long-term immersion experience. One could even simulate jetlag if they wished since the theme park is self-contained, having no real windows, only simulated ones. The scenes beyond the windows will be holographic projections on translucent particle-suspended screens (Laser Magic Productions).

Prior to entry into the facility, students are encouraged to enter the SICaL meditation facility to optimize their receptivity to new information and experiences. This is soft-tech in that it is a natural, biological enhancement based on innovated natural meditation brainpower techniques. This experience could be modeled on a spa experience and offered as an extra service package of the hotel.

## PHASE TWO: THE HOTEL SICAL ENTRANCE EXPERIENCE

One enters the complex through a long entranceway in which numerous body scans are conducted. The entranceway is a mutable terrain, designed to ensnare the visitor's curiosity. The entranceway is morphed to mimic the city streets of your cultural destination so that the scanners can make appropriate measurements based on your curiosity about the new culture. The person's gait, posture, and speed are measured as they walk casually into the facility. Each interaction with the entranceway environment creates a more complete set of data. Bioelectric energy levels are rendered with a digital four-dimensional adaptation of a Kirlian (Iovine) photography system. This is done to create a virtual image of the person so that the environment can be tailored to their unique style of learning in a personally unexplored territory.

One's body language is interpreted within the selected cultural context. Teaching points are assigned within the system based on this analysis. The learner arrives at the check-in desk, pays a fee for the simulation, and is greeted by an interactive robot (Chamberlain), which further monitors the learner's facial quirks, gestures, emotions, and reactions (Poulsen 3). The robot casually asks a series of non-threatening questions in the language to be learned. It starts with small talk about one's stay, with the intent of discovering one's level of language proficiency. One's language level is determined and deficiencies are targeted for teaching points within the hotel's software system. The system changes throughout one's visit to adapt to advancing language skills.

## THE HOTEL SICAL IMMERSION ENVIRONMENT

One checks in to an actual hotel room, but there are robotic receptionists and bag clerks that attend to your needs. Calls received from friends and family, are digitally translated in the immersion language within the telephone handset. Wall signage and emergency exits are all posted in both English and the destination language so that one can make visual associations. Non-emergency signage is posted only in the destination language.

The windows are an illusion, in that you can truly open them, however, it appears that you are looking out onto the foreign landscape. Outdoor scenes change to match time of day, weather, and street noise, based on the longitude and latitude of your destination. The windows

also show changes in scenery and events that correspond to the festivals and activities that take place during the simulated time of year. Full-spectrum lighting provides the simulated daylight. Aromatherapy oils immersed in an air circulation/filtration system approximate the regions qualities of outdoor smells when the windows are open. Simulated winds blow through or against the windows as per the time of year the simulation is duplicating.

The internal environment is coated with a special paint (Harkins), where wall, ceiling and floor patterns relevant to your destination culture are projected. Chameleon Textiles possible through the application of biomimicry concepts (Janine Benyus) and synthetic musculature furniture (Harkins) are all mutable to match the destination cultures décor. There are large meeting rooms, bars and restaurants, which can be mutated to become outdoor scenes, festivals, places and activities.

### HOTEL SICaL TECHNOLOGY CHALLENGES

From the date of initial construction, there will be a ramp-up in technologies (Harkins). Initially the greeting robot might be something similar to the *Repliee Q1*, which debuted in Japan this year (Chamberlain). The body and face scanner technology will be less transparent to the user leading up to the year 2015. Immersion interactions eventually would be holographic, but will be performed by actors (Harkins) until holographic or robotic technologies are robust. Holographic touchable technology is close to the horizon with the *Applied Minds* advent of feel-able 3D contour maps (Jardin). After the initial introduction of Phase Two: Hotel SICaL, other adaptations of the technology could be made. One could expand the environment programming to become a spa facility, medical training facility, or conference retreat center. The options are virtually limitless since the architecture is fully mutable within the confines of its walls.

### PHASE THREE – TRAVATAR AND THAI TECHNOLOGY

Hotel SICaL will eventually offer additional remote global immersion experience services. One will be Tele-robotic Avatar immersion or, *TrAvatar* for its brand name. *TrAvatars* are dumb, on-location humanoid robots that can be remotely operated by a person wearing a

virtual reality suit, or a 4D matrix control enclosure in another country. Both technologies track one's movements, providing realistic sensations relayed to and by the robots sensors.

The second-generation avatars will be called Tele-holographic Avatar Immersion, or *ThAI*. *ThAI* is another more futuristic extension of the remote avatar concept, but one can imagine it would be a much cheaper and more mobile unit since the hardware would be smaller than a baseball, and most likely self-propelled.

Both of these options require the use of remote, on-site equipment, or transportable equipment. If one wanted to have a virtual immersion experience in a country that has *TrAvatars*, one would rent one of these devices and navigate it remotely via satellite to experience their culture of interest. If science fiction shows like Star Trek: The Next Generation are correct in their predictions of Holodecks, Transporters and Replicators (Roddenberry), then *TrAvatar* technology might be reserved for remote control journalism in dangerous areas. There, too, are many potential barriers to this technology for security reasons.

## TRAVATAR AND THAI TECHNOLOGY

The robot's face and external features would be mutable to duplicate or mimic the learner's features. The facial and body proportions of the robot could be controlled by sub-dermal, movable pressure plates or balloons, which essentially turn the robot into a low-level shape-shifter. The robots fake skin would have to have a lot of flexibility and resilience to accomplish this task. Its skin would also be able to change color to match a person's race, with multiple gradations of tone. This technology would enable people to experience racial diversity first hand.

