

THEATRE ART, HUMAN-COMPUTER INTERACTION AND SERIOUS VIDEO GAMEPLAY

THE PIPELINE PINBALL ENERGY THRILL RIDE GAME

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KEYWORDS

Interactive Theatre Art, Game Design, Play, Interactivity, Pedagogy, Computer Games, Serious Games, Interactive Storyworld.

ABSTRACT AND INTRODUCTION

This paper reflects on some early results of the integrated theatre art and digital game project “Spies in the Oilsands” (or simply Spies) and “The Pipeline Pinball Energy Thrill Ride Game” (or simply Pinball). This is done firstly as a juxtaposed reflection of theory and art practice in the context of the Pinball game design — from a “Theatre in a Game” perspective. Secondly it will be looked at from a from a “Game in Some Theatre” perspective, including the hypothesizing of a paradigm shift in theatre as a result of experiments in theatre art and human-computer interaction (HCI). These projects are part of my practice-led PhD research plan at the University of Calgary that experiments with innovative ways that live and digital interactive theatre and games can lead us to better understand urgent social and environmental issues.

As theatre art, Spies is about Terra Incognita, an amateur idealist who steals half-baked alternative energy secrets from oil company fossil fools to save the world, but the fossil fools want to keep their secrets suppressed until they can exploit the Alberta Oilsands. Governed partly by chance and situated in a variety of international locations, these spatially organized storyworlds also act as door-openers for free-standing games such as “The Pipeline Pinball Energy Thrill Ride Game” — the user-interface of which depicts the petroleum-rich oilsand reserves of northern Canada. In this “serious” video game, players can choose to score fossil fuel points or alternative energy points. Among the aims of serious video games is to bring a clearer understanding of important social, economic, and cultural matters; specifically, this work concerns our world’s energy resources, the economics of energy consumption and politics of production.

The game design video, slideshow of the performance, and other electronic files are available at www.sundialmedia.com.

Prepared by Lori Shyba for Culture Creativity and Interaction Workshop, HCI Engage! London U.K. September 12, 2006.

THE GAME DESIGN VIDEO

Theatre in a Game

Game designer and author Chris Crawford says of game design, “You can’t design games if you don’t understand play.” (Crawford, 2006) Since it’s easier for me to feel playful in visual and physical rather than strictly literary textual forms, I launched a creative process to create a video that takes a madcap frolic through a simulation of the high concepts of “The Pipeline Pinball Energy Thrill Ride Game,” including its narrative, its goals, and its graphics and sound design. This game design video gives a sense of the planning behind pinball game and the concomitance of pedagogical and entertainment values reconciled through humour and playful irony. In addition to being playful in a ludic sense, it also follows the Aristotelian narrative dramatic principles of a well-made play having a beginning, a middle and an end, making it therefore “theatre in a game.”



Figure 1: The Lori character describing the game action.
Figure 2: A Little Theatre in a Game. Figure 3: A game as huge as a wall.
Figure 4: The dual system of Alternative Energy and Fossil Fuel Points.

*THE SCRIPT: EXT. MONTAGE OF PHOTOS OF PIPELINE WORKERS AND WELDERS
SUPERIMPOSED TEXT*

*Sure. You can make THEATRE into a COMPUTER GAME. You just have to FIRE UP a PLAN.
For better or worse. Here is my PLAN.*

INT. PROFILE CLOSE UP on Narrator.

*NARRATOR AND SUPERIMPOSED TEXT
The Pipeline Pinball Energy Thrill Ride Game*

INT. CLOSE UP on LORI. Imagine a computer pinball game as huge as a wall. Bright shiny, bells and buzzers. Where you can score Alternative Fuel Points or Fossil Fuel Points. I'm Lori Shyba and I'm the designer of The Pipeline Pinball Energy Thrill Ride Game. It's a little theatre in a game. Now I'm not one to stuff messages down anyone's throat, but maybe by playing this game we'll find out If we can convince ourselves ... as individuals and as a society ... to keep alternative energy off of the back burner. Let's see how it works.

The Beginning Scenes/Levels

When the ball first gets put into play in this early phase of the game, it is like the "inciting incident" in a well-made theatrical script and the first volley of expository risks and challenges. Here we have the "Generate Energy Diversity" goal of the game iterated, implying that the victory condition of the game is to accumulate more "Alternative" than "Fossil Fuel" points.



