Honours Project Overview

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Structure of the Presentation

- What is the honours project?
- Why is it necessary?
- Why is it important?
- What can it be?
- Previous Successful Projects
- Supervisors, Moderators
- Project Specifications
- Marking Schemes

What is the honours project?

- An individual project that runs through the entire course of the honours year
- It involves a synthesis of everything that you have learned so far and involves:
  - Defining a particular problem associated with games development
  - Investigating that problem to answer some form of a question
  - Literature Review
  - Research methodologies
  - Software Development/Game Lifecycle Methodologies
  - Design methods
  - Implementation
  - Software Game/Testing
  - Evaluation Methodology
  - Conclusions
  - Critical Appraisal

Defining the Problem

- Development of an Entity Relationship Editor and Schema Generator
- Development and Evaluation of a CLE for teaching Database Design
- Using Games–Based Learning to Teach Requirements Collection and Analysis at Tertiary Education Level
- Introduction
  - Problem
  - Solution
  - Structure

Defining the Problem

- The use of audio in computer games to heighten engagement
- Does a computer game have to be in a 3D format to ensure that optimum fun is experienced
- Preferred Story Mechanisms in Games
- Level Design Principles in Games
- Violence in video games
- Serious Games
  - Development of a Computer Game to Teach Programming Concepts
  - Development of a Computer Game to Teach Biology/Physics/Maths/Disaster Training/Spider identification/Surgery Simulation/Bicycle Repair

Literature Review

- Books
- Electronic Journals; eg.
  - ACM, IEEE, ScienceDirect, Blackwell Synergy, EBSCO (consisting of Psychology and Behavioural Science, PsycINFO, SocINDEX, Library, Information Science and Technology Abstracts, CINAHL), ERIC, IngentaConnect, Infortrac (Expanded Academic ASAP) and Emerald
- Google Scholar
- ResearchGate
- Conference proceedings
- Check the authors are credible in the field

Literature Review

- Is to read around the field to identify gaps and also what other people have done
- Can be discursive or systematic
- Systematic means identifying search terms, timeframes and quality criteria to find relevant papers in electronic journals
- You have to define terms such as “game”, “level design”, “story”, “narrative”, “fun”
- SDLC, Research Methodologies, Software Testing, Design, Evaluation can contribute to the literature review

Research Methodologies

- Quantitative – Positivist
- Qualitative – Interpretivist
- Primary and Secondary Research
- Hard or Soft
- Mixed–Methods
- For your Literature Review you will be performing Secondary Research in the form of Archival Research using the electronic journals
- You will also be doing primary research in terms of development and testing and evaluation of that work

Research Methodologies

- You have to justifiably pick the methodologies and their methods to carry out your research and there are a number of methodologies including:
  - Survey/Questionnaires
  - Experimental/Quasi-experimental
  - Interviews (structured/semi-structured)
  - Case Studies
  - Observational Research
  - Longitudinal Analysis
  - Meta-analysis
  - Ethnographic

Research Philosophy

- Your selection of methodology is linked to who you are as a person and how you see the world
- Numerical or emotional

Software Development/Game Development Lifecycles

- Waterfall model
- Incremental model
- Spiral Model
- Rapid Application Development
- AGILE model or variation
- Review all of these and then select on based on a good justification for the project

Design Methods

- Unified Modelling Language – Object Oriented Design
- Structure Systems Analysis and Design Methodology – Entity Relationship Methods
- Data flow analysis
- Data structure methods
- In the past production of a GDD and that is considered sufficient
- In the honours dissertation it would be best to have this as an appendix and an overview of the design presented in the dissertation

