

Strategic management in teaching and learning

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Abstract

Since the 1980s when the New Public Management introduced private sector rationalities into public services, higher education institutions have had to rely more than ever before on strategic management. In many environments where it is now considered indispensable to apply strategic management to, say, research, it is regrettable that teaching and learning (TL) have not been seen as arenas for managing by the same kinds of explicit objectives. The consequences of this neglect have arguably been felt at societal, institutional and individual levels. In this article, Biggs' aligned curriculum into which graduate attributes have been embedded is described as a strategic response to a subset of challenges confronting higher education institutions. The article grounds the aligned curriculum construct in strategic management, and contests claims regarding the use of management instruments in TL. It then pedagogically presents facets of an aligned curriculum, and describes a software tool for developing an aligned curriculum.

Keywords: strategy; Biggs' SOLO taxonomy; Bloom's revised taxonomy; aligned curriculum; graduate attributes; curriculum alignment software

1 Background

Not unlike other sectors, higher education (HE) is facing challenges that reflect the times. Indeed, a range of developments in society as well as goals of public authorities have produced several, sometimes interrelated, consequences in the HE sector. Leaner purses, the need to curb wastage and to maximize value on available finances have all led to funding cuts and new, market-inspired funding models. The resort by operators to complementary sources of funding or the case they now regularly have to make for additional public or proprietor funding has, in

part, created new structures and forms of accountability to evolving stakeholders. The need to create greater public value, stimulate competition and respond to the tertiary education needs of different demographic profiles has encouraged rankings and differentiation in the sector. Globalization has made internationalization of all kinds possible and increasingly inevitable. The need for knowledge workers to drive and leverage the new knowledge economy for national strategic advantage as well as the need to democratise access to the privileges associated with tertiary education have provided the impetus for massification.

In several HE environments, the implications of strategic management (see section 2) as a tool for responding to the requirements of the changed operating environments have been more or less drawn out in such areas of governance as human resources (Gunnarsson 2012; Dubosc and Kelo 2012), financial management (Sanyal and Martin 1998), research (Reichert 2006; Gunnarsson 2012), and day-to-day or overall institutional management (Tarvenier 2005). Regrettably, in many of these same HE environments, teaching and learning (TL) have not been seen as arenas for managing by the same kinds of detailed and explicit objectives. Consider the fortunes of learning outcomes, that is, clear statements of what students should be able to do under given conditions at the end of a course (see section 4.3). In the UK, an audit of the adoption of learning outcomes in HE institutions found that “not all staff embraced the learning outcomes approach with equal enthusiasm.” (Quality Assurance Agency for Higher Education 2007, 6). On one view, this finding is a gross understatement. In a *Times Higher Education* article, Furedi goes as far as claiming that learning outcomes have a corrosive influence on education (Furedi 2012).

Also using the metaphor of corrosion, Naidoo and Jamieson (2005) criticize the introduction of private sector ethos into universities, and especially into the TL nexus. They catalogue the effects on TL of neoliberal consumerist mechanisms (into which the specification of learning outcomes presumably falls). They note that study programs are now carved up into small bits (modularization) that do not allow for the kinds of sustained exposure required for rounded initiation or apprenticeship into disciplinary knowledge. There is also an increasing tendency in the curriculum towards applied knowledge that is packaged for the workplace, but this is done (poorly) at the expense of in-depth theoretical knowledge. Like Liessmann (2006), they also find that what counts as learning are bits of non-contextualized and incoherent information, fit perhaps for television quiz programs (e.g. Who wants to be a millionaire?), but in no way constitutive of knowledge. Peda-

gogic relations are distorted, with students adopting a rights or entitlement-to-pass mentality which does not encourage them to own the process of their learning. Basic learning is promoted, rather than high quality learning which requires such personal attributes as commitment and passion. Inequality is exacerbated, as graduates from institutions that have buckled under consumerist pressures tend to end up with sub-graduate jobs, unlike their counterparts who graduate from elite institutions (that are more able to resist massification), and get the non-routinized, plum knowledge jobs in industry.

While some of the criticisms of market-driven strategic governance of TL are quite accurate, they nonetheless beg the question as to how institutions that do not have the luxury of an idyllic, ivory tower operating environment (shielded largely from the political economy of processes in the wider society) are to operate in order to fulfil their mandate in the area of TL. On the other hand, some other criticisms flow from contestable understandings of strategy, and possibly from different readings of the evidence in educational outcomes research. But on another level, regretting the pre-managerialist era university also masks the problems of that era, and makes a number of contestable assumptions: e.g. that lecturers in that golden age always knew what they were doing, and that motivated and passionate students necessarily appreciated the orthodoxy of disciplinary initiation prevailing in that era; it ignores the many who dropped out of unstructured, sometimes mystery-laden doctoral and other programs. It also presupposes that universities that have not buckled under pressures of massification and the like have themselves not incorporated managerial instruments into their processes. Finally, there is also a sense in which despondency over a lost era masks the opportunities associated with instruments of a new dispensation. As Gijbels et al. (2005) suggest, with robots and other devices taking over more and more routinized jobs, the challenge higher education has is how to define higher order and complex problem-solving skills. Gijbels and colleagues underscore the importance of a structured knowledge base for imparting these skills.

