

# Digital Worlds (CA168/CA468)

## Virtual Worlds

Colum Foley

5<sup>th</sup> Oct 2010 Virtual Worlds - Colum Foley

## Outline


- What are Virtual Worlds?
- History
- Examples
- Issues/Controversies
- Current State of Play

## What are Virtual Worlds?


- A **virtual world** is a computer-based **simulated environment** intended for its users to inhabit and interact via **avatars**
- Online **persistent world** active and available 24 hours a day
- Enables users to experience **telepresence**
- The term *Virtual Worlds* is a vague, inclusive term encapsulating a wide range of technologies
  - **MMORPG** – massively multiplayer online role playing games – *World of Warcraft*
  - **MMORLG** – massively multiplayer online real-life– *Second Life*

## Simulated Environment

- Can mimic real world




...or can be fantasy worlds



- Both generally have rules governing environment - gravity, locomotion etc.

## Avatars

- An object representing a real user in the virtual world
  - Can be a 3D character
  - 2D icon or picture
  - 1D username



## Avatars

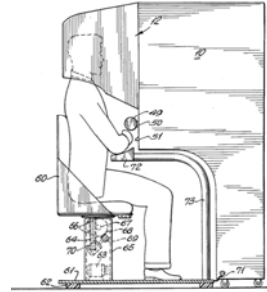
- Communication between avatars can be via text chat, VOIP, graphical icons, visual gestures
  - Public / Private communication channels available
- Avatars can usually walk / fly / teleport around the virtual world they inhabit
- Provides a degree-of-seperation between the user and the *in-world* avatar
  - Sometimes these boundaries become blurred..

## Virtual Worlds

### HISTORY

## 1962 Sensorama, Morton Heilig

- *Experience Theatre: The Cinema of the Future*
- Immersive, multi-sensory (multimodal) technology
  - Stereoscopic 3D images
  - Body tilting
  - Stereo sound
  - Wind
  - Aroma



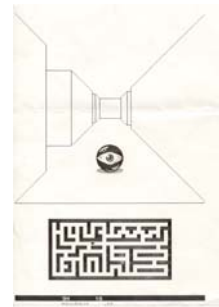
## Virtual Reality

- Immersive simulated environment
- Characterised by bulky headsets and input devices
- *Sensory Imitating*
- VR relies on tricking the perceptual system into experiencing an immersive environment
- Virtual Worlds on the other hand rely on engaging the user emotionally and mentally



## 1974 Maze War, NASA/Ames Research

- First networked 3D multi-user first person shooter
- First to introduce the concept of **avatars**
  - Players were represented as eyeball avatars chasing each other around in a maze
- Played over **Arpanet** (early internet)
- Could only be played on a specific computer



## 1978: MUD – Multi-User Dungeon

- Early example of a MMORPG
- Fashioned around the dice-rolling rules of the *Dungeons and Dragons* series
- Real-time virtual world described primarily in text
- Role playing game set in a fantasy world inhabited by fictional races and monsters
  - Players can choose to play as a certain race/class with certain skills or powers
- Object of the game is to slay monsters, complete quests, explore the fantasy world,...

## 1978: MUD – Multi-User Dungeon

- Many variants of MUDs released over the years, and still in existence
  - Based on fantasy worlds, books, movies, TV shows
- Traditionally users access MUDS using Telnet Clients or more recently using MUD clients designed to improve the user experience
- MUDS are primarily games but some can be used for educational purposes, and have attracted interest from academic scholars
- Video...

## 1986 – Habitat, LucasFilm

- Early example of a graphical MMORPG
  - First attempt at an large-scale graphical commercial virtual world
- Played on Commodore 64 across *QuantumLink* (precursor to AOL)
- Users represented as online avatars
- Players in same region (screen) could see and speak (text)
- Self governed by *citizenry*
  - Users responsible for laws and acceptable behaviour
  - Avatars had to barter for resources
- Much-cited and acknowledged benchmark for design of online communities