Implementation

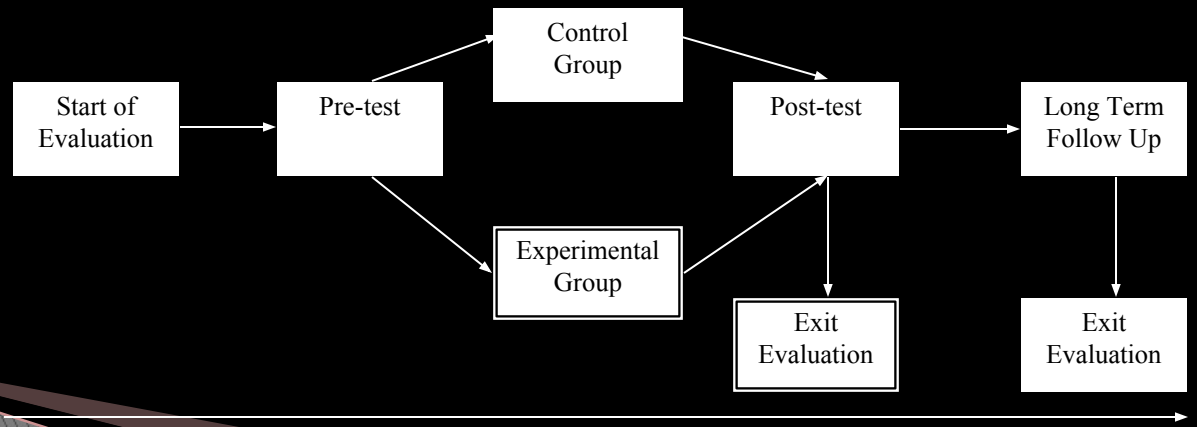
- Select an environment that you would consider educationally beneficial or one that you wish to develop your skills in
- Just a brief description of the implementation is necessary in the dissertation or a walk through to appropriately illustrate the points
- Generally the implementation will be submitted as an executable

Software/Game Testing

- Functional Testing
- Structural Testing
- Error–Oriented Testing
- Alpha Testing
- Beta Testing
- Selecting one of these method
- Production of a test plan and test log

Evaluation

- Actually evaluating the game with players/learners/users
- Experimental or quasi-experimental?
- Pre-test (possibly to determine if the population sample is adequate)
- Intervention → post-test
- Pre-test → Intervention → post-test
- Pre-test → Intervention → post-test → long term follow up post-test



Evaluation Results

- Evaluation can be quantitative/qualitative or both
- Participants
- Methodology – Evaluation Framework/Experimental Design
- Procedure
- Results
  - How are the results analysed?
  - Mean, Standard Deviation, Parametric and Non–parametric statistical tests

Discussion

- Shows that you can interpret the results beyond the objective scope of the results section
- Gives you the opportunity to talk about the results and draw together the main points
- Gives you the opportunity to draw comparisons between what you've found and previous studies
- Gives you the opportunity to highlight points that you feel are interesting
- Can also discuss limitations

Conclusions – Future Directions

- Formulating the main findings of the research paper into a cohesive whole
- Highlighting what you've found out during the study
- Making it clear how you intend to proceed in the research
- Acknowledge what future work is required

Critical Appraisal

- What did you learn through the project?
- What did you learn from each constituent part?
- What would you do differently?
- What was the most useful part of the project?
- What were the limitations?

Why is it necessary?

- It is a requirement of all UK universities to have a research element
- This is specifically to allow you entry into the next level of study:
  - Masters level
  - Doctoral level
- General requirement of all degrees that you can write a dissertation to an acceptable standard

Why is it important?

- Double module – 200 credits
- 600 credits in honours year
- It is a third of your distinction
- Degree and previous years do not count
- 70% final report
- 10% interim report
- 10% presentation
- 10% project management
- 420 1st, 360 2/1, 300 2/2.

Why is it important?

- The final report is a marking scheme that is agreed between yourself, your supervisor and your moderator
  - 10% introduction
  - 20% literature review
  - 35% design and implementation
  - 10% testing
  - 10% evaluation
  - 10% conclusions
  - 5% critical appraisal

What can it be?

- It has to have a research underpinning
- It is an opportunity for you to research something about games and attempt to address shortcomings
- An opportunity to use it to enhance your future
  - Whether that is further study in which case focus on LR, Research and Statistical Analysis
  - Whether that is in industry in which case focus on development in a useful engine which is closely related to posts that you wish to target

Previous Successful Projects

- All are available from the library
- Supervisors will be able to provide you with examples of acceptable projects
- **Development and evaluation of a games–based learning environment to teach programming concepts**
- **Designing Effective Tutorials for Video Games**
- **Using motion capture to produce learning software to aid teachers of sign language**
- **A comparative investigation of the effects of level design to enhance 3D and 2D games enjoyability and engrossment**

Supervisors and Moderators

- Academics are not really obligated to take you as a student
- We are really supposed to take 6 and we get 0.5 hours on our activity plan
- Depends on the credibility of your idea and whether the member of staff knows you previously
- It is really on a first come first served basis
- GET ONE AS SOON AS POSSIBLE!
- Don’t be offended if you are refused

Project Specification Form

- Fill this out as soon as you have a viable idea
- Title
- Outline of the Project
- A Passable Project
- A First Class Project
- Reading List
- Resources
- Marking Scheme