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Anchored Instruction as a Foundational Theoretical Framework for Simulations in Management Education

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Anchored Instruction as a Foundational Theoretical Framework for Simulations in Management Education

Teaching management to students with limited managerial experience presents particular challenges. Simulations (both human and computer-based) are useful devices for promoting experiential learning and the development of a requisite experiential framework which are often lacking in these students. To date, the link between theory on simulations, management and education has been limited. This paper reviews the literature on the use of simulations in management education. One particular educational theory, anchored instruction is proposed as a learning design with the potential to serve as the foundational theoretical framework for research into the use of simulations for management education.
Teaching management to students with limited managerial experience presents particular challenges. These challenges are particularly heightened if these students have limited experience as members of organisations. The task of teaching management to these students is difficult because they can lack the contextual and experiential framework against which many management theories and concepts are positioned. Simulations (both human and computer-based) are useful devices for promoting deep experiential learning and the development of a requisite experiential framework. They are conducive to both lower and higher order learning. They also act as a bridge between theory and practice in management education. Simulations can be fun and present a particular opportunity to engage students in an exciting and interesting way.

Management simulations are activities carried out by individuals or teams which require the making of decisions within a framework of rules and objectives. Depending on the structure of the activity, individuals and teams may collaborate and/or compete. There are a number of simulation variants including computer-based (Thompson et al., 1997), simulation embedded in the subject (Keys et al., 1994, Swenson, 2001), electronic mail (Greenberg and Rollag, 2005), the case study (Gilgeous and D'Cruz, 1996, O'Connell et al., 2004) and the role play (Gilgeous and D'Cruz, 1996). A computer simulation is a software package based on a particular model which simulates the managerial decision-making process (Curry and Moutinho, 1992). A common feature of most management simulations is the need to carry out some form of managerial decision-making.

In management courses, multiple learning methods are often used, particularly in subjects such as strategic management. Learning outcomes include the development of interpersonal skills, insight into own behaviour and examination of theory versus practice overlap across methods (Jennings, 2002). However, simulations rate as significantly superior to case study and action learning across a range of acquired skills indicators (Jennings, 2002).

The use of simulations in teaching and learning offer a number of advantages over other methods. These advantages include the ability to model an interdependent open system, the development of critical and strategic thinking skills, promotion of active learning, increased experience with corporate decision-making, the introduction of uncertainty into learning, increased motivation through competition, compatibility with distance education, allow students to experience behavioural processes such as teamwork and the enhancement of personal development (Curry and Moutinho, 1992, Thompson et al., 1997). Simulations also offer a number of distinct disadvantages including a misleading impression of precision and certainty, the encouragement of the use of models and techniques that are convenient at the expense of realism, models may appear contrived or artificial, models may be excessively elaborate or complex, technical or functional aspects of software and students may not see the link between theory and practice (Curry and Moutinho, 1992, Thompson et al., 1997).
The use of simulations amongst AACSB member schools is now pervasive. The increase in usage within these schools has increased from 95.1% to 97.5% over a ten year period from the late 1980’s to the late 1990’s (Faria, 1987, Faria, 1998). During this same period, a significant increase in usage has been observed across all business disciplines including business policy, marketing, finance, management and accounting (Faria, 1998). The use of simulations in Australian universities is much less than in their U.S. counterparts.

Simulation theory broadly draws upon both psychology and sociology. Various educational and organisational theories also provide insights to their use. Learning through a simulation is consistent with Piaget’s (Piaget, 1962) notions that learning takes place by exploration and discovery and should be enjoyable and not fraught with difficulties. If according to constructivism, reality is socially constructed (Berger and Luckmann, 1967) then simulations provide a unique environment for individuals to construct that reality as part of a group. Organisational learning theory argues that there are two key learning processes that need to take place in order to utilise knowledge and innovate: exploration versus exploitation (March, 1991). By engaging in an exploratory learning process, organisations learn from experience and exploit the resultant knowledge for organisational gain. Perhaps most simply the Chinese proverb “I hear and I forget, I see and I remember, I do and I understand” captures most succinctly the learning processes that potentially take place with the aid of simulations.