Against this backdrop, this article makes a case for opening up TL to strategic management thinking and, paradoxically, to research on educational outcomes, both of which can be drawn upon to support the transparency (and the attainment) of goals typically ascribed to TL. The article seeks to frame TL within the discourse of strategic management, and (consistent with the subject matter) to do so in a manner that is significantly pedagogic. The specific objectives are presented below as intended learning outcomes for the reader. The reader should be able to:

- (1) assess the effects that choices made in curriculum delivery can have on learners, teachers, institutions, educational systems, and society;
- (2) demonstrate an understanding of how curriculum alignment exemplifies strategic management;
- (3) identify, define and discuss relevant concepts of strategy and educational outcomes research;
- (4) develop curriculum alignment as a strategic management instrument in TL; and
- (5) develop and use arguments for engaging in advocacy on behalf of curriculum alignment as an instance of strategic management applied to TL.

We first provide an outline of strategy. Secondly, we present our conjecture on the consequences associated with the limited uptake of strategic management thinking in TL. Thirdly, TL is presented as an arena of choice of goals that justifies engagement with strategic management. A fourth section presents Biggs' curriculum alignment as a strategic management tool in TL. In a fifth and final section, a software tool for creating aligned curricula is described.

2 What is strategic management?

Mintzberg, Ahlstrand and Lampel (2009, 9) refer to the commonplace definition of strategy as plans to achieve outcomes which are themselves consistent with an organization's goals. Pearce and Robinson (2007, 3) view strategic management as decisions and actions such as planning, directing, organizing and controlling that are applied to formulating and implementing an organization's strategy. One account of the strategic management process can be seen in figure 1.

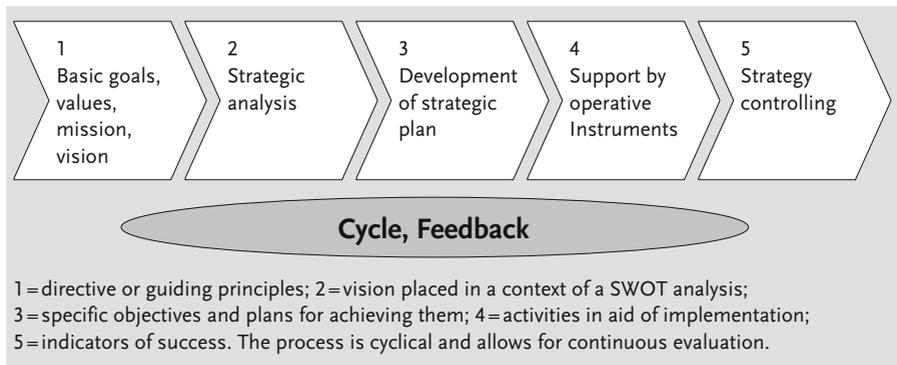


Figure 1: A view of the strategic management process (Source: Ziegele 2007)

Mintzberg, Ahlstrand and Lampel (2009) point out the complexities associated with a shorthand view of what constitutes strategy. Each of four different themes in a possible conceptualization of strategy (represented below in italics) is shown to have both advantages and disadvantages. While the advantage of strategy being a *means of setting direction* is that there is cohesiveness in an organization's actions, this conceptualization can blind to pitfalls, quite apart from engendering perilous dogmatism. The advantage of strategy as the *focusing of effort* is coordination to prevent centrifugal tendencies; the drawback is that it leads to groupthink that stifles creativity. Although the advantage of strategy being a *means of defining* an organization is that it provides the organization with a clear identity, the disadvantage is that strategy developers may misunderstand the very nature of identity (as complex, non-essentialist, and as being constantly (re)constructed). In facilitating the confident choice of a particular path from a welter of choices, strategy as *providing consistency* may inadvertently sacrifice creativity and innovation on the altar of logical coherence (Mintzberg, Ahlstrand and Lampel 2009, 16–18).

3 Why a strategic management orientation in teaching and learning?

Quite simply, the answer is to achieve good and effective teaching and learning. Good teaching is motivated by, among others, the concern to broaden the base of learners using “the high level cognitive processes that the more academic students use spontaneously.” (Biggs 2003, 74). Strategic management can be employed in response to a number of consequences of certain TL styles. It is therefore not a tool for converting universities, for instance, from sites of educating for knowledge to sites of training for occupations. In environments where, for ideological or other reasons, there has been a limited uptake of strategic management in TL, several classes of effects can be hypothesized.

3.1 From the perspective of students

The effects might include the following:

- (1) Given a mass of material to which their attention has been drawn, students may sometimes be uncertain as to what they need to learn and how or from what perspectives.
- (2) Students may underperform, not because they have not learnt, but because their learning was not aligned to the (unstated) expectations of their teachers.

- (3) Students' metacognitive knowledge of their learning remains underdeveloped, making it difficult for them to audit their learning (i.e., to be aware of: what they know, how they know it, what they should know, what they do not know; to be able to connect what they know to broader social issues).

3.2 From the standpoint of lecturers

Evidence of an insufficiently developed goal context for teaching and learning might include:

- (1) The limited usefulness and at times the utterly unusable nature of marking schemes. Not infrequently, the marking scheme paradoxically allows students to have good passes even when the lecturer is convinced that such students have not demonstrated expected knowledge.
- (2) The non-diversification of teaching and learning activities, so as to afford students with different talents the opportunity of finding a modality of learning and self-expression with which they are most comfortable, and to develop, as a result, their self-esteem as learners.
- (3) Frustration that students have not learnt, or not learnt what and how the lecturer had expected them to learn.
- (4) Frustration that because of large class sizes detailed individual feedback can no longer be given to students, thus preventing assessment practices from being opportunities for teaching and learning.

