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Customising management education: designing learning episodes using an open system perspective

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Abstract

This paper presents a holistic framework for designing effective learning episodes for management students. Based on a synthesis of adult learning theory and open system theory, the paper proposes a model of learning design which can guide the customising of management education to account for the particular requirements of the four key elements in a learning episode. Effective learning requires careful consideration of and alighment between these key elements, and flexibility to change when any of these elements varies from prior expectations.

Customising management education:

Designing learning episodes using an open system perspective

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ABSTRACT

This paper presents an integrative framework for designing effective learning episodes for management students. Based on a synthesis of open system theory and adult learning theory, the paper proposes a model of learning design based on the components of systems theory, namely inputs, transformation processes, outcomes and feedback. Effective learning requires careful consideration of and alignment between these four key components, and flexibility to change teaching activities when any of the elements vary from prior expectations.

Keywords: Management education, adult learning, systems theory

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Systems theory provides an approach to management studies based on the idea that organisations can be viewed as systems, with sets of interrelated parts operating together in pursuit of a common purpose (Bartol, Tein, Matthews, Sharma, & Scott-Ladd, 2010). According to this approach, an organisational system has four key components, namely inputs, transformation processes, outputs and feedback (Kast & Rosenzweig, 1974). Systems can be regarded as open or closed. An open system, in contrast to a closed system, continually interacts with its environment thus gaining new inputs and adjusting its outputs in response to external environmental changes or expectations. In operations management, systems theory describes process-based work systems where inputs are transformed into outputs (Shields, 2007; Wright & McMahon, 1992) with a feedback loop for generating assessment and improvement. The basic premise of systems theory is that 'the intricate relationship of parts cannot be treated out of the context of the whole' (Ritzer, 2008: 327).

This paper proposes adopting an open system approach to learning design. By drawing upon the conceptual framework of systems theory, the paper examines the dynamics of learning episodes in management education. The paper argues that each of the four key parts of an open system, namely the inputs, transformation processes, outputs and feedback, when applied to notions of learning, suggest the interrelatedness of the various elements of formal learning episodes. A systems theory of learning would suggest that learning is improved when the various components are customised for specific learners in managed contexts. This is especially important to consider with the introduction of new forms of teaching technology. Simply migrating content from one learning platform to another may miss opportunities for improving the system. A change in one part of the system may require a realignment of all other parts of the system. Understanding the relationships between the four key learning components contributes to better alignment in learning design, more student-centric learning processes, and more effective learning outcomes (Biggs, 2003).

The integrative model presented in this paper reflects a core assumption that there is no one-best-way of teaching. Rather, effective teaching methods are flexible in response to changes in each of the key variables in the learning system. Thus, systems theory provides a mental schema to inform design decisions before a teaching situation begins, whether it be online or face-to-face. It also provides a conceptual reference point to inform adjustments to learning processes *in situ* as a learning episode unfolds. Unforseen changes in input elements, for example, call for impromptu changes in teaching activities if the learning episode is to achieve the desired learning outcomes for the student.

METHODOLOGY

The paper is a synthesis of open system theory, literature on adult learning theory and over sixteen years of self-study (Loughran, 2010) of teaching practice in higher education. The paper is based on theory plus reflective experience in teaching large first-year undergraduate management classes and specialist management subjects at both the undergraduate and postgraduate levels. The open system framework proposed in this paper has informed the design and delivery of management subjects on campus and in three overseas locations. Work with colleagues on the university's learning and teaching program for new academics, and leadership roles in the university's teaching excellence awards programs confirm the starting point for this discussion, namely, that there is no one best way to teach; an open system perspective provides a more flexible model to accommodate different learners, different learning outcomes, different contexts and different teaching skills and abilities when designing effective learning processes. The paper is thus a conceptual piece which readers are invited to test in their own particular management education settings.

AN OPEN SYSTEM PERSPECTIVE: CRITICAL LEARNING-DESIGN ELEMENTS

An open system perspective of learning borrows conceptually from the process-based work system of inputs, processes, outputs and feedback loops. While the elements in a process system are typically arranged in a linear sequence from inputs, to transforming activities, to outputs, in the context of learning it is more useful to conceptualise the elements in the process to be sequentially

interdependent; that is, a change to any one of the elements affects every other element in the system. In learning systems theory it is also useful to start with the end in mind – that is, to consider the learning outcomes *before* planning learning activities since different outcomes require different learning methods.

