

Beyond Assessment: Assuring Student Learning in Higher Education

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Abstract

Setting up an 'Assurance of Learning' (AoL) system in line with requirements for accreditation is generally perceived to be a challenging task in both theory and practice. This paper provides an overview of the AoL system developed by the Faculty of Commerce and Administration to meet the requirements for accreditation by the Association to Advance Collegiate Schools of Business (AACSB), and describes its rationale, results achieved to date, and current challenges. The Faculty's system draws on the use of graduate attributes (Barrie, 2004), constructive alignment (Biggs, 1999), quality systems (Deming, 1982) and Theory of Constraints (Goldratt, 1994). In particular, individual student assessment is used to provide programme-level assurance of learning of graduate attributes. AoL's focus on 'closing the loop' – using student cohort performance data to inform system level change so that more students achieve the overall programme-level learning goals – is illustrated through a number of examples. While AoL developments have been led largely by business schools, we argue that wider adoption would allow universities to back up their claims about their students' achievement of graduate attributes, moving towards assuring, not just assessing, student learning.

Keywords: Accreditation, AACSB, assurance of learning, assessment, graduate attributes

Introduction

An Assurance of Learning (AoL) system has been implemented at Victoria University's Faculty of Commerce and Administration (the Faculty) as a quality-assurance approach to improving teaching and learning outcomes, and to gain accreditation from the international Association to Advance Collegiate Schools of Business (AACSB, 2007). To gain accreditation, an institution must, *inter alia*, demonstrate it meets AACSB's set of AoL Standards, which require processes aimed at continuous improvement at the programme (i.e., degree) level. However, these standards are not prescriptive and it is up to each institution to develop its own AoL system, tailored to its own mission while meeting AACSB's AoL Standards.

Setting up an AoL system is generally regarded as a challenging task, both in theory and in practice, with many business schools struggling to understand what is required as well as how it can be implemented (Martell, 2009; E. Peacock, personal communication, March, 9, 2011). Our system has been successfully established, drawing on management theories and quality improvement processes as well as higher education literatures, resulting in a system that is feasible and has led to favourable evaluations from external evaluators. Victoria's system, which has so far involved more than 250 assessment exercises conducted in undergraduate and postgraduate taught courses, as well as thesis examination reports, has been described as being achieved in record time, and thus may provide pointers to other business schools.

As one measure of 'success', formal accreditation was granted to the Faculty by AACSB in 2010. Continuing improvements to programmes and processes have produced other valuable results. Internal recognition of the benefits of the AoL processes is evidenced by the adoption of AoL by programmes 'outside the scope' of AACSB accreditation requirements. Related outcomes include meaningful changes to course activities, support and assessment systems, with widespread adoption of assessment criteria such as rubrics, and observable

improvement in student learning outcomes. The overall project has seen a positive shift in the way the Faculty engages with programme and course design, and with teaching and learning as a whole. It has motivated a stronger pedagogical process at programme and course level, guiding changes in student and teacher support structures and focus. As a result of the AoL process, the Faculty is able to gauge the levels of achievement of programme learning goals, and monitor the consequences of modifying course(s) and programmes. 'Closing the loop' in the AoL cycle provides a way of working towards assuring that our teaching and learning objectives are met.

Adoption of such processes more widely – beyond business schools – may provide an avenue for universities that have adopted graduate attributes to monitor and progressively improve student achievement of such attributes. The AoL process is structured by the use of programme learning goals aligned through curricula and assessed directly, in order to enhance the achievement of learning goals by the student cohort. The guiding philosophy is to use student cohort performance data to inform system level change so that students achieve the overall programme-level learning goals, in contrast to the more normal assessment where the focus is on helping individual students perform better in individual courses.

Banta (2008) advocates the use of assessment data beyond individual courses, to address programme and institutional level concerns in much the same way that AACSB envisages the use of data to improve programme effectiveness. Interestingly, Banta claims that reports in the literature have focused on improvements to processes and practices, but have provided little evidence that such activities have been effective in improving student learning outcomes. While it is acknowledged that more evidence needs to be gathered and analysed, this paper provides some early evidence of improvement in learning outcomes through adoption of the AoL process.

After a brief literature review, the paper describes the AoL process developed, relating it to the higher education literature in particular on graduate attributes. Significant features of this system and examples of results are provided, before discussing challenges currently being addressed. Finally the relevance for non-business subjects is discussed.

Perspectives from the Literature

The AoL system is anchored explicitly on the concept of graduate attributes, which are encapsulated and contextualised in programme learning goals. The underlying belief is that universities should be able to describe what their graduates will be capable of, and how the education they receive will support their development and attainment of those capabilities. Furthermore, they should be able to demonstrate that all their graduates have achieved these graduate attributes.

Graduate attributes are not a new concept to higher education with some arguing that they date back to at least 1862 and the establishment of the University of Sydney (Barrie, 2004). In the modern sense they are “the qualities, skills and understandings a university community agrees its students would desirably develop during their time at the institution and, consequently, shape the contribution they are able to make to their profession and as a citizen” (Bowden, Hart, King, Trigwell, & Watts, 2000). The concept, either explicitly or implicitly, includes the idea that the attributes will encompass disciplinary skills and knowledge as well as generic attributes: “These are the skills, personal attributes and values which should be acquired by all graduates regardless of their discipline or field of study. In other words, they should represent the central achievements of higher education as a process” (Higher Education Council, 1992, p. 20).