3.3 From the perspective of institutions or national educational systems

The following are arguably some consequences:

- (1) The observation that students or graduates whose performances are adjudged weak or mediocre in one environment are found to excel in other institutions or HE environments that have different TL philosophies.
- (2) Institutions are scoring high marks in accreditation processes for the quality of their study programs at a time when, paradoxically, industry and professional bodies have never been more distraught over the quality of graduates attempting to enter the workforce, and the market insolvency of graduates is at an all-time high.
- (3) The image problem of a higher education system, such as when cohorts (1972 – 1996) of Australian and US recipients of the (German) Humboldt Foundation Fellowships independently report perceiving (at the time) the level of student teaching in Germany being “considerably worse” than in their respective countries (Jöns 2005, 16).

3.4 In adversarial situations

Academic staff unions making a case for increased funding are sometimes unable to elicit or sustain the sympathy of the public because the rhetoric of the case being made fails to resonate with the public. As this chapter progresses, it should be obvious why funding cuts might make lecturers in certain disciplines focus on low level cognitive competencies, unwittingly justifying in the process the uncharitable view that universities are becoming “higher institutions of lower learning.” (Antia 2009, 62).

4 Teaching and learning involve choice and are amenable to strategic management

The organization and implementation of TL evoke the classical definition of strategy. A teacher sets up certain plans (lectures, tutorials, excursions, assignments, marking schemes) to bring about certain outcomes in learners (e.g. ability to define, use, critique, or create units of knowledge) that are consistent with certain goals (e.g. institutional profile, expectations of the discipline and stakeholder groups such as professional bodies and the community). The following hypothetical scenario and the subsequent elaboration underscore this analogy.

In an introductory first-year economics module which they have signed up for, students’ only insight into the nature of the module consists of a four-line overview of the course contents, a list of readings and a list of weekly topics. One such topic is ‘factors of production’. The lecturer plans to mediate the relevant content essentially through prescribed readings and a one-way lecture in which several factors of production are mentioned and described.

Now, at the end of a two-hour lecture, the lecturer refers students to a list with readings, each of which broaches the topic from a range of perspectives. Also, for the 5-minute pre-lecture revision for the following class, students have been asked to come with examples of how factors of production have been exemplified in the prescribed readings. Most students focus on what they guess is the perspective of the teacher: mention and describe! In a class test some three weeks later, the relevant question posed by the lecturer is: Mention three factors of production and describe each.

However, in the final examination, the compulsory question 1 has three parts as shown in textbox 1.

- a. List five factors of production and describe each one.
- b. Read the attached case description of how company X folded up, and then use this case to reflect on the importance of attending to factors of production in the development of a business plan.
- c. In the context of the new knowledge economy, critique the traditional account of primary factors of production.

Textbox 1: Sample examination question

Only a handful of stellar students do well on all questions. Most students do well on question 1a, but the performance on questions 1b and 1c is worrying. While many students fail, there are others who somehow pick up enough marks to have above average passes even though the lecturer is convinced that the intended learning outcomes (however vaguely imagined) have not been achieved.

This example calls attention to the need in TL for strategy as setting direction, focusing of effort and providing consistency. But before analyzing this example any further, let us briefly examine some relevant theory.

1. Remember: mere retrieval of information from memory in substantially the same manner as it had been encountered.
2. Understand: processing the meaning of information.
3. Apply: using information for a purpose.
4. Analyze: determining the constituent parts of a whole and how they hang together.
5. Evaluate: offer a view on knowledge/information.
6. Create: forming something new, e.g. by putting together existing items.

Textbox 2: Cognitive competencies in Bloom's revised taxonomy (Krathwohl 2002)

On the other hand, in Biggs' Structure of the Learning Outcomes (SOLO) taxonomy, there are several levels of understanding. Leaving out the prestructural level where no learning takes place, each subsequent level builds on or extends the preceding one. See textbox 3 and figure 2.

0. Prestructural: no learning has taken place; point missed.
1. Unistructural: memorize, recognize and identify facts, terminology; only one aspect of a complex issue is learnt.
2. Multistructural: exemplifying; knowledge-telling or recounting a wealth of facts which, though interesting and relevant, may not be well structured.
3. Relational: understanding has been achieved as evidenced by the emergence of a concept for integrating/connecting a welter of facts, or by the ability to apply knowledge to problems or data.
4. Extended Abstract: understanding that goes beyond facts presented to infer new knowledge; critiquing existing knowledge.

Textbox 3: Levels of understanding in Biggs' SOLO taxonomy (Biggs 2003, 49)

Figure 2: presents Biggs' SOLO taxonomy with a hierarchy of (sample) verbs that suggest various levels of understanding.

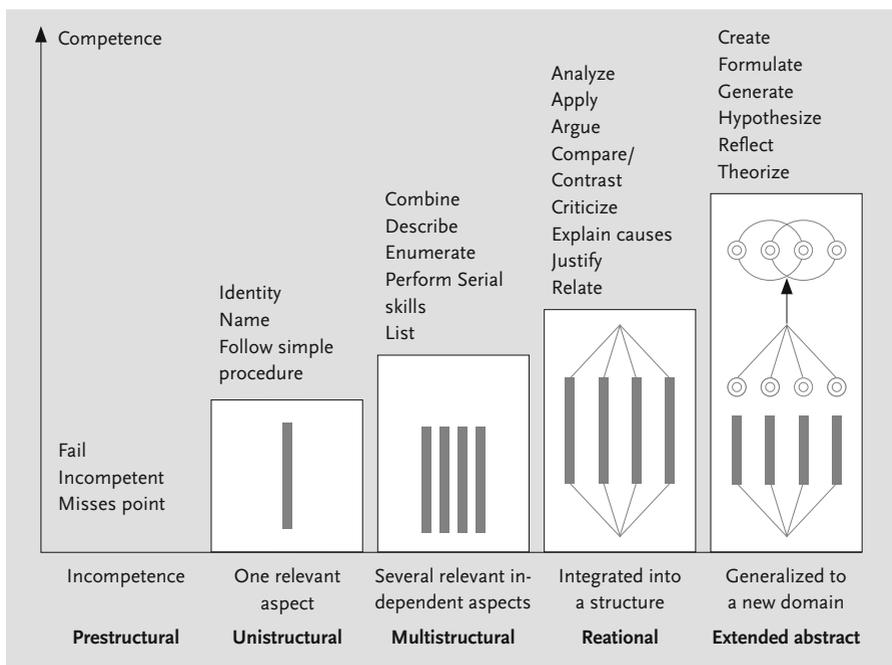


Figure 2: Biggs' SOLO taxonomy with a hierarchy of verbs (Biggs 2003, 48; 2002, 5)