As conceptualised in Figure 1 below, an open system of learning design can be described as a system comprising four main elements arranged such that a change in any one of these four elements necessitates a change where possible in the other three. These component parts will be explained in relation to their effect on a learning episode. In the input-process-output view of organisations, value is added at the process (or transformative) stage. This open system perspective can be analysed at the level of *individual* learning, *group* competencies, or *organisational* learning. While a system perspective can be applied to all three levels of learning, this paper focuses on designing and customising a learning episode for individual learning.

 In learning systems theory, value (or learning) thus occurs through processes of transformation cognitively occurring in the learner. After the learning inputs and learning outcomes have been examined, the paper will link these subsystems to learning activities. The paper will conclude with some implications regarding the customising of management education suggested by this model.

[Insert Figure 1 about here]

Learning inputs: *people, resources, context*

The first component of the learning system, the learning *inputs*, can be divided into three subcategories, namely people, resources and context. In designing learning episodes the *people* subset suggests that the learning designer where possible gather information on the learning approaches of the learners and the teachers. Such an approach extends traditional training needs analysis (Delahaye, 2011) beyond the learning content towards a clearer understanding of who will be involved in the learning episode. This sub-component also reminds us to consider student approaches to learning,

which continues to provide a rich ground for research (Kandlbinder & Peseta, 2011; Marton & Houndsell, 1997).

What do we know about the learners?

Learners approach learning situations with different needs, motives, and expectations (Knowles, 1998). Their prior experiences colour their perceptions of the learning process (Delahaye, 2011). Customising management education is thus based on the premise that different learners have different needs, expectations and prior experience. Understanding learner variables can inform decisions about designing learning episodes; learning activities can be customised for optimal effect. For example, the teaching processes used to work with a small postgraduate class of business executives must be modified substantially when teaching a large, undergraduate, first-year management subject. Undergraduate students typically possess less real-world experience than post-graduate students. Likewise, the prior learning and management experiences of international students generally differ in quality and quantity from those of domestic students. Understanding the cohort of students allows customisation of the teaching activities to be more relevant to the prior experience and learning needs of each group of students.

What do we know about the teachers?

What works for one educator may not work for another. Why is this? There are complex factors at work here. Whether online or face-to-face, teaching involves a responsive relationship between teacher and learner. Survey evidence from student evaluation of teaching suggests that learners appreciate teachers who express a genuine interest in their success compared to those who focus on subject content to the neglect of relationship behaviour. However, the effective teacher not only provides a safe and supportive learning relationship but also provides valuable figure-ground perspective on content material, and as such occupies a vital input variable in student learning.

What resources are available?

Teaching resources are limited; only so much time available to design a lesson plan, and only so much money available to assemble the necessary support materials. Valuable hours can easily be lost searching, for example, for the 'perfect' YouTube illustration of a content point. Succinct and relevant case studies are excellent teaching devices in management education, but finding the ideal case may take more time than is justified by the learning module. Training budgets may not allow the purchase of expensive DVDs or professionally designed handout materials. Design decisions are often based on a trade-off between time available and options that are practical, rather than the pursuit to find the finest resources in the land. Students themselves bring the rich resources of their personal experiences to a learning situation; sharing students' stories can often compensate for limited physical resources in a learning situation. Their resources may be more meaningful to them than, for example, showing a DVD which may be marginally relevant or culturally insensitive. On the other hand, a major benefit of the internet for learning is access to timely information which no longer has to be transmitted by lecture.

What is the learning context?

Learning contexts vary enormously. In the workplace, learning environments range from formal classrooms to quite informal social learning. Learning is not power neutral; it may be imposed by dominant coalitions who seek to perpetuate the status quo (Freire, 2000), or learning can be part of a radical transformation project (Delahaye, 2011; Mezirow, 2009). The learning context may be face-to-face or online. Employees may or may not want to participate in a learning episode depending, among other things, on whether learning is valued in the workplace culture, and whether they can see the relevance of the training to their future careers. In higher education settings, class size, configuration of lecture spaces and perceived relevance of content to professional qualifications are context factors which need to be considered in learning design.

Social constructivist theories of learning place emphasis on the broad social conventions in which the individual participates (Gergen, 1999). From this theoretical framework, consideration needs to be

given to the location of learning: how can environments be constructed to facilitate social engagement? Seating arrangements which foster small-group clusters usually provide better support for social processes than lecture theatre seating. Online networks can be formed to support narratives between participants. Such resources are not learning-neutral. They can aid or detract from learning episodes and provide an important input variable which needs to be understood and managed by the educator.