Figure 5: The three open pipeline chutes.



Figure 6: The alternative energy targets; methane, hemp, and wind

THE SCRIPT: INT and EXT. MONTAGE OF "MOCK-UP" ANIMATIONS REPRESENTING SIMULATED GAMEPLAY

NARRATOR AND SUPERIMPOSED TEXT

Generate Energy Diversity

LORI. The player first needs to plunge the energy ball through each of the three open pipeline chutes to activate them. Bumpers, representing hydrocarbon deposits and refineries, keep the ball in motion. Flippers, lined up along the borders, keep the energy ball in Canada.

NARRATOR AND SUPERIMPOSED TEXT

Shift Your Resources

LORI. Once the three pipeline chutes have been activated, the three alternative energy target holes light up. These represent bio-fuel hemp crops, wind generators, and geo-thermal gas hydrate methane reserves.

The Middle Scenes/Levels

THE THEORY: This middle section of the game continues to build plot momentum through a series of escalating actions. In Michael Mateas' and Michael Stern's theory of dramatic writing for interactivity — acknowledged to have been derived from Robert McKee's principles of story — "beats" are the smallest unit of dramatic action, and are, "annotated by the author with preconditions and effects on the story state ... in the interest of creating an overall dramatic nar-

ative — a plot." (Mateas, 2005) In "The Pipeline Pinball Energy Thrill Ride Game," as a result of the protagonist being a moving energy ball, the primary exchanges of dramatic action take place as interstitial beat units of energy ball-to-obstacle possibilities. For example, if the player fails to keep the ball in play with good flipper action, it could be game over at any time, however, assuming the balls are kept in play, it's this middle section where the game branches off into interactive, non-linear possibilities. For example, if the player fails to get the ball properly into the nuclear target hole, the game may simply blow up, versus if the ball is played skillfully, the game may go into a black-light radioactive mode advancing the action to the next level.



Figure 7: The Alberta Oil Sands

Figure 8: The Pipeline Target Holes

Figure 9: The Global Clients

Figure 10: The nuclear target hole

THE SCRIPT: INT and EXT. MONTAGE OF "MOCK-UP" ANIMATIONS REPRESENTING SIMULATED GAMEPLAY

NARRATOR AND SUPERIMPOSED TEXT

The Alberta Oil Sands

LORI (Voiceover). Once the balls are locked, this opens up the MacKenzie Valley Pipeline and the Alberta Oil Sands. The player needs to plunge the energy ball down through the pipeline and then back up through the loop and into the oil sands target hole. Once the energy ball travels through the loop, the global energy markets open and five clients appear as popup targets.

NARRATOR AND SUPERIMPOSED TEXT

Build it and They Will Come

LORI (Voiceover). The player needs to activate each global market by knocking down each of the five clients. Knocking down the clients lights up the nuclear target hole. The player needs to lock the energy ball into the nuclear hole. If these balls are not played skillfully and end up in the gutter too soon due to bad flipper action, or if the game is tilted, a nuclear meltdown occurs and the whole game interface explodes. However, if the balls are played skillfully, the game goes into black-light radioactive mode.

The End Scenes/Levels

THE THEORY:

Assuming that the player gets by the game's nuclear booby trap, which in theatrical terms could be considered the penultimate moment or the crisis decision, the climax is in sight. However, there are still the Spies in the Oilpatch to clobber before the final climax of birds and animals dancing and singing, along with the resolution of game scores and decisions about win/loss variables.

In *A Theory of Fun for Game Design*, Raph Koster says, "To achieve the potential of the medium, we're going to have to push at some boundaries We'll assert that games are not only entertainment and we will probably produce some work that may shock, or offend, or present themes that challenge deeply cherished beliefs." He doesn't stop there either, he goes on to remind us that, "All the other media do it." (Koster, 2005) This includes theatre. Through the ages, social activist drama has engaged interest in issues that are happening on a global scale. Catherine Graham, editor of *Canadian Theatre Review*, puts it this way, "Activist theatre artists have helped expand our sense of the role that dramatic performance can play in developing alternative visions of public life by re-evaluating some of the terms in which we consider that question." In Canada, for example, this includes theatre practitioners such as David Diamond of Vancouver's Headlines Theatre whose work stimulates community-based dialogue; and playwright Rahul Varma, author of *Bhopal* which is about Union Carbide's crimes against humanity in India.