So-called deep learning is associated with the relational and extended abstract levels, and would typically characterize the learning strategy of a minority of students. Surface learning, associated with the unistructural and multistructural levels, tends to be the hallmark of the majority of students.

The picture which the above theoretical description has sought to paint is one of choices regarding what teachers wish for learners to achieve. Returning to the factors of production example, the lecturer failed to trap students in a web of intended learning, in part because s/he did not explicitly state what outcome was expected from engagement with this topic. Were students to focus on the lower level competencies of remembering and understanding, or were they also expected to analyze and evaluate? These competencies require different learning activities and attentional resources. There were no plans in place to get the surface learners to behave like the deep learners.

5 Aligned curriculum with embedded graduate attributes as a strategic management tool

Work by Biggs (e.g. Biggs 1999, 2002, 2003) has been central to the emergence of both the process and product of constructively aligning the curriculum. Consistent with the notion of strategy as providing consistency, constructive alignment (into which graduate attributes have been embedded) seeks to achieve logical coherence among institutional/stakeholder expectations, learning outcomes, teaching and learning activities, assessment tasks, and the grades finally awarded. In other words, it seeks *logical coherence* in answers to the following questions:

- What does the institution or society expect of graduates?
- What should students be able to do at the end of the module?
- What teaching and learning activities should be used?
- What assessment tasks should be proposed?
- How are marks assigned to assessment tasks?

Figure 3 suggests how graduate attributes together with curriculum alignment map onto the concept of strategy. The curved arrows indicate how a range of activities are clearly made supportive of learning outcomes which are, in turn, supportive of graduate/program attributes.

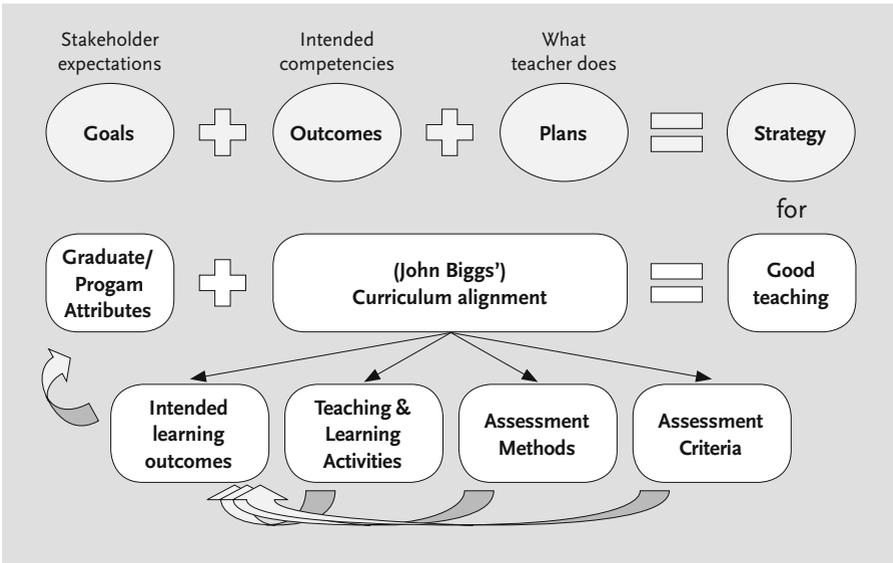


Figure 3: Graduate attributes and curriculum alignment as strategy

In the sections that follow, the components of an aligned curriculum (with embedded graduate attributes) are described.

5.1 Graduate attributes

In our three-component definition of strategy, graduate attributes fall under goals. Attributes are a branding and an agenda-setting instrument for TL (see examples in figures 6 and 7). They constitute the mission statement of a higher education institution as it relates to its graduates. The development of these attributes would be the first phase of the strategic management process in figure 1. Not unlike corporate mission statements, these attributes can foreground quality, self-concept, geography, technology, public image (social commitments), concern for survival, philosophy (attitudes, dispositions, ethics), and so on (Pearce and Robinson 2007, 25). Because graduate attributes provide a goal-context for TL, the opportunity for creating them is one for engaging with, and taking on board a host of, stakeholder concerns, in order to deliver a curriculum that responds in some measure to defined stakeholder expectations. An institution that has internationalization in its vision, but does not attend to how this aspiration is to be operationalized in its curriculum, is unlikely to produce students who are able to define themselves in terms of this attribute. Many institutions do not as yet have graduate attributes.

5.2 Learning outcomes

Learning outcomes obviously fall under outcomes in the three-component definition of strategy. While graduate attributes are more externally oriented, learning outcomes are oriented internally towards the specifics of the course. They are statements that specify what learners are expected to do with the content (Kennedy 2008, 388–389). Even the obvious answer, *well, the content is to be known*, has to be somehow demonstrated by doing something. The emphasis is on what the student does. Examples of the kinds of things that can be done with the content might be to:

- define the concepts of X relevant to Y and demonstrate knowledge of how these concepts hang together;
- interpret X-data for Y purposes;
- explain how X works to bring about Y;
- predict X patterns from Y data under Z conditions; and
- use the X-system of Y to produce Z.