Teachers can create safe learning environments (McLean & Bell, 2009), where students can focus on the task, rather than dwelling on protecting their identities (Biggs, 2003). Designing learning episodes to create such a safe learning environment requires consideration of how to create meaningful communities of learners (Wenger, 1998). Learning and using individuals' names during a learning episode is one such strategy consistently highlighted by students in teacher evaluation surveys. Engaging students in small group discussions or problem-solving tasks increases the likelihood of communities of learners forming.

In addition to these contextual factors internal to the organisation, there are external pressures on learning systems from governments and funding bodies, from cultural paradigms, and industry and professional accreditation bodies, all of which may colour learning design. An open system perspective also acknowledges the influence of factors external to the teacher and student in a learning event – whether those factors be social, historical, financial or political within the organisation, or pressures external to the organisation. Teaching management in Saudi Arabia, for example, will require different learning approaches to teaching similar topics in Singapore or Sydney.

Thus, the interplay between the types of learners and teachers, the types of resources available and the context in which learning is occurring all affect decisions regarding teaching strategies necessary to bring about transformative learning, which we now examine by consideration of a hierarchy of learning outcomes.

Learning outcomes: *instrumental, communicative and emancipatory learning*

Intended learning outcomes specify what a student should be able to do, or do better, as a result of their study of a subject or course. Clarifying intended learning outcomes is an important cognitive process in deciding how to teach and how to assess. The alignment of such learning outcomes with teaching and learning strategies, and with assessment tasks, is critical to effective education (Kandlbinder, 2011). Equally important is writing learning outcomes that are student-centred (that is, what the student will achieve), rather than what the teacher will do (Biggs, 2003). Anderson and Krathwohl (2001) have provided a useful table of cognitive process verbs to assist with the writing of learning outcomes, drawing on Bloom's taxonomy of educational objectives, ranging from remembering, to comprehending, to applying, to analysing, evaluating and creating.

The Australian Qualifications Framework (2011) has defined learning outcomes in terms of the set of knowledge, skills, and the application of knowledge and skills, a person is able to demonstrate as a result of learning. Learning outcomes also refer to graduate qualities towards which learning episodes are navigated. Mapping course outlines and assessment tasks against stated graduate qualities has become a concerted effort in most Australian universities recently. However, such macro-level mapping without alignment with other components of the learning system does not ensure that students see the relevance of specific learning episodes to this grand master plan. Likewise, training plans in the workplace do not necessarily translate into anticipated learning outcomes for workers. Learning outcomes also refer to program or course benchmarks for professional accreditation.

Mezirow (1994, 2009), in his transformative learning theory, suggests a hierarchy of learning outcomes which provides a useful guide to designing learning processes; different learning activities can be designed to engage students at different levels of this hierarchy of learning. This hierarchy is represented schematically in Figure 2 below. For example, *instrumental learning*, Mezirow's first level of learning (knowledge, skills and abilities), suggests practical activities to reinforce and make permanent certain skills. The second level, *communicative learning*, suggests discussions and other activities designed to understand what is meant by others (Delahaye, 2011). The third level,

emancipatory learning, refers to individuals' transforming their basic frames of reference. Such transformation, which usually requires the learner being confronted with a disorienting dilemma, would rarely be accomplished by the lecture method. Different levels of learning outcomes require learning activities that differ in content, process and duration. For example, changes to mindsets typically take longer than incremental increases to information. Customisation starts by determining the level of learning required. Learning outcomes, in adult learning theory, are best owned by the learner rather than imposed from above. Learning contracts (Knowles, 1998), which exemplify this approach, are still rarely used in professional training programs or in higher education settings. Systems thinking enables a more holistic view in aligning teaching practices, learning activities and assessment tasks with intended learning outcomes. Writing about this deeper level of learning, Biggs observes that 'education is about *conceptual change,* not just the acquisition of information' (2003: 13, emphasis in original).

[Insert Figure 2 about here]

Learning processes: *learning activities*

Teaching is more than talking and learning is more than listening. How students tranform input resources to achieve learning outcomes is at the heart of a learning systems conceptualisation of management education. The role of the teacher in this process depends on the complex interplay of other key elements in the learning system. There is a shift in focus from what the teacher does (teaching activity) to what the student needs to do (student learning processes) in order to learn in 'transformative learning theory' (Mezirow, 2009). Getting students to think for themselves, Mezirow (1998) argues, 'involves [students] becoming critically reflective of assumptions and participating in discourse to validate beliefs, intentions, values and feelings' (page 197). Thus, questions which raise curiosity and challenge assumptions, discussions which require critical reflection, and awareness-raising interactions with others, are part of transformative learning processes.