Social-issue video games have a long and rich legacy of activist theatre to turn to for inspiration and courage. One day, for every hundred Space Invader-type games, maybe there will be a social-issue game for players who, as Koster says deserves, "real challenges, challenges as sophisticated as the best stories give them."

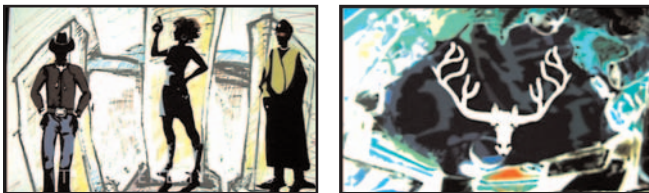


Figure 11: The international spies in the oilpatch.

Figure 12: Dancing caribou signaling the end of the game.

THE SCRIPT: LORI (Voiceover). Now, three pop-up enemy spies show up in place of the global energy clients.

*NARRATOR AND SUPERIMPOSED TEXT
Spies in the Oilpatch*

LORI (Voiceover). Once the spies are knocked down, the animals light up. Conformity or diversity point gain. When the animals light up, the whole game is ablaze with bells and flashing lights signaling the climax of the game. The player needs to activate the birds and the caribou and at the end the birds flap and sing and the caribou spin and dance. Diversity point jackpot gain. The final reward is that if fossil fuel points are greater, the Voiceover says "You are still enforcing hydrocarbon conformity, try again." The map dissolves and fades away to black. However, if alternative points are greater, the Voiceover says, "You have succeeded in energizing the world in ways you cannot imagine. You are a national treasure."

The Epilogue

THE THEORY: In *Truth and Matter*, Hans-Georg Gadamer discusses artwork as "language" and says that no matter what its medium, it opens up a space in which both the world, and our own being in the world, is brought to light as a single, but inexhaustibly rich totality in 'fulfilled' or 'autonomous' time (Gadamer, 1994). Thus both theatre and games could be seen as artwork with a festive temporarily, a symbolic and playful character that opens us up to the true possibility of community.

Temporality is an important consideration of both theatre and games as narrative forms where over time, the action leads from exposition and inciting incident to a series of escalating risks to a crisis decision, a climax and finally a resolution. Whether they traverse through linear or a non-linear narrative terrains, they are still journeys of discovery for us as participant players or audiences. In the case of serious games, as in activist theatre, we might even be opened up to possibilities of connections with our community, glimmers of meaning or truth, and maybe even hope for a better world.



Figure 13: "Let's Go Alberta! Let's exploit our existing hydrocarbons.

Figure 14: The Spies say, "What does she know about the bitumen?"

THE SCRIPT: INT. CLOSEUP of LORI. (Ironically) Let's go Alberta. Let's exploit our existing hydrocarbon resources, the Alberta Oil Sands for example, but let's make sure we've got some kind of energy fuel to peddle when it's all gone.

*SFX and cut to SPIES ANIMATIONS /SUPERIMPOSED TEXT.
What does she know about all the bitumen sittin' on the planet?*

SFX and cut to LORI

There are spies in the oilpatch and whose side are you on?

ROLL CREDITS

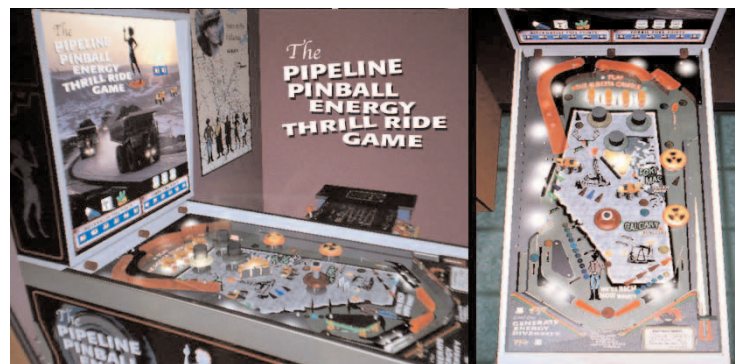


Figure 15: The digital pinball game table that was programmed based on Christopher Leathley's game engine, Future Pinball.

