



The use of MERIT in teaching at Loughborough University

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Introduction

As you probably know MERIT the construction business game simulating the operation and management of a construction company was developed at Loughborough University by a team under the direction of Professor Ron McCaffer. MERIT has been continually updated and used as the Institution of Civil Engineers' National Construction Business Game since 1988 where the early stages are played remotely and the six leading teams are invited to Loughborough for the final. The MERIT 2011 Champions were a team from Costain Group. Full details can be found on www.meritgame.com.

MERIT and its predecessors have been in continual use at Loughborough in teaching to undergraduates and post-graduates since the seventies. Since 2005, I have been responsible for the delivery of the MERIT teaching to both UGs and PGs. The use of MERIT is supported by the text 'Modern Construction Management by Harris, McCaffer and Edum-Fotwe' to provide a framework of knowledge that complements the simulation exercise.

How we run MERIT at Loughborough

The MERIT competition serves as a coursework to complement the delivery of a module in '*Construction Organisation and Management*' for undergraduate students on Construction Engineering Management, Commercial Management and Quantity Surveying, and Architectural Engineering and Design Management degree programmes. It also provided a similar input into the module '*Managing Construction Projects and Organisations*' for postgraduate students. The principles underlying MERIT are also employed in class exercises with BEng and MEng Civil Engineering students. Formative assessment for the full competition is progressive and provided on a weekly basis subsequent to each submission by the competing companies. The formative assessment takes the form of individual company feedback generated as data files that each team can review in their group meetings. In addition to the formative assessment, there is a summative assessment which comprises a presentation and a report.

Basic operation and organisation

- The competition lasts for a period of seven weeks, although the session for each year covers ten weeks. The first three weeks are devoted to setting-up administrative procedures, as well serving as a familiarisation period. It also provides an opportunity for the competing companies to acquaint themselves with the nature of the competition and market conditions, as well as regulations that they need to comply with in order to successfully manage their company. Supporting this is the MERIT Tutorial and a set of trial runs which allows the student teams to experiment.
- Teams of usually up to six students set up a company to operate in a virtual construction market, and file the details of their organisation with the registrar of companies (the controller general for the simulation).
- The newly formed company commences business by taking over an existing organisation that is already trading with a defined history.
- The new team is required to manage their company in a construction market that comprises real and virtual competitors and defined by characteristics that mirror real-life construction.
- Successful management of the company in the virtual construction market is determined by a combination of performance indicators. The indicators address commercial, industry specific, as well as wider issues that construction organisations have to tackle in order to stay competitive. The performance of each company is viewed in absolute and relative terms. Absolute performance is established by the differential improvement or decline in a company's overall indicator. The relative performance is established through the use of a performance league table.

Student participation and interaction

- A week after the commencement of the actual competition, each company (i.e. student team) is required to file their organisation strategy with the registrar of companies (ie me).
- Each round, representing one quarter's trading the student teams are required to make and enter decisions on commercial, industry specific, as well as wider issues.
- To support the decision making student teams allocate duties to each team member such as Managing Director, Finance Director, Procurement Manager etc (from MERIT description). This allows each decision to be evaluated by the team expert and synthesised, often by their own simulations, to form the company decisions
- Each round requires the results or outcomes of the previous round to be analysed and evaluated and an assessment of where their decisions delivered and where they failed and why. Notes are made for the final report
- Each annual session of the competition ends with a presentation session which involves each of the competing companies reporting on their stewardship to the board and shareholders, this includes comparing their outcomes to their strategy, the changes in strategy made in response to trading outcomes.
- The student work for each member of the virtual company is evaluated by the team performance augmented with a peer evaluation.

In the 2010 -2011 session MERIT was run for eighteen teams made up of four to eight members in the undergraduate competition, and four teams made up of four members each in the postgraduate stream.

Benefits to students from the MERIT experience

- An opportunity to put into practice many of the theoretical concepts and knowledge required for their future careers. It translates the learning exercise from being an exercise in simply getting to 'know', to one of knowing what, how and when to apply the acquired knowledge.
- Awareness and development of inter-personal skills that would be required in the work environment.
- Develop and become aware of their leadership capabilities.
- Gain knowledge of what is required to manage construction companies, as a preparation for the senior stages of their career.
- Enhanced analytical skills for processing information which will form the basis of company decisions.
- Working in the virtual construction market of the future.

Supporting teaching and relationship with other aspects of the course

- As a vehicle for teaching, MERIT provides a useful problem-based learning environment to bring together many of the other learning requirements from other modules (especially the ones that relate to management of construction at the site, project, and company level).
- The nature of the simulation also reflects effective deployment of participative learning principles, which is increasingly gaining ascendancy in order to cater for the different ways in which individual students learn.
- MERIT achieves effective learning through action and decision making by the students.
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Student response to the MERIT experience

- The students enjoy the interactive participation of the simulation, is a form of learning that appeals to the more experienced and less well experienced students. It drives them to find out more about the subject they are dealing with. It ranks as a more favoured form of learning than classroom lectures or individual coursework. The competitive nature of the simulation keep the students focussed, even when their strategy has gone badly awry they create new strategies to show recovery.
- The immediate effect of any decision the team makes on the prospects of their company, enables the students to explore what-if scenarios especially at the pre-competition phase of the simulation.

The benefits to the staff

- Achieving the difficult goal of effective learning by the students, which is often not attained with theory-oriented learning on its own.
- Practical demonstration of many of the concepts involved in managing companies and projects within the construction sector.
- Ability to adapt learning resources to address changing conditions in the construction market place to ensure relevant education for the future generation of construction industry leaders.

MERIT is in continuous use, MERIT remains at Loughborough has not been replaced and the same teaching team that developed MERIT is in place at Loughborough responding to student experience and evolving MERIT.