Learning is by nature an active endeavour; something is happening in the cognitive domain of the student for learning to occur (Akella, 2010; Meyers & Jones, 1993). Thus, a central question in designing a learning episode is: what is the student *doing*? Shuell (1986: 429, emphasis added) makes the point elegantly:

> If students are to learn desired outcomes in a reasonably effective manner, then the teacher's fundamental task is to get students to engage in learning activities that are likely to result in their achieving those outcomes...It is helpful to remember that *what the student does is actually more important in determining what is learned than what the teacher does.*

Thus, there is a movement away from a transmission model to a transformative model of student learning. That is, the nature of the learning outcomes desired, the attributes of the learners, the resources available and the social and political context in which the learning is occurring influence selection of learning activity. While a lecture may be a suitable process for conveying 'programmed knowledge', contract learning or action learning may be more suitable for critical thinking and development of 'meta-abilities' (Delahaye, 2011: 235). Effective learning requires engaging the learners, acknowledging the learning context, challenging the learners to understand the relevance of what they are learning, and providing practice to deepen understanding and make the learning permanent (Boud & Prosser, 2002). The learning processes employed are thus a function not only of the level of learning outcome desired, but also of other elements in the learning system.

While management education, like higher education research in general, has absorbed 'an eclectic mix of theories and concepts' from the home disciplines of researchers (Kandlbinder, 2011: 13), a constructivist epistemology dominates current approaches to the learning process. That is, learning research supports the view that learning is socially constructed; ideas are situated and contested. Learning processes which allow for discussion, debate, consideration of multiple perspectives and various stakeholders help students to adopt a deeper approach to analysis of management complexities. Such an approach is at the heart of learning systems design.

Feedback: Evaluating learning

Evaluating the effectiveness of a learning episode requires summative assessment of the learning outcomes. It also requires self-reflection on the part of the teacher: how effective were the learning *activities* in achieving the learning outcomes? However, discussion of formal assessment of learning outcomes, through exams, competency tests, portfolios and the like, is beyond the scope of this paper. Helpful work on authentic assessment has been done by, amongst others, Herrington and Herrington (1998), Gibbs (2006), and Joughin (2010). From a systems perspective, assessment begins *before* learning processes begin. Proposed learning activities are mapped for alignment against desired learning outcomes. Brinkerhoff (2009), for example, proposes a six-stage model of evaluation that includes evaluation of learning needs, design, implementation processes, outcomes, endurance of learning and learning 'payoff'.

At another level of analysis, an effective learning episode requires the teacher to be sensitive and responsive to the dynamics of the learning situation. The ability to assess a learning situation as it unfolds enables fine-tuned *in situ* adjustments to learning activities as unanticipated factors affect the level of engagement of participants. These could be context factors over which the teacher has no control, such as noise, location distractors, or limitations on resources available. '*What is happening here?*' provides real-time feedback and feed-forward as the professional adjusts the learning process to align inputs, processes and outputs. Such refining processes are more common in classroom settings. There is scant evidence of such responsiveness in most online courses because of the high input costs in designing such levels of interaction in online systems. Perhaps this is because most effort to date has taken place in the migration of course content to online formats, with less consideration being given to adult learning theory in the process. This question requires further empirical research.

CONCLUSION

Shön (1983: 76) describes design as a 'reflective conversation with the situation'. Learning design is, therefore, an iterative process of careful consideration of the characteristics of input elements, and

how these can be processed to achieve the desired learning outcomes. Such transformational processes must be flexible, leading to change in the cognitive maps of participants while simultaneously responding to unforeseen changes in input factors. Such flexibility or customising of learning design is especially critical in management studies where volatility and uncertainty are part of the complex terrain of business. While there are limits to the degree of flexibility that can be embedded in a large-class teaching context, even subtle adjustments to align content to the needs and prior experience of participants can pay increased dividends in student engagement.

The purpose of this paper has been to propose an integrative model of the key elements in a learning episode, so that the educator can, firstly, plan a learning process which takes all four components of systems theory into account in the learning design stage, and secondly, use the model as a mental schema to assess what is happening during a learning event in order to make whatever adjustments are necessary to align inputs, processes and outputs. An open system perspective raises awareness of external influences on the learning process, such as whether the organisation encourages and rewards a learning culture, and various social, resource, and political pressures brought to bear on the participants.