In contrast, a course description presents content as an abstraction that does not focus on the learner or on the use to which such content is to be put.

The number of outcomes is determined only by what are considered to be priority competencies, and it is not uncommon to have between 3 – 8 outcomes, covering:

- content issues: demonstrating knowledge of basic concepts, terminology, facts; describing and explaining (logical relations of) causality, co-occurrence, and so on; applying knowledge to solve problems; breaking down or analyzing situations; critiquing knowledge, creating or developing new knowledge;
- formal issues: using language correctly and/or like a subject-field expert, organization or structuring of ideas, communication, documenting sources correctly, and so on.

Much has been said about verbs (e.g. define, explain, critique) in the wording of learning outcomes, but quite a bit of this is controversial (Jones et al. 2009, 2–3). As with the categorization of questions into different cognitive levels, the point has been made that “in some instances the verb does not provide the full picture” and that it is important to consider other aspects of the statement (Jones et al. 2009, 3). Although sensitivity and specificity rates will not always be optimal, verbs can nevertheless communicate at least four important facts when chosen in a reflective and informed manner:

- the ‘performances of understanding’ the learner is expected to enact: remember, understand, apply, analyze, evaluate, create; unistructural, multistructural, relational or extended abstract;

- the cognitive competence level (from simple to complex) at which the performance is to be enacted;
- the distribution or spread of cognitive competencies expressed in the outcomes;
- the knowledge type in respect of which a given performance of understanding is to be enacted. Examples in Bloom's revised taxonomy would be: factual knowledge (the basic concepts/facts of the discipline, e.g. concepts), conceptual knowledge (models, theories and other integrative frameworks for the basic facts), procedural knowledge (methods, techniques).

It should be perceived as a problem if outcomes, especially in advanced-level modules, were skewed in the direction of the lower cognitive competencies. This would make for a higher institution of lower learning! At this point, the reader may wish to analyze the objectives of this chapter from the perspective of spread.

Sections 4.3–4.5 that follow fall under plans in our three-component definition of strategy.

5.3 Teaching and learning activities

The factors of production example showed that there can be consequences when there is a disconnect between (stated or implied) learning outcomes and teaching/learning (TL) activities and assessment. Very little is efficiently achieved when an intention to inculcate in students competencies of case logic, analysis and evaluation is not supported by pedagogic activities (e.g. case analyses) that support the development of these competencies. Obviously, because TL activities come with different affordances, it is important to carefully consider which TL activities are most supportive of specific learning outcomes. For instance, with respect to an outcome on defining basic concepts, a range of terminology-centred activities would be especially appropriate.

Indeed, the list of possible TL activities can be quite long and would include: the expository and essentially one-way lecture; tutorials that complement lectures; text commentaries; summaries; interviews; development of glossaries; error-spotting; interactive presentation using a range of modalities, including questioning students, concept maps; seminars; laboratory work and a range of other practical activities; excursions; reflective journaling (that is, keeping diaries of major learning milestones or critical incidents and commenting on these); role-playing; blogging; simulated panel discussions or debates; computer and other kinds of simulation

and modelling; letter to the editor; annotated bibliographies; group work of various kinds for a variety of tasks; and so on. Following Biggs (2003, 81–2), TL activities may be classified as teacher-directed, peer-directed and self-directed.

Again, the reader is invited to reflect on what TL activities might be appropriate for each of the learning outcomes of this chapter – if the contents were to be the subject of teaching.

5.4 Assessment tasks

It might seem like a trivialization of education to say that because students are always oriented to assessment tasks, therefore learning should be focused on the assessment. If assessment is understood as directed at desirable competencies, then endorsement of assessment-driven learning should be less contentious. It would be quite consistent with the view of strategy as setting direction and focusing effort. As noted by several scholars (e.g. Biggs 2003, 140; Jones et al. 2009, 1), students inevitably learn for assessment, and this practice can easily be leveraged to ensure that the assessment is focused on what the teacher wants the students to learn. Without prejudice to the value of other possible tasks, it would be remiss to conclude a course that has driving machinery or lacing shoes as intended learning outcome without the actual driving or tying of laces ever having been assessed.

There is an expectation that “things valued enough to be stated as course learning outcomes will be assessed.” (Knight 2001, 3). There is a huge variety of assessment formats, with one account (Knight 2001) identifying as many as fifty. Not surprisingly, in some cases, assessment formats are identical to TL activities. The list of assessment techniques includes: multiple choice tests, take-home assignments, open book exams, take-home exams, summaries, short exam questions, simulations, blogging, exhibitions, role-playing, orals or vivas, projects (individual or group), reflective journals, self-assessment, peer assessment, presentations, portfolio (in which learner makes claims of what has been learnt by including important work done in the course, e.g. concept maps, reflective journals or/and sample essays, then comments on why and how they represent achieved learning – especially given the intended outcomes), and so on (Knight 2001, Biggs 2003).

The reader may wish to again reflect on the task given at the beginning of this section: the content, wording and format of possible assessment tasks intended to support the attainment of each of this chapter’s outcomes in a variety of class(-size) situations.

5.5 Grading or assessment criteria

For the actual grading of assessment tasks to respond to strategic imperatives, it needs careful thinking through. Assessment criteria that do not support priority learning outcomes make the attainment of such outcomes a matter of chance. In a module where the most valued outcomes or performances of understanding are of the relational and extended abstract type, something would be wrong if answer scripts in which the performance had been excellent on less valued outcomes but not on the priority outcomes somehow earned substantially more than 50% of the total marks.