THEATRE ART AND HCI

Some Game in the Theatre

Brazilian activist Augusto Boal states, in *Aesthetics of the Oppressed*, that games “bring together two essential characteristics of life in society; they have rules ... but also require creative freedom” (Boal 2006, p. 5) In Boal’s innovative Forum Theatre, collaboratively created largely through the playing of games, audience “spec-tactors” can intervene in the action by jumping into the scene to act out other modes of possibility (Schutzman, 1994, p. 14). If the experiential, activist forum theatre of Augusto Boal can get people rehearsing alternative strategies for educational and political change in South America, can a juxtaposition of a “serious” computer games like “The Pipeline Pinball Energy Thrill Ride Game” with a scene from “Spies in the Oilsands” initiate change by allowing spectator/players to jump in on the political and economic action of our world and its energy industry?



Figure 16: A staged reading of the Drilling Rig Scene of “Spies in the Oilsands.” Here the actors are seen against a scenographic background of level one of “The Pipeline Pinball Energy Thrill Ride Game.”

In April 2006, I commandeered performance space in a VR theatre, rehearsed some actors to run the Drilling Rig Scene from Spies in the Oilsands, multi-screen projected “The Pipeline Pinball Energy Thrill Ride Game” as playable scenography,” invited colleagues to join me in this intermedial playground and what did I discover? That interactions between performative narrative and digital gameplay can be an effective way to tune people in to what’s going with our world and its energy resources, but there are also obstacles to overcome.

Early Reflection on an Obstacle

Computers are everywhere in the theatre. They run lighting boards and sound systems, enable scenographic projections, and manage subscription lists. It is, however, out of the ordinary to invite a computer to participate as a creative partner. The Association for Computing Machinery Special Interest Group, Computer-Human Interaction (SIGCHI) defines HCI as “a discipline concerned with the design, evaluation, and implementation of interactive computing systems for human use and with the study of the major phenomena surrounding them ... varying what is meant by interaction (of human and machine leads to a ‘rich space’ of possible topics.” (Hewitt et al.) It is this “rich space” that encouraged my involvement as a creative artist and gave promise to the Pipeline Pinball Energy Thrill Ride Game as an exploration of theatre art and HCI.

The potential of integrating HCI into theatre to put some “game into theatre” is exciting. However, by definition, the computer has to generate and mediate interactions with humans and this task clearly brings with it obstacles. An obstacle that has been encountered thusfar with this work throughout its development tour is that theatre venues have had projection display systems available, but even the VR space has not had access to multi-user human-computer interaction (HCI) devices. For that reason, electronic participant interactivity, except as a single use scenario, has not been possible to properly implement to this point.

One way to deal with this anomalous constraint for future versions might be to bring the work “in house,” that is, by staging it as interactive digital theatre events in “virtual” playspaces. This means moving away from a theatre “real-space” as a physical environment and relocating the dramatic action, the characters, and the games into a more desirable HCI domain — the computer.

Early Reflection on Successes

In spite of this obstacle, there were novel discoveries made too. Surprisingly, whether looking at it in the form of “theatre in a game” or “a game in some theatre,” in their feedback the participants largely focussed on the “content” issue of our world and its

