Using of Business Simulation Game and Reflective Learning Journal Assessment – A Planning Perspective

**Key Issue(s)**
Use of IT for assessment  
Multiple forms of assessment  
Promote interest-based learning

**Discipline Area(s)**
Engineering

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**Abstract**

SimEnterprise™ is an enterprise simulator and is used as an assessment tool to provide students with the knowledge of corporate strategies and Material Requirements Planning (MRP) concept with the help of a decision-making game. The use of a complex business simulator, with the high number of variables involved in a real marketplace, allows users to implement corporate strategies in a context very similar to the actual environment, thereby helping students to improve their teamwork capacity, understand the organization in a global way, increase the quality of their business decisions and improve their managing skills.

In line with the simulation game, a reflective journal is also required from students to reflect on what they have learnt and their improvement through the process of the game.
**Introduction**

In the BEng (Hons) Programme in Industrial and Systems Engineering, final year students are given the opportunity to take the management position of a company in a business simulation game called SimEnterprise™ so as to prepare students for future career after graduation. The business simulation game and the reflective learning journal are used as two of the assessment methods in this subject (refer to Appendix 1 for the assessment plan of this subject). For the game, the grading is based on the performance of their business in the game, such as the profit, loss, late delivery, etc. For the reflective learning journal, the grading is based on how and what students learnt from the game playing.

**Use of IT for assessment**

The students can learn from role playing in the simulation game which uses computers and a computer network to simulate the business environment.

**Multiple forms of assessment**

The game and the reflective learning journal are included in the assessment. The game assessment includes the game score, the late delivery, the maximum profit per order, the maximum loss per order, etc. The skills in handling the business are assessed. Students are required to rethink what they have learnt in the reflective learning journal by describing the learning process and how the theories they learnt can be applied in the business environment.

**Promote interest-based learning**

The students have a chance to practise the theories in an interesting way by playing the game instead of giving lectures and tutorials and asking them to hand in reports. Students are encouraged to review and apply the theories they have previously learnt when playing the game.

**Details and Implementation Procedures of the Assessment Practice**

**Simulation game**

In this business game, students need to maintain a stable cash flow and active participation in the trading environment. Also, they need to carry out the following tasks:

- Inventory Management
- Components Procurement and Replenishment
- Finished Good Sales (based on the estimation of customer demands)
- Customer Order Delivery and Sales Invoice

SimEnterprise™ game is divided into three different levels of assessment:
Level 1 - Students will learn how to complete a trade and manage inventory.

Level 2 - Students will learn how to handle an Enterprise Resource Planning (ERP) operation and deal with exceptional cases in different roles.

Level 3 - Students will try to maximize their market share within a limited time frame in a real time environment.

**Reflective learning journal**

For the reflective journal, the students will reflect on what they have learnt and how they could have improved through the process of the game.

**Learning Outcomes Addressed by the Practice**

The simulation game and reflective journal cover the following learning outcomes (refer to Appendix 2 for the learning outcomes of the whole subject):

- **Professional competence** – The business simulation game can train students’ business skills and mindset after they play it. They will learn how to run a business, the advantages and limitations of different business strategies, and how to co-operate with others. These skills will be useful for their job after graduation.

- **Self-learning skills** – Students are encouraged to find information from the library, search useful information on the internet, and consult tutors and teachers if necessary. These are not compulsory but will help the students to play the game better since there is no proactive information or lectures provided.

- **Good attitude** – The game can train students’ learning attitude and independent learning habits. A free learning style is provided by the game, and there is no limitation in the number of sections they joined, and they are not required to attend any lectures or tutorials.

- **Problem-solving** – Students need to solve many business and communication problems in the business simulation game. In order to succeed and compete with other students, they are required to have good problem solving skills which can be obtained through the process of playing.

- **Reflective thinking** – Students’ reflective thinking skills are promoted when they review their learning process. A reflective learning journal is required from each student. In that journal, they are required to write their learning process, their strategies, plans, and how they compete with others.

- **Decision making** – Students have decision-making roles in the company when playing the business simulation game. Their decision making skills will be enhanced when they encounter
difficulties and have to think of ways to solve them. Moreover, the company’s performance and profit will depend on their decisions.

- **Effective communication** – Effective communication is vital for success in the game. Student forms into a group of three, and each student takes one role in the company. The student needs to communicate with other two group members to run the business in the final tournament in Level 3 of the game.

- **Team work skills** – Good team work is crucial for the success in the game. In the final tournament, students work in groups, and run the business together to achieve a common goal, i.e. earning maximum profit.