This would happen with assessment that is quantitative and outside of a strategic goal context. As Biggs (2003) suggests, obtaining more than a bare pass in such situations provides no incentive for students to strive to achieve prioritized learning outcomes. In a question paper with different assessment tasks, from labelling and defining to evaluating and creating, the premium set in the corresponding course on higher order cognitive skills could mean assigning between 60% - 70% of the total marks to a demonstration of these higher order skills.

A distinction is commonly made between norm-referenced assessment and criterion-referenced assessment (Knight 2001, 17–20; Biggs 2003, 143–145). Norm-referencing is based on expectations of an ideal distribution of performance, for example, the number of students that should get specific grades (e.g. A, B, C, and so on). It is grading on the curve, and it compares students to each other. On the other hand, criterion-based assessment, especially in the context of an aligned curriculum, provides the framework for interpreting learning outcomes in the grading of specific assessment tasks. It essentially answers the question: bearing in mind the backwash I expected to learning activities and to learning outcomes while proposing a task, what should I be grading for the strategic decision around the choice of the task to be well served?

Criterion-referenced assessment works through a series of benchmark statements that express prototypical qualities of performance connected to different grades (e.g. A, B, C). In this way, assessment is done on the basis of goodness of fit. In this case, it is a match between answer and pre-set benchmark statements. The obvious prototypical framework is useful because it acknowledges margins and the inevitable fuzziness of categorization decisions – quite consistent with the caveat that strategy need not be specified in the rigid terms of necessary and sufficient conditions.

Criteria	Excellent	Good	Weak
1. Data issues: data is from source W, collected in X manner, in Y quantity and of Z quality. (5 marks).	Data samples of over Y quantity collected from an appropriate source in a transparent and ethical manner, using a device that allows for quality Z. Exceeds expectations. (4–5 out of 5).	Data samples of X–Y quantity collected from an acceptable source in a manner that raises some concerns about any or several of the following: transparency, ethics, quality. (3 out of 5).	Data sample size below X quantity, collected from a relatively inappropriate source, and raises serious concerns about several of the following: transparency, ethics, quality. (2 and below out of 5).
2. Transcription/processing: collected data is presented in a conventional manner (backed by appropriate reference), and it reveals features of X, distinguishing it from Y. (10 marks).	Transcription reveals more than 5 features of X, and it follows the convention in a cited authoritative source. Exceeds expectations. (8–10 out of 10).	Transcription reveals 3–5 features of X, and it generally follows established convention (which may or may not have a citation). (5–7 out of 10).	Transcription reveals below 3 features of X, and there are concerns conventions followed. (Below 5 out of 10).
3. Theory: What named or unnamed theories are expected? What named or unnamed concepts are required? (10 marks).	Relevant theory, concepts, models chosen. Evidence of excellent understanding (in definitions, elaborations, applications). Exceeds expectation. (8–10 out of 10).	Theory, models, concepts chosen largely relevant for the data. Generally well understood, though there are occasional doubts. (5–7 out of 10).	Theory, models, concepts chosen not particularly suited to the data. Serious doubts about how well concepts have been understood. (Below 5 out of 10).
4. Analysis: What is expected in terms of engagement with the data, interpretation, further reflections? (10 marks).	Extensive engagement with data, as evidenced by references to both content and form of data. Excellent application of theory, and evidence of extended abstract reasoning. Exceeds expectations (8–10 out of 10).	Evidence of some engagement with data. Some application of theory in analysis, only marginally able to draw inferences. (5–7 out of 10).	Little or no engagement with the data. Questionable application of theory, and unable to draw any inferences. (Below 5 out of 10).
5. Organization/structure: what generic organization is required, e.g. introduction, material and methods, results and discussion (IMRD)? How important are discourse organizers or the signposting of the different parts? (5 marks).	Various parts of the essay clearly defined; the generic integrity of each section is respected. The logical connections in the arguments are very lucid. Exceeds expectations. (4–5 of 5).	Essay generally well structured, but with occasional concerns of generic integrity. Logical connectors sometimes provided. (3 out of 5).	Essay poorly organized. (Below 3 out of 5).

Criteria	Excellent	Good	Weak
6. Language: what is expected in terms of grammar (including punctuation), style? (5 marks).	There are hardly any infelicities of language and style. Very clear piece of writing. Exceeds expectations. (4–5 of 5).	Generally well written, with several errors of grammar and infelicities of style. (3 of 5).	Very many errors of grammar and infelicities of style that impede comprehension. (Below 3 of 5).
7. References: what is expected in terms of sources (authoritative, primary/secondary), documentation, and so on? (5 marks).	Evidence of more than 5 relevant references having been consulted? In-text citations and bibliography follow X style sheet. Exceeds expectations. (4–5 of 5).	3–5 more or less relevant references consulted? In-text citations and bibliography follow X style sheet, but with occasional errors. (3 of 5).	Less than 3 references consulted, even if more are listed. Conventions hardly followed. (Below 3 of 5).

Table 1: Illustration of criterion-based assessment

It is supportive of strategy in teaching for students to have the assessment grid at the latest when they are being told what the assessment task is. In this way, they know what performances are valued, and what effort is required to fall within a mark range in respect of a given criterion. After marking has been done, a “C” grade or a “Weak” assessment on any given criterion informs the student that the learning or pre-knowledge around the particular criterion matches the corresponding benchmark statement and requires more effort. A student scoring 4 out of 5 on each of data, organization, language and referencing, but 3 of 10 on each of the more valued criteria of transcription, theory and analysis ends up with a total score of 25 out of 50. Such a marginal pass should suggest that additional effort is required in very specific performance areas.