Formal student evaluations of their teachers indicate that learners appreciate learning activities where structured, relevant material is encountered and engaged with in a timely, flexible and efficient manner. Such responsiveness to student needs requires a customising of management education to take into account the key elements of a learning situation. The proposed framework, based on a synthesis of open system theory and adult learning theory, provides a useful schema for making sense of the complex interplay of factors extant in a learning situation. It is hoped that this customising framework will be tested by, and found useful to, teachers wishing to improve the quality of learning outcomes for their management students in a volatile and changing world.

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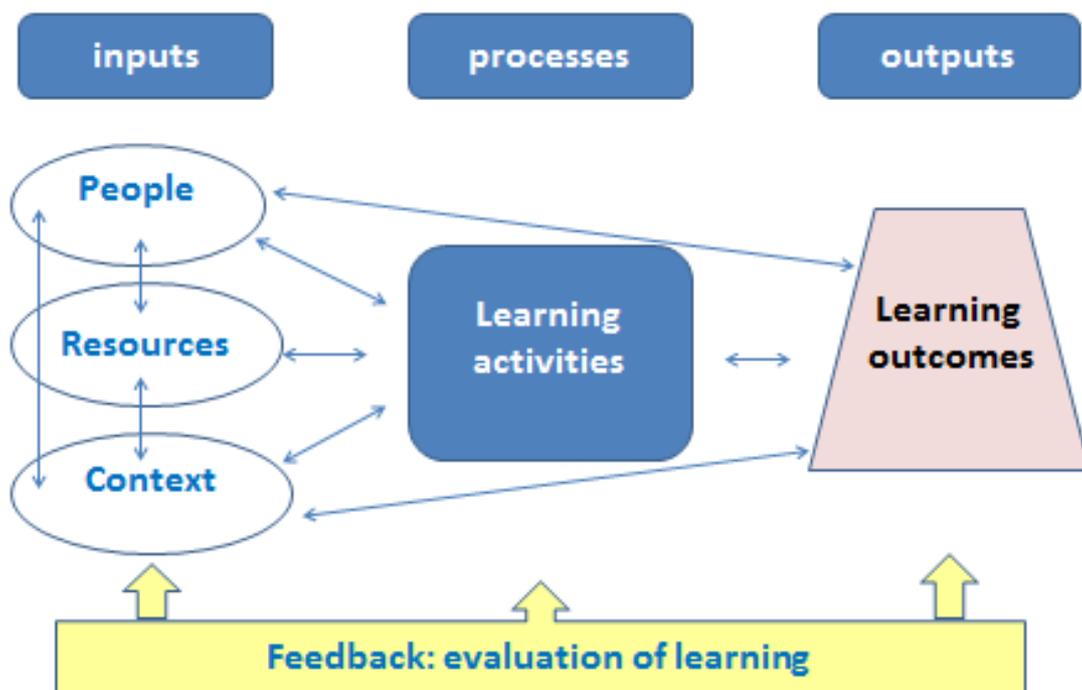
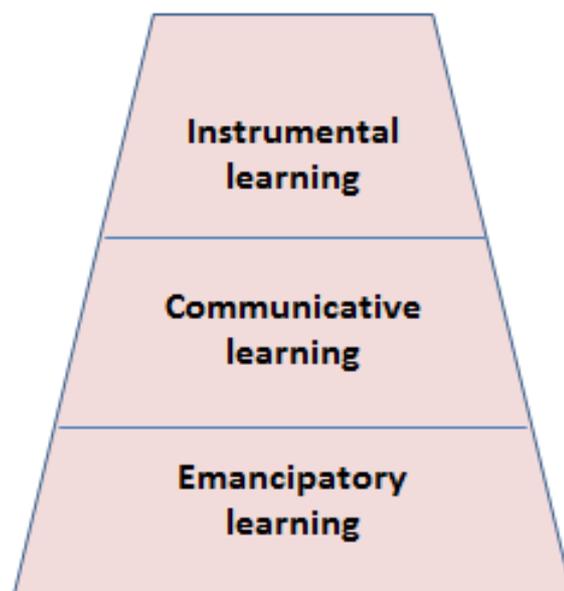Figure 1 Learning design: An open system perspective

Figure 2 Mezirow's Hierarchy of Learning Outcomes
Source: Adapted from Mezirow (1994)