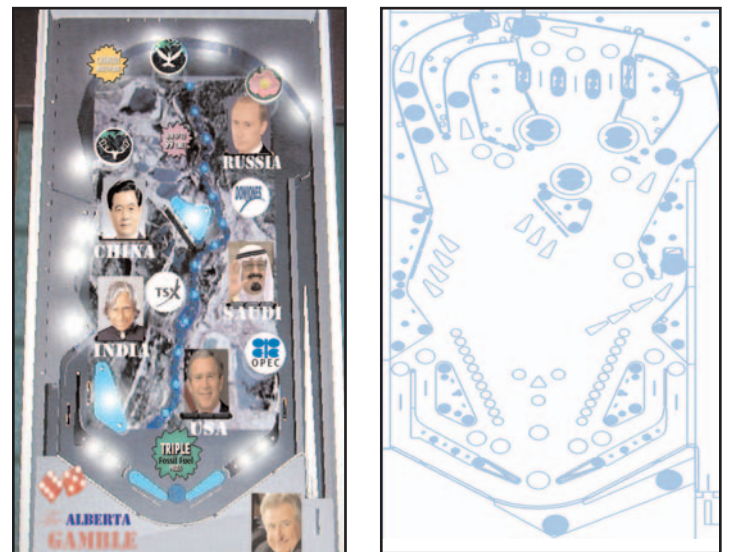


Figure 17: The Alberta Gamble game level, focusing on Fossil Fuel points
Figure 19: A blueprint of the Global Wellbeing game level.

energy resources rather than either the “form” of the theatre or the game. They had witnessed how level one, “Generate Energy Diversity” of the pinball game set up a fossil fuel vs alternative energy fuel scenario and how a beta version of a level two of the game, “The Alberta Gamble” set up a way to win unlimited fossil fuel points in the oilsands. A question for further invention has become, “How can we win this game by generating alternative energy points, thereby ramping up global wellbeing instead of global warming?”

This question, along with considerations of the obstacles encountered, is now taking the work into its next stage of development in two phases. Phase one is firstly, reconfiguring level two, “The Alberta Gamble” so that the fossil fuel points ramp up global warming; and secondly building a level three where alternative fuel points ramp up global wellbeing. Phase two is bringing character, plot, and action elements from the Spies Interactive Performance Media script into the computer to explore its possibilities as interactive digital theatre.

A Paradigm Shift?

To put a perspective on these obstacles and successes, consider the work of Thomas Kuhn, philosopher and acclaimed author of *The Structure of Scientific Revolutions*. In the 1960s, Kuhn stated that a new theory is seldom or ever just a linear increment to what is already known and that a paradigm shift can be brought about, in part, by novelties of discovery and invention that are based on awareness of an anomaly within a previous fact or theory. His thinking was that changes of paradigm categories and procedures are often accompanied by resistance and that resistance guarantees that anomalies that lead to paradigm change will penetrate existing knowledge to the core (Kuhn 1996, p. 62)

Unlike Augusto Boal’s Forum Theatre which bent the rules of conventional theatre but were still able to assimilate into theatre as an alternative discipline, I believe that interactive digital theatre of this sort can lead to a paradigm change and revolution that could rock the Muse of the Theatre to her very core. Will Theatre be accepting? As an emerging new paradigm, interactive digital theatre poses exciting research questions. Do further analogies exist between trends in science to contextualize the emergence of this new paradigm in the landscape of the theatre? Does interactive digital theatre, like Theatresports and Forum, have the power to transform a group into a new discipline within theatre? My challenge with the next phases of this work is to continue reinterpreting the work, laying on the new research questions as they come along, to discover further ways that interactive digital theatre and games can lead us to better understand urgent social and environmental issues.

CONCLUSION

Even in its current state of infancy, interactive digital theatre and video games draw heavily upon the influences of theatre. Conversely, they are also enhancing the culture and creativity of theatre in ways that are just making themselves known. Digital games can provide lively and exciting playspaces as both “theatre in a game,” and “games in some theatre.” In relation to my work, there are specific benefits of keeping the lines of influence open for hybridized cross-pollination of collaboration and development. In a more universal and humanitarian sense, a way to expedite distinctive new discoveries and inventions in both creative fields of endeavour is to try out hybrid forms that have the ability to move people towards a more socially impactful participation in gaming.

On this level of social commentary, it’s my feeling that Spies and Pinball can tune us in to the economics of the oilsands by subjecting us to playful checks and balances of interpretation and interrogation. Like level two, The Alberta Gamble, do we count on a continuing oil spike and develop the hell out of the Alberta oil sands just because they’re there and it’s the simple way out? Or like the futuristic level three, should we take up the challenge of alternative fuel development and follow up on long-term energy planning for global wellbeing? To re-iterate a script fragment from the Pipeline Pinball Energy Thrill Ride Game design video, maybe by playing this game we’ll find out if we can convince ourselves, as individuals and as a society, to keep alternative energy off the back burner.

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