## Virtual Worlds

Some Examples

## Virtual Worlds

World of Warcraft – Blizzard Entertainment, 2004

## World of Warcraft – Blizzard Entertainment, 2004

- Subscription based service
- 2 modes of play (realms)
  - Player versus player (PvP)
    - Open combat amongst players
  - Player versus environment (PvE)
    - Focus on defeating monsters and completing quests
- Avatars
  - Faction can be either *Horde* or *Alliance*
  - Race can be
    - Horde – Orc or Troll
    - Alliance – Human or Dwarf
  - Class can include mages, warriors, priests
  - Can gain talents as they progress
  - Can learn professions such as tailoring, mining, blacksmithing, cooking, first aid
  - Can join *guilds*

## WoW: Gameplay

- Mostly involves *quests* or missions
  - Available from game characters (i.e. non-player character (NPC))
  - Reward can be experience points, items or money
  - Usually involve killing some creatures, gathering resources, finding objects, speaking to NPC, visiting locations, interacting with objects, delivering objects
- Quest chain
  - Quests are usually linked, one leads to another...
- Players can group together to complete more challenging quests
  - Character classes are used for roles in the group

## WoW: Issues

- Corrupted Blood Plague
  - Virtual Plague created in special region of game
  - Disease intended to be confined to special region of game
  - However pets picked up disease causing it to move to cities
  - After a few days entire cities were rendered uninhabitable
  - Received much attention from scientific community regarding the similarity between the in-world outbreak and real world (SARS, avian flu)
  - Scientists are looking at ways to use MMORPG for advanced modeling of effects of real world diseases
- Technical
  - Down time leading to free play time
  - Legality of *Warden* software called into question
    - Created to stop botting such as the *Glider* software
    - However privacy concerns raised as software behaves like spyware
- Fraud
  - Hacked accounts
  - Feb 2008 Halifax claimed that stolen credit cards were being used to create accs

## WoW: Issues

- Sale of virtual items in the real world
  - Virtual gold being sold
    - Spam advertising
  - An "alarmingly high" amount of gold bought originates from hacked accounts
  - As many character rewards are bound to the character and cannot be sold there is a large market for well-equipped characters
    - September 2007, a WoW character was sold for \$9,937.49
- Gaming addiction
  - Been several deaths as a result of continuous gameplay related to exhaustion and lack of food
  - In 2005 China enforced a 3 hour limit on gameplay – later changed to only apply to those under 18

## Virtual Worlds

### Second Life – Linden Labs, 2003

## Second Life – Linden Labs, 2003

- Virtual world developed by Linden Labs and launched in June 2003
  - Users create avatars and explore a simulated environment
- Current figures of 20m registered users
  - Estimated that 700,000 unique monthly users spend more than one hour 'in world' per month, with around 60,000 online at any one time
- Basic membership is free, premium membership is (US\$ 9.95) allocates land to the resident
- Members required to be 18 or over
- Second Life's classification status is frequently debated – unlike a traditional computer game there is no designated objective

## Second Life – Linden Labs, 2003

- Residents can explore, socialise, participate in individual/group activities, travel the world (or 'grid') and create & **trade virtual property**
- Second Life relies on user generated content –
  - Residents build objects using primitive 3D modeling tool
  - Functionality can be added to objects through Linden Scripting Language
  - Users retain ownership rights of objects they create and can trade these

## Second Life – Linden Labs, 2003

- Linden Dollar (L\$) – currency of second life
  - Used to trade goods, land and services with other users
  - Goods include buildings, vehicles, devices of all kinds, animations, clothing, skin, hair, jewelry, flora and fauna, and works of art
  - Land is a scarce commodity which can be bought/sold or rented
- Users can exchange L\$ for US\$
- A small fraction of users derive an income from second life
  - 64,000 users made a profit in Second Life in Feb 2009, of whom 38,524 made less than US\$10, while 233 made more than US\$5000

## Second Life – Linden Labs, 2003

- Avatars
  - Can be made to resemble real user
  - Can fly or teleport to any location
- Communication
  - Local chat – public local conversations
  - Global instant messaging for private conversations
  - Voice chat now available
- Land Ownership – fees
  - Land can be purchased from Linden Lab or privately
  - Premium membership gives 512m<sup>2</sup> free from land use free

## Second Life: Corporate Presence

- Organisations /companies created a presence on second life
- Why?
  - Companies want to appear "cutting edge"
  - An online society where publicity is cheap and the demographic is edgy and computer-savvy
  - Provides an opportunity to have rich, long discussions with customers, employees, and business partners.
    - More intimate than email or phone
- SL is not only used to reach consumers, companies use it as a location for staff training, seminars etc.

