

# Lessons in Learning and Teaching in Second Life

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# Advantages of a Virtual World ?

## ■ Engagement

Increased feedback from environment

‘Rich’ environment manipulated by user

More customisable = more ‘ownership’ = greater engagement

## ■ Because we can ...technology + user expectation

3D interactive online environment becoming more widespread

Natural progression from existing VLE

Show case for computing applications

## ■ Constructive, egalitarian learning

Teacher – Learner => Constructive collaboration

Student ‘part of the action’

Student contribution equally valued

More 'field trip' than 'classroom'.

# Features of an Online 3D Virtual World

- ‘Rich’ environment
  - Personal representation
    - avatar customisation, telepresence
  - Geography
    - Landscape, location, neighbourhood,
  - Interaction – with people
    - Meeting strangers, friends, collaborators
    - Chat, Instant Message, snapshots, movies
    - Social groupings and special interest groups
    - Events, meetings, concerts
  - Interaction – with environment,
    - Using artefacts
    - Building, scripting and animating artefacts
    - Creating themed localities and mini-worlds



# Features of Second Life

- VLE => MMOLE
  - **Massively Multi-user Online Learning Environment**
  - Link to Moodle VLE (SLoodle) and other social software (SLoodle)
  - Simtech wiki, Education UK, and other educational resources
  - In-world tools and tutorials
  - Supporting recording and reflection –
    - Photobucket/snapzilla + blog entries for recording
    - Machinima + Utube
    - Personalised** – ownership of avatar and artefacts
    - Public** – visible to peer group and beyond.
    - Persistent** – lasting effect on environment

# Before you start...

- Identify learning objectives
  - what skill/knowledge are the students going to learn?
- Identify assessment criteria
  - how is the skill/knowledge going to be demonstrated?
- Identify technological need
  - Is SL an appropriate tool for the learning outcomes?
- Assess infrastructure
  - will SL run in the lab or on students home computers?
- Assess students
  - Consider ability, motivation, time allocation, and (for some uses of SL) emotional maturity.

# Planning your activity – Some suggestions

- Link educational theory to activities – e.g. social constructivism.
- An open ended environment 'away' from the classroom – activities may (should) allow different experiences.
- More 'realistic' i.e. involving more engagement with other residents.
- Appeal to different learning styles – Activist, Pragmatic and Reflective easily catered for, (theorist takes a bit more work).
- Widening range of learning tools – use SL to introduce wider range of social software (web 2.0).
- Social economy – 'reputation' and knowledge based trading.

# Example I – Group work project

## ■ Group work project

- Orientation / Registration – classroom and in-world mentoring
- Socialisation - group tasks, treasure hunt
- Information Exchange – negotiations on group avatar theme and
- Knowledge construction – learning to build and construct artefact.
- Social construction – groups members worked together on shared goals.



# Rus Ranger looking at the ARC group meeting and socialising





# Aspects of the group work project

- Learning from each other
  - Members of a group can see the effect of their actions
  - Communication is about tasks rather than through SL
  - Very easy to demonstrate tips and techniques
  - Most learning was student to student.
- Group working 'lite'
  - Informal, casual 'flat' structures low on command, control and documentation.
  - Decisions are easy to change, repair or amend
  - Low downside risk implies low overheads
  - Formal organisational structures outweigh costs and usefulness

## Secrete Service group avatar theme



# Results from group work project

- **Blending real and virtual** – group communication moved seamlessly from face-to-face discussions to virtual demonstration and sharing.
- **Task based learning** – The skills learned from the virtual environment and perceived as part of the task rather than being external.
- **Varied autonomous learning** – students using different learning resources and experiences.
- **Peer to peer learning** – shared environment made it easy to demonstrate applied knowledge.
- **Mobile group structures** – Heterogeneous skills encourage students to become leaders/tutors for sub-tasks where they have particular skills.