- **Planning and coordination** – The students’ planning skill could be trained since they have to make strategies and use them in the game. Coordination skills could also be trained, as the students are working in groups in the final tournament, and they are required to coordinate well with their group-mates.

- **Entrepreneurship** – The student’s interest in learning the business related topic is alarmed as the main theme of the game is running business. In the game, students take on a decision making role in the company and are expected to earn profit for it.

**How the Practice Enhances Students’ Learning?**

**Enhances understanding** – The students could have a better understanding of the business model in the real environment as the game simulates the real production business situation. They need to compete with others in a competitive market, the variations of the selling price and supply in components. They can apply what they have learnt from previous classes and this can increase their practical experience.

**Promotes interest-based learning** – The students’ learning interest in a business model can be aroused by using a funny computer simulation game.

**Promotes deeper learning** – Self learning and deeper learning are promoted, as the teachers do not provide much information on the assessment, therefore the students are encouraged to find additional information from the library on their own.

**Better use of time and effort** – Students can enjoy better use of time and effort as they can decide the time of playing the game. They can use any time slots provided according to their own learning process.

**Helps the thinking process** – Students are required to submit a reflective learning journal to review what they have learnt after competition which can help their thinking process.

**How the Practice Enhances Teaching?**

**Monitors teaching progress** – Teachers can adjust the schedule according to the game’s log data which is saved automatically by the computer. When playing the game, the whole teaching process is recorded and monitored, and thus teaching is enhanced.
Understands students’ learning – Students’ scores and performance are recorded during students’ playing. The complete log files enhance the teachers’ understanding of students’ learning, and thus the teaching process can be adjusted according to their learning process.

Reduced time and effort – Teachers can save effort and time when supervising students. After the time slots are assigned to the students, they can join any time slots provided according to their own learning process.

Facilitates student learning – Teachers can give more freedom to students who know how to work out the solution in their own way based on their own approach. Students can have more freedom to improve their own weakness and can learn in their preferred way, which in fact facilitates students’ learning.

Provides quality feedback – The game records the scores and the business performance of the students, and these records reflect clearly students’ learning which can be retrieved easily in the game. Teachers can thus provide feedback to the students to enhance their learning, and also improve the teachers’ own teaching next time.

Students’ Comment on the Practice

Students agree that this practice gives them more freedom and they can learn how to work out the solution in their own way based on their own approach.

Some students are not motivated and required guidance and closer supervision from teachers since this practice requires students' self-learning motivation.

Limitation / Areas that the Practice can be Improved

The freedom of playing given to the students may cause an uneven workload. Some students report that they have spent lots of time and effort on this game and there is too little credit and weighting of the grade given compared to the workload.
Appendix 1

Assessment Plan

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<tr>
<th>Activities</th>
<th>Group Assessment</th>
<th>Individual Assessment</th>
<th>Assessment Area</th>
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</table>
| A. SimEnterprise Game and Reflective Journal (20%) | 25                | 30 – Game, 20 – Reflective Journal | • Individual Playing  
• Team Competition  
• An Outstanding Award will be presented to students that produce an excellent performance (ability on making the right decisions at the right time)  
• A progress review on the business strategy used  
• Reflective Journal |
| B. Case Studies (25%)                            | 10                | 15                         | • Students are requested to present their analysis with the support of a written report about the suggested solutions, which will then be debated in groups.  
• Other group students can also be involved in the assessment of the debate and presentation and these students may then be assessed by relevant lecturers (Individual Critique)  
• Individual or group report |

Overall group assessment = 35%
Overall individual assessment = 65%

Note: Please refer to relevant manual/user guide for assessment details of individual activities
Appendix 2

Learning Outcomes of the Subject

*Category A: Professional/Academic knowledge and skills, and*

*Category B: Attributes for all-roundedness.*

1. To apply what they have learnt in the programme to solve real problems and to provide a structure to discuss the quality of their work. *(Syllabus 1, Objectives 1 and 2)* Category A and B.

2. To learn various skills and practical knowledge at their own pace. *(Syllabus 1, Objective 1)* Category B.

3. To solve real problems in a business environment *(Syllabus 2, Objective 3)* Category A.

4. To assess and critique the quality of work of their peer group *(Syllabus 2, Objective 3)* Category A.

5. To be able to take part in starting up of a business with entrepreneurial business skills. *(Syllabus 3, Objective 4)* Category A.

6. To build an enterprise portal with the necessary features to demonstrate the business ideas *(Syllabus 3, Objective 5)* Category A.