## Second Life as an Advertising Platform

- Companies can build an online store
  - L'Oreal – makeup for avatars
  - Dell - build your own virtual PC with L\$ or buy a real PC with \$
  - Pontiac – take a virtual test drive in your customized Pontiac
- Or place contextual adds
  - When you chat the billboard "listens" and displays related advertising



## Second Life: Applications

- Education
  - Over 100 regions used for education
  - 300 universities around the world have a presence
  - Some institutions operated entirely within second life
- Arts
  - Exhibits
  - Live music
  - Theatre
- Religion
  - Experience Island opened by LifeChurch.tv
  - Islam online has opened an island for performing virtual Hajj
- Governmental
  - Embassies – Maldives, Sweden

## Second Life: Press Conferences

- Several companies have promoted new products / services through SL press conferences
  - Sun Microsystems
  - Cisco
- Companies are also providing seminars and group meetings in SL
  - Cheap alternative than face-face meetings
  - Example: Sun Java forum



## Second Life: Examples

- Wimbledon in SL (IBM)
  - Relayed ball tracking info in realtime
  - Points recreated in SL in front of audience



## Second Life: Examples

- NASA has established several islands
- CoLab Island
  - Gathering point for NASA and non-NASA space enthusiasts in SL
  - Weekly meetings held
- Explorer Island
  - Public can mingle with scientists from NASA's Jet Propulsion Laboratory
  - Mission to Mars
  - Walk on surface of moon
- NASA streams live broadcasts of its shuttle launches and users can watch together



## Second Life Examples: MTV

- Virtual Laguna Beach



## Second Life: Examples

- Dublin in Second Life



## Second Life – Controversy

- Technical
  - Time Lags and Delays
  - Items going missing
- Cybersex
  - Companies don't want to be associated with sleazy stigma
- Money laundering & Fraud
  - No paper trail
  - Stolen credit cards used to buy L\$
    - Can open multiple accounts without any real identification
    - Can fund the accounts with cash **anywhere**
    - Can then purchase some virtual real estate from a co-conspirator
    - The "seller" can then access these funds, either through ATMs, or through a bank.
- Legal
  - Boundary between real life and second life blurred
  - Virtual possessions indistinguishable from real possessions in court
  - In-world theft can lead to real world consequences
  - Second Life affair lead to a real divorce

## Current State of Virtual Worlds

- Two years ago, virtual worlds and Second Life were the darling of the digital marketing world
  - Hype was followed by multimillion investments by global consumer brands desperate to appear tech savvy
  - Building virtual "brand assets" such as islands that no-one visited
- Why?
  - Social networking sites becoming more popular
  - Ghost towns – only small fraction of user base online at any one time
  - Therefore small advertising market for companies
  - Real estate in second life can be expensive to buy and to build – technical expertise required, compare that with ease of Facebook
- Since there has been a reality-check and companies are now examining their use of second life again

## Current State of Virtual Worlds

- Businesses actively engaged include IBM, Intel, the NHS, BP, Dell, Diageo, Ernst & Young, Unilever, Philips.
- Businesses now see VWs as a niche B2B marketing tool with a multitude of uses
  - Including maintaining contacts with geographically dispersed clients and employees,
  - Demonstrating prototypes of new products,
  - Simulating customer service scenarios,
  - Providing remote consultancy
- Consumer brands have largely turned their back on the technology

## Current State of Virtual Worlds

- Almost 200 Virtual Worlds are in existence
- Examples include
  - Second Life, Blue Mars, Habbo Hotel, Farmville
  - World of Warcraft
- Number of registered users has risen from 880 million in the fourth quarter of 2009 to 1.1 billion today
  - A 25% increase within six months.....in the middle of a recession
- Two thirds of VW users are under 16 years old
- Registered population of virtual worlds is greater than the populations of the US and Europe combined

## Future of Virtual Worlds

- Are virtual worlds here to stay?
  - Google Lively abandoned
- Rumors circulating that Microsoft are about to buy Second Life
  - Has recently bought Vivality a competitor - to SL
- Some people compare VW at present with early internet
  - Many flaws but massive potential
- Future VW may not be SL or WoW but something else...