## Building the boat house



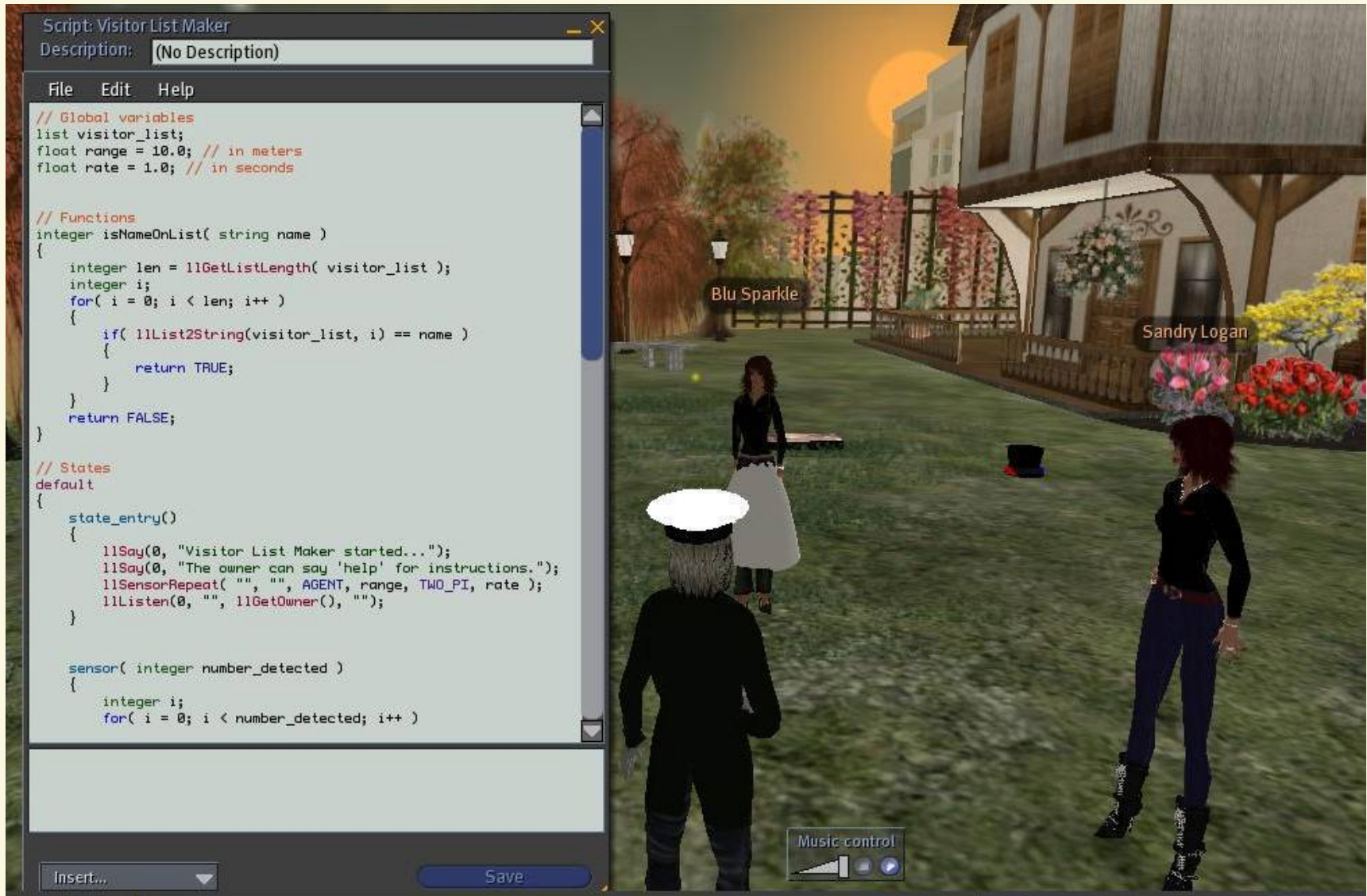
# Example II - The Programming Playground

- Plan to create a 'playground' of artefacts for novice programmers e.g.
  - Swing – will swing 'n' times demonstrating a for loop
  - Round-a-bout – will rotate 'while' an avatar is sat on it.
  - Slide – one ladder gives access to a number of different slides – demonstrating choice
  - Objects to have both obvious and 'surprise' behaviours
  - Students input parameters to objects
  - Students 'discover' properties of objects

# Programming Playground

- Initial plan lacked educational
  - limited range of actions for objects
  - demonstrate rather than participate
  - need to teach concept of 'algorithm'
- Student needs
  - Second level computing students could already program (mostly)
  - Need to link design and implementation
  - So project re-cast to support program design
  - Students to create objects that implement designed behaviour.

## Working on some LSL scripting



Script: Visitor List Maker  
Description: (No Description)

File Edit Help

```
// Global variables
list visitor_list;
float range = 10.0; // in meters
float rate = 1.0; // in seconds

// Functions
integer isNameOnList( string name )
{
    integer len = llGetListLength( visitor_list );
    integer i;
    for( i = 0; i < len; i++ )
    {
        if( llList2String(visitor_list, i) == name )
        {
            return TRUE;
        }
    }
    return FALSE;
}

// States
default
{
    state_entry()
    {
        llSay(0, "Visitor List Maker started...");
        llSay(0, "The owner can say 'help' for instructions.");
        llSensorRepeat( "", "", AGENT, range, TWO_PI, rate );
        llListen(0, "", llGetOwner(), "");
    }

    sensor( integer number_detected )
    {
        integer i;
        for( i = 0; i < number_detected; i++ )
```

Blu Sparkle

Sandry Logan

Music control

Insert... Save

# Findings from programming playground

## ■ What worked well

- Close correspondence between environment and task.
- Environment demonstrated aspects of design that were not easily implemented in other ways
- Some students explored widely and learned from each other and the environment.

## ■ Issues to consider

- Wide variation in skills and motivation
- Little engagement beyond what was necessary for assessment
- Students needed more guidance and monitoring – virtual needed to be supported by more face to face



# Rus Looking at various artefacts from the programming playground activity



# Nursing Education

## ■ Aims

- To create virtual world role playing scenarios to support paediatric nursing skills education.
- To integrate virtual world activities with existing practice and other educational environments.
- To create generic tools and techniques to enable learning materials to be customised by subject specialists.
- To provide a platform for continued development within the area of health education and to be an example for other disciplines.

# Nursing education

## ■ Key elements

- Using simulations to support rather than supplant existing skills learning.
- Allow student autonomy on how system is used.
- Create replicas of nursing environment, rooms, machines, equipment, drugs.
- Implement role playing scenarios based on current practice.

## Paediatric Resuscitation Skills practice in the classroom and an avatar in the NMC hospital simulation



# Conclusions and Future Work

## ■ Using SL

- SL for education is rapidly becoming mainstream
- 50 + universities with significant presence
- Many secondary level institutions getting involved
- watch out for the hype – and the knocking copy, SL is neither as good or bad as anyone says, its what you make of it.

## ■ Future Ideas for direct use of SL features:

- Cross faculty / institution collaboration.
- Simulation and scenarios for education and training.
- More research required on the 'unique' elements of SL.