The concept behind remote robotic control is that it would allow a user to rent time on a robot in another country, much as one would rent a bicycle or car. If the robot isn't in their destination country, then they could book a bus or train ticket to the location desired, as a virtual person-bot. If the *ThAI* equipment was used, it could be mailed to the destination, however, this removes the experience of traveling and arriving.

Once the destination is reached, one could take the robot out into the public arena and experience the culture in a similar manner to actually being in the country. The person could practice language by communicating remotely through the robot, by mouth, by gesture, by

listening and by reading body language. This kind of exploration could expand to allow any person to experience virtual mountain climbing, car racing, or any number things they wish to try with the safety of remote-control (iRobot: Robots fo). This could be a whole new realm of technology, which can allow people to experience things in locations that couldn't otherwise be explored (iRobot: Robots fo).

## CONCLUSION

Language and culture are going to be the unifying force in the next stages of globalism. While a number of these technologies may exist by the year 2015, they will most likely be archaic compared to the technological marvels that will actually be in existence. New ideas will emerge as the old ones become commonplace. These postulates of an advanced computer game-based language and culture learning system may seem archaic if Ray Kurzweil's Singularity is our inevitable future.

While I propose some technologies that are very advanced by today's standard, I am confident, that there will be an evolutionary jump that some humans will make to remove themselves from the needs of these technologies. Human consciousness has been expanding as we evolve, but the expansion has become swift in the last ten years. While it may have become a passé trend for the moment, there exists a strong undercurrent that will move into the next phase of evolution. They are resting, regrouping, rethinking, re-spiritualizing and preparing for the next level of human consciousness. This next step may remove many or all needs of technology (Bach). The expansion of the mind and the harnessing of our understanding of quantum physics (Greene) may lead to a world where technology is merely a crutch from the past stage of human evolution. It may also be a stage in which we move to another level of existence, but do so with the assistance of technology (Kurzweil). I defer once again to science fiction programs and books, which propose the attainment of basic human needs as a means to eliminate the need of money, and propagate the creation of personal fulfillment societies, all while maintaining relatively complete technological separation of body and machine.

## Works Cited

- Bach, Richard. Illusions: the Adventures of a Reluctant Messiah. 1977. New York: Dell Publishing, 1989.
- Janine Benyus. "Biomimicry: Innovation Inspired by Nature." Ralph Rapson Hall, University of Minnesota, Minneapolis. 25 Mar. 2005
- Chamberlain, Ted. "Photo in the News: Ultra Lifelike Robot Debuts in Japan." National Geographic. National Geographic Society. 17 June 2005 <[http://news.nationalgeographic.com/news/2005/06/0610\\_050610\\_robot.html](http://news.nationalgeographic.com/news/2005/06/0610_050610_robot.html)>.
- Greene, Brian. The Elegant Universe: Superstrings, Hidden Dimensions, and the Quest for the Ultimate Theory. 2000. New York: Vintage Books, 2003.
- Harkins, Arthur M. "Digital Natives and Digital Immigrants: Human Development in Cyberspace." College of Continuing Education, University of Minnesota. Blegen Hall, Minneapolis. 8 June 2005.
- Harkins, Arthur M. "Re: Aaron Fahrman Email #3 Digital Natives." E-mail to Aaron Fahrman. 5 June 2005.
- Indiana Jones: Raiders of the Lost Ark. Dir. Steven Spielberg. Lucasfilm Ltd, 1981.
- Howe, Denis. "The Free On-Line Dictionary of Computing." Dictionary.com. Ed. Denis Howe. 14 Sept. 1997. Lexico Publishing Group, LLC. 7 July 2005 <<http://www.dictionary.reference.com/search?q=avatar>>.
- Iovine, John. Kirlian Photography: a Hands-On Guide. New York: Images Publishing, 2000
- iRobot: Robots for the Real World. iRobot. 9 July 2005 <[www.irobot.com](http://www.irobot.com)>.
- Jardin, Xenia. "Inside Applied Minds." Wired News. Lycos, Inc. 21 June 2005 <[http://wired.com/news/20050621\\_appliedminds.html?tw=wn\\_tophead\\_1](http://wired.com/news/20050621_appliedminds.html?tw=wn_tophead_1)>.

- Kurzweil, Ray. The Age of the Spiritual Machines: When Computers Exceed Human Intelligence. 1999. New York: Penguin Books, 2000.
- Laser Magic Productions. 2003. Laser Magic Productions. 25 May 2005 <<http://www.laser-magic.com/transscreen.html>>.
- Poulsen, Kevin. "Ai Seduces Stanford Students." Wired 2005: 3. Issue 13.06.31 May 2005 <<http://www.wired.com/news/culture/0,1284,67659,00.html>>.
- Prensky, Mark. Digital Game-Based Learning. eBook. New York: McGraw-Hill, 2001.
- Redfield, James. The Celestine Prophecy: an Adventure. New York: Warner Books, Incorporated, 1997.
- Run Lola Run. Dir. Tom Tykwer. Sony Picture Classics, 1998.
- Star Trek: the Next Generation. Creator and Exec. Producer Gene Roddenberry. Creator and Executive Producer Rick Berman. Paramount Television, 1987.
- The Sims 2. Vers. PC-CD. 7 July 2005 <<http://www.thesims2.ea.com>>.