Initial Plan

Building a Taxonomy of Learning Outcomes from Module Descriptions

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Project Description

In recent years education and learning has moved on from the traditional teaching methods to focus on a more outcome-centred learning. The philosophy surrounding this is one of student-centred learning, where education moves away from the traditional memorization and rote learning pattern to concentrate more on what the students' needs, abilities, interests and learning styles are. This student-centred learning requires students to be active, responsible participants in their own learning.

The School of Computer Science & Informatics recently underwent a redesign of all its degree schemes, changing the content of what was being taught and how this was going to be taught to the students to better reflect the their needs, keep up-to-date with the latest developments within the industry and to more appropriately follow the outcome-centred learning. As a result of this redesign 3 years ago, many new and improved modules have been introduced. However, while a lot of feedback has been gathered from running these modules, there is still a lot that remains untested and that needs to be addressed. Certain issues such as were the overlap between modules lies and whether students are properly building upon their knowledge base year on year need to be better understood and clarified.

One of the key ways that lectures communicate the main aims and objectives of a module to their students is through Learning Outcomes. Learning Outcomes are statements describing what a student should know, understand and be able to do at the end of a module. The focus of this project therefore, is to examine both the overall programme Learning Outcomes and also the Learning Outcomes for each of the modules on the Computer Science degree scheme. A Taxonomy will then be built to discover where the dependencies and gaps lie and produce an overall hierarchy of learning for the Computer Science degree scheme. Along with this, research will be carried out into how the students feel about what they are learning from the modules and whether they believe this matches with the defined and expected Learning Outcomes.

Overall, the project will look at generating data from both the University stated module descriptions and the students themselves to better understand the learning process within the Computer Science degree scheme.

Aims & Objectives

The main overall aims for the project are to:

1) Create a relational database that will represent both the overall programme and module information in a machine readable format for further automatic processing.
2) Build from this data a Taxonomy of Learning Outcomes that can then be analysed
3) Gather data from a sample set of students across each year of the Computer Science course for a specific subset of modules regarding what they originally understood they would be learning against what they believe they have learnt in the end.
4) Compare the data gathered from the students against that collected from the Module Descriptions
5) Suggest recommendations for improvements to the module descriptions.

The work produced from the aims listed above will then be split between the two reports as follows:

- **Interim Report:**
    - Build a database of Learning Outcomes for the overall degree scheme programme and for each individual module in the CS course
        - An ER diagram will be produced to show the overall structure of the database
    - Analysis of the Learning Outcomes using a chosen "educational learning" classification scheme
        - A taxonomy of learning outcomes for the Computer Science degree will then be produced
    - Initial data gathering from a sample set of students for specifically chosen modules across all three years
        - Data gathered will be the students own personal opinions and feedback relating to what they believe are the main learning outcomes for the modules
        - Data will be collected using questionnaires and focus groups
        - Emphasis will be placed on ensuring all data collected adheres with both school policies and the data protection act

- **Final Report:**
    - Analysis of the Learning Outcomes Taxonomy to check for:
        - Potential overlap between modules in a year
        - Potential overlap between years
        - The effects of choosing different optional modules
    - Produce visual representations of the above analysis
        - To help better represent the dependencies between modules and the effects of choosing different optional modules
    - Build a database of Student Feedback from the data gathered
        - An ER diagram will be produced to show the overall structure of the database
    - Modify the Learning Outcomes Taxonomy as a result of the data gathered from student feedback
    - Suggest recommendations for improvements to the module descriptions
        - This will be based on the Learning Outcomes Taxonomy and visual representations produced throughout the project

Work Plan

Autumn Semester			
Weeks	**Tasks**	**Deliverables**	**Supervisor Meeting**
3	Find out about school policy on Data protection Background Research	**Initial Plan Submitted** ER Diagram for Module Descriptions Database	-
4	Create Module Descriptions Database	Module Descriptions Database Set up	✓
5	Start Building Learning Outcome Taxonomy Create structured questionnaire for each individual year group and modules Email students about taking part in focus group	Background Research completed	-
6	Plan focus group session for all 3 years	-	-
7	*(No new tasks - Continuing on with any other work previously started)*	Questionnaires completed Focus group plan finished	-
8	Start writing up Interim Report Focus groups for years 1, 2 & 3 held	Transcripts for focus groups	✓
9	Send out questionnaires via email	Learning Outcomes Taxonomy	-
10	Start Analysing Learning Outcome Taxonomy Send out questionnaires via email	Draft Interim Report	✓
11	Send out questionnaires via email Edit Interim Report	**Interim Report Submitted**	-
X	*N/A – Revision*	*N/A – Revision*	-
X	*N/A – Revision*	*N/A – Revision*	-
12	*N/A – Revision*	Data collected from completed questionnaires across all year groups and modules	✓
Exams	*N/A – Revision*	*N/A – Revision*	-
Exams	*N/A – Revision*	*N/A – Revision*	-

(N.B: Work Plan for Spring Semester could be subject to change depending on other coursework commitments and timetabling issues that are at present unknown)

Spring Semester			
Weeks	Tasks	Deliverables	Supervisor Meeting
1	Analysis of Learning Outcomes Taxonomy *If not enough data has been collected from questionnaires already, resend to collect more*	-	-
2	*(No new tasks - Continuing on with any other work previously started)*	ER Diagram for Student Feedback Database	✓
3	Create Student Feedback Database	Student Feedback Database Set up	-
4	Modify Learning Outcomes Taxonomy based on Student Feedback	Modified Learning Outcomes Taxonomy	✓
5	Analysis of Learning Outcomes Taxonomy	-	-
6	*(No new tasks - continuing on with any other work previously started)*	-	✓
7	*(No new tasks - Continuing on with any other work previously started)*	Visual Representations for Learning Outcomes Analysis	-
8	*(No new tasks - Continuing on with any other work previously started)*	Final conclusions and modifications to module descriptions decided upon	✓
E	Start Writing up Final Report	-	-
E	Final Report Write Up	-	-
E	Final Report Write Up	-	-
9	Final Report Write Up	Draft of Final Report	✓
10	Final Report Write Up		-
11	Final Report Write Up	**Final Report Submitted**	✓