To date, simulation theory makes very little reference to a potentially enlightening educational theory: anchored instruction. Anchored instruction is an educational learning design developed by the Cognition and Technology Group at Vanderbilt (CTGV). The theory was expounded by the group over a number of years (CTGV, 1990, CTGV, 1991, CTGV, 1992a, CTGV, 1992b, CTGV, 1993, CTGV, 1997). In particular, the years from 1990 to 1997 were a period in which they published prolifically on the theory. Many people from the group have contributed to the development of anchored instruction, however the theory is most closely associated with Professor John D. Bransford. Professor Bransford undertook a senior role within the CTGV before moving to the University of Washington.

One of the main objectives of anchored instruction is to overcome the so-called “inert knowledge problem”. This problem suggests that knowledge learned by students remains inert and can’t be applied to different situations, problems or contexts occurring outside of the learning environment. The CTGV discuss the relationship between situated cognition and authentic tasks.

Anchored instruction is a constructivist approach to learning founded upon an understanding of situated cognition. It derives some of its theoretical principles from the expert / novice model of learning. Under this model, experts and novices are characterised as having differing capacities to
learn. Due to their considerable experiences, experts have developed cognitive frameworks for their area of expertise. When confronted with new theories, concepts, and principles that are related to their area of expertise, experts are able to successfully integrate these changes into their own thinking. Novices on the other hand don’t yet have these mature cognitive frameworks. The introduction of new theories, concepts and principles appear as new facts or mechanical procedures that need to be memorised. As novices have not been immersed in the area of study, their learning involves constructing cognitive frameworks. They are generally unable to experience the effects of the new information on their own noticing and understanding which is a key characteristic of an expert’s learning experience.

The CTGV draw heavily upon the theory of situated cognition (Brown et al., 1989) in order to develop their theory of anchored instruction. Situated cognition provides a framework in which cognition, authentic tasks and apprenticeship training can be emphasised and interrelated. The novelty in anchored instruction was the introduction of educational design opportunities made possible by advances in video and computer technology during the 1980’s and 1990’s. By utilising an anchored instruction learning design, the CTGV propose that the inert knowledge problem can be overcome.

The learning design involves anchoring or situating teaching and learning in a real life context, with realistic problems through the use of technology such as videos or computer simulations. The contexts created by these technologies emulate rich environments that enable students and teachers to engage in complex and realistic problem solving activities. These environments are referred to as “macrocontexts”. Macrocontexts contain enough richness and ambiguity that learners are able to explore and experience the environment over a significant period of time. As a result, they are potentially able to view given scenarios or situations from multiple perspectives. Because problems are structured to be factually and performance authentic with real data and realistic tasks that might be faced by a novice if apprenticed to an expert, students are able to experience professional problems similar to those faced by experts in that field.

One interesting claim of the CTGV is that this learning design allows for instruction that not only recreates an apprenticeship experience, but is in some ways superior to it (CTGV, 1990). This is claimed because key learning experiences can be planned and facilitated by teachers and then experienced by students in faster time periods. In an apprentice situation, the student is dependent upon the experiences that occur based on the opportunities available at a particular time.

A key feature of anchored instruction is the perspective that it takes on knowledge. Knowledge is considered a tool, rather than abstract concepts or facts. Learning about a tool involves understanding what it is and when and how to use it. Knowledge learned in the context of meaningful activities is more likely to be perceived as a tool rather than as an arbitrary set of concepts, principles or theories.
In educational settings, anchored instruction has been mainly applied to primary students in developing skills in subject areas such as science and mathematics. To support primary students, the CTGV developed the Jasper Woodbury Problem Solving Series as an example of a technology-based instructional macrocontext (CTGV, 1992b, CTGV, 1992a). The Jasper Series are video-based narrative adventures that allow for complex problem generation and solving. The solutions to the problems can be generated using information embedded in the narrative. Despite its primary student focus, the principles of anchored instruction are general enough to apply to both students and subjects in diverse educational settings. It has value to the education of tertiary management students is and the development of the theoretical simulation literature.

Although simulations and games are well recognised in the management education literature, there are limited links to educational theories. Anchored instruction in particular is poorly utilised. Integrating the literature on simulations and anchored instruction provides an opportunity to bring new insights to both areas.

*Proposition:* Anchored instruction is an educational learning design that has the potential to serve as the foundational theoretical framework for research into the use of simulations for management education.
Reference List