6 Managing the aligned curriculum

Coordinating and providing the various kinds of information that make up an aligned curriculum involves quite some effort. Obviously, the pay-off has to be considerable for the effort to be worth the while of stakeholders. A software implementation of curriculum alignment has a number of potential pay-offs, including:

- ready access to the curriculum;
- monitoring and evaluating, to generate data for institutional quality assurance initiatives: for instance, determining or improving the relationship between learning outcomes and examination questions; and
- research data, for instance on the evolution of teaching strategies within a module/across modules in the same/different disciplines.

The second author of this chapter has developed a tool that provides a step-by-step guide to the development of an aligned curriculum. The tool has a database that can be queried to support a range of research, monitoring and evaluation initiatives.

The following screenshots illustrate some of the functionalities of the tool. Figure 4 shows the Home page, with provision for login by both a user and a superuser (administrator). The former is able to create curriculum entries or view entries they have created. The latter is able to exercise oversight over all entries in the database.

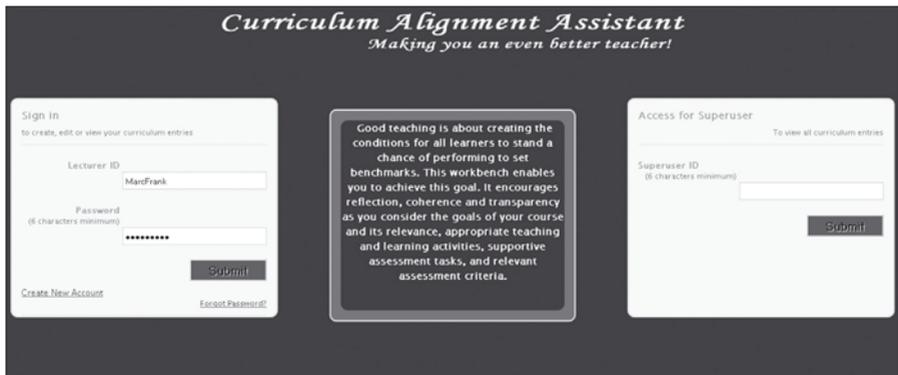


Figure 4: Home page

As figure 5 shows, following user authentication, a session is launched for one of two purposes: to create a curriculum or to view/query a curriculum. The query could be in respect of two document types: an aligned curriculum or a detailed criterion-referenced assessment (that would be similar to table 1).



Figure 5: Starting a session

In a first step towards the creation of an aligned curriculum, the user, guided by a tool tip, selects from a pre-loaded list those graduate attributes of University X which the course is well placed to support. See figure 6.

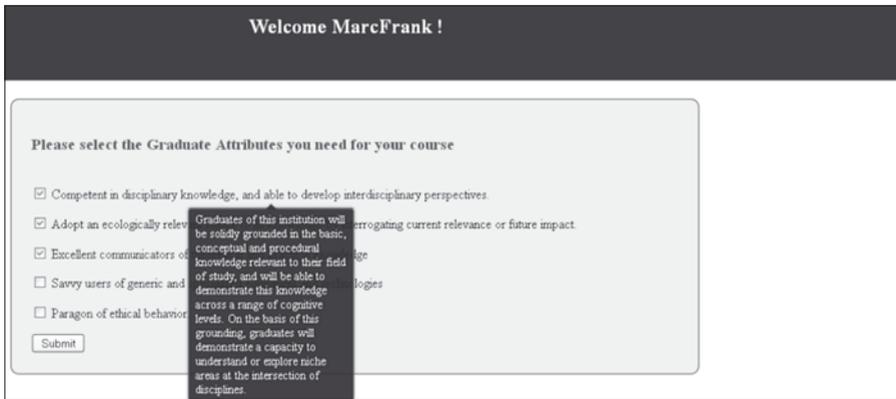


Figure 6: Selecting graduate attributes

With relevant attributes selected and submitted, the user is taken to the workbench in figure 7 to complete other steps.

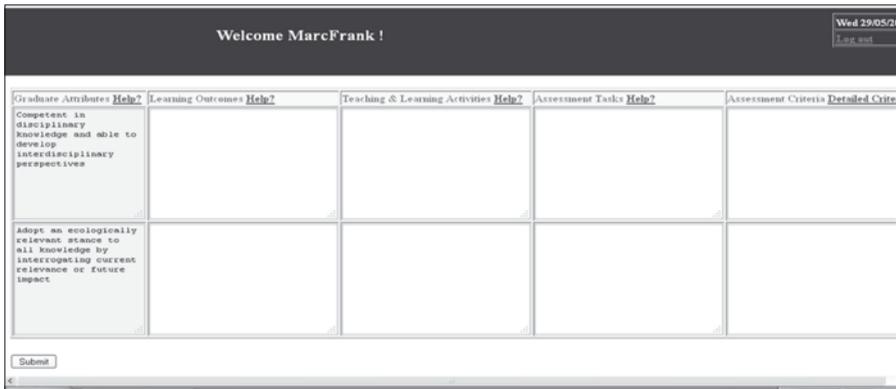


Figure 7: Workbench for entering information on steps 2–5.

For each step, assistance is obtained by clicking the “Help?” link. The window that pops up provides relevant information. While some of the steps require the user to input original text, others simply require copying and pasting from the pre-loaded

suggestions in the pop-up window. Thus, in step 2, the user may open the pop-up on learning outcomes to understand what this means in order to input original text (see figure 8).

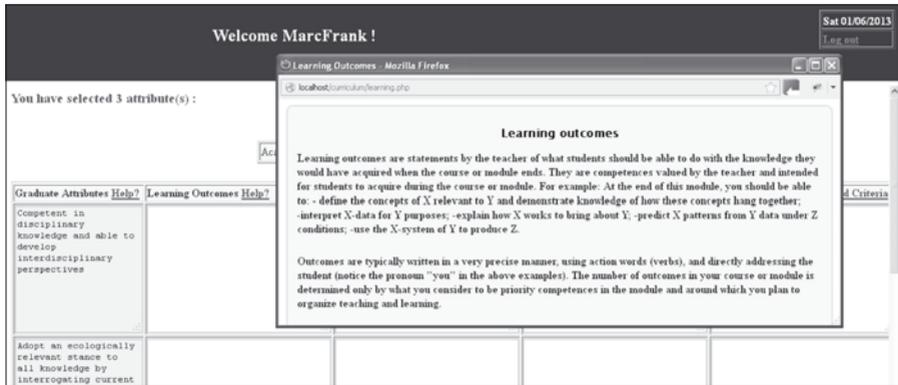


Figure 8: Workbench, with pop-up giving information on what learning outcomes are

In step 3, the user enters the TL activities through which the goals in the two previous columns are to be achieved. In step 4, the user repeats the same process as in step 3, but this time in respect of assessment tasks that are consistent with the corresponding TL activities and supportive of the learning outcomes and, through them, the graduate attributes. In step 5, the user inputs original text describing some very generic assessment criteria. The completed workbench would look like figure 9.



Figure 9: Completed aligned curriculum

To enter customized information for major assessment tasks, rather than the generic one on the workbench, the user clicks on the “Detailed Criteria” link which opens up a page onto which detailed criterion-referenced assessments can be provided (see figure 10). A possible structure of a detailed criterion-referenced assessment was provided in table 1.

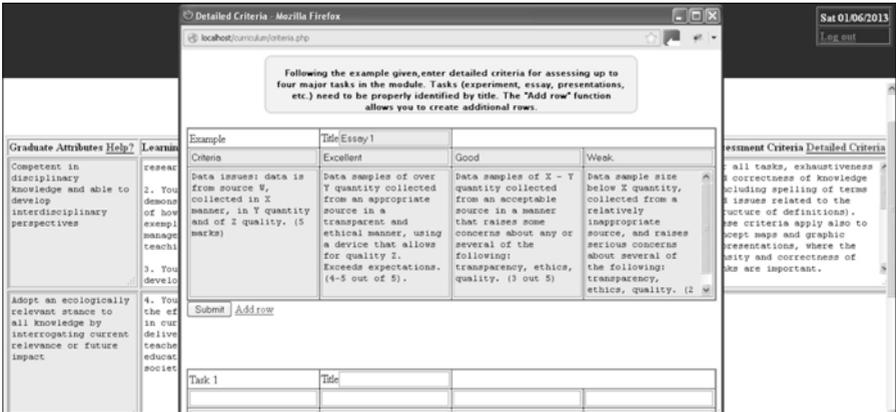


Figure 10: Pop-up window for entering detailed criteria for assessing major assessment tasks

On submitting the work done on the workbench, the curriculum is saved to the database and a Portable Document Format (pdf) is generated. Figure 11 is a partial view of the generated pdf.

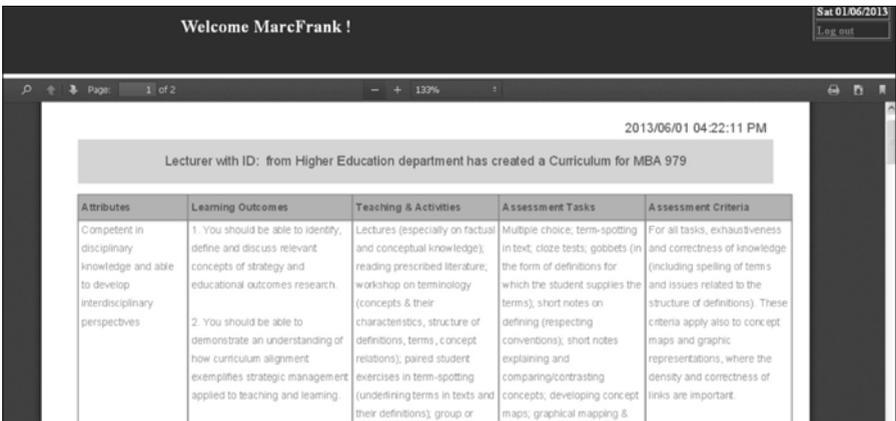


Figure 11: A pdf of the completed curriculum alignment

An important caveat to enter here is that the aligned curriculum does not replace the list of weekly topics. In other words, the student still needs to have the usual resources (list of topics, list of readings, etc.). The aligned curriculum document enables the student to make sense of this all.

7 Conclusion

It might be perceived as paradoxical that academics who eagerly apply strategic management to the setting up and running of their research programs, in order to gain competitive advantage, should be averse to the use of similar instruments in their teaching. Similarly, institutional administrators who develop operating plans and policies for a range of aspects of institutional life have, in some cases, not been forthcoming with comparable initiatives in teaching, with the consequence that teaching and learning easily become the Achilles' heel of institutional performance. In describing a broad spectrum of implications which the neglect of a formalized goal-context for teaching and learning is conjectured to engender, this article has sought to underscore the relevance of a strategic management approach to teaching and learning. The aligned curriculum has been presented as a strategic management tool that entraps students in a teacher-spun web of learning.

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