Over the last two decades graduate attributes have also become a key instrument in the accountability frameworks of both the United Kingdom (as a result of the Dearing Report; NCIHE, 1997) and Australia through the Australian Universities Quality Agency (AUQA,

now the Tertiary Education Quality and Standards Agency, TEQSA). In the context of commerce education, graduate attributes are a key component of the systems required for both AACSB and EQUIS (European Quality Improvement System) accreditation. Despite, or perhaps because of, this history of activity there is now a confusion of terminology in the field with graduate attributes framed as transferable, key, core, generic, learning, lifelong, or personal, and the attributes re-expressed as skills, goals, competencies or capabilities (Clanchy & Ballard, 1995). In many cases, but not all, these are used interchangeably but they can be intended to make fine distinctions. This confusion in part represents a symptom of the challenge that faces many institutions when defining and operationalising attributes into actions and educational choices.

Research on academic perceptions of what graduate attributes should encompass has shown a significant diversity of conceptions (Barrie, 2004). This range of conceptions means that inevitably graduate attributes need to be expressed at a high level of abstraction and then contextualised, commonly through curriculum mapping into specific qualifications, programmes or courses of study. This mapping process now generally sees the graduate attributes expressed and translated into a subset of the learning objectives of courses and then, through a process of constructive alignment (Biggs, 2003) mapped to specific learning activities and assessments. Constructive alignment emphasises that it is necessary to decide on the goals of a programme, and to develop these skills, knowledge, and disposition throughout the programme in a deliberate and planned way, integrated with assessment. Such an approach might be seen as an 'interlocked' approach, as defined by the Globalization of Management Education Task Force (2011). They argue for planned development of skills, stating that practices of infusion (where everyone is supposedly building skills) and insertion (where a few isolated exercises are included in the curriculum) do not work. They argue that infusion leads to invisibility while insertion leads to isolation, and what is needed is a more connected interlocked approach.

There are many descriptions of the experience of institutions engaging in the process of mapping graduate attributes for programme curriculum (re)design, many of which note that the process can be less than straightforward. Treleaven and Voola (2008) describe the process of integrating graduate attributes in Marketing education at the University of Sydney and noted significant differences when a constructive alignment approach was taken to embed the graduate attributes into courses. The experience of the Open University UK (Dillon, Reuben, Coats, & Hodgkinson, 2007) emphasised the importance of integration of assessment and the need to ensure staff are appropriately supported as factors necessary for the achievement of a common understanding of the attributes and ultimately a successful outcome for students.

Sumison and Goodfellow (2004) report a generally positive outcome from mapping graduate attributes but noted the need to address staff concerns about the process leading to an overly managerial and audit-focused culture, something of particular concern when developing an AoL process in the context of an external accreditation activity. Sumison and Goodfellow also noted that care should be taken to ensure that the semantic meaning of the maps is collectively understood and that maps are made with a common set of standards and expectations. This latter issue has also been identified by Crebert (2002), particularly when mapping a standard set of attributes across multiple disciplines. De La Harpe, Radloff, and Wyber (2000) noted issues with staff resenting a 'top-down' approach and lacking commitment and time to engage in the project, including in the professional development and support provided.

Despite these issues, there has been widespread adoption of graduate attributes by Australasian institutions. Such is the level of activity that there has been a series of substantial projects funded in Australia looking at the ways graduate attributes are created, operationalised and outcomes measured, and the type of graduate attributes in use throughout Australian universities (The National GAP, 2011; Oliver, 2011) in an attempt to understand the extent and diversity of ways graduate attributes are influencing learning and teaching. It is apparent that while graduate attributes are commonly stated in

university materials, and such attributes are implicitly covered in programmes of study, few institutions would be able to demonstrate that they are actually achieved by all graduates. Many universities would find it difficult even to ascertain what proportion of their graduates has actually achieved them. The AoL process is designed to quantify and assure the claims made concerning graduate attributes, and would provide universities with a mechanism for backing up their claims.

Aside from the measurement of achievement of graduate attributes, it is not uncommon that an organisation (or discipline) can find it difficult to improve itself, including making changes that lead to improvements in student learning outcomes. Deming argued that, “competent men (sic) in every position, if they are doing their best, know all there is to know about their work except how to improve it. Help towards improvement can only come from some other kind of knowledge. Help may come from outside the company, combined with knowledge already possessed by people within the company but not being utilized” (Deming, 1982, p.143). One of Deming’s 14 Points, “Cease dependence on mass inspection,” advocating the use of quality assurance not quality control, is particularly relevant in our context, with its focus on process improvement, as opposed to 100% inspection at the end. Rather than expecting improvements to result from checking every student’s performance (assessing each item to decide on an individual’s grade), the AoL process relies on checking a sample of students’ work over a period of time to detect patterns of performance so as to intervene with system improvements to improve student learning outcomes.

Deming’s ideas are often credited as stimulating the development of quality management approaches such as Total Quality Management (TQM) which has driven substantial quality initiatives in many industries. The success of historical application of TQM to higher education is, however, contested (Houston, 2007; Koch, 2003). Koch’s review of quality management’s impact on higher education notes that the common failing of many initiatives has been to focus on aspects of higher education that are peripheral to the major purpose of supporting student learning. Houston provides an extensive critique of the problems of applying standard quality models such as TQM to higher education, particularly those aspects that are not essentially administrative. He argues for the need to take a critical systems approach, starting with clearly stated objectives for the educational activities being improved: “authentic quality theory is essentially systemic; attending to values, purpose, and optimising performance relative to the aim of the system. It offers a framework of ideas to help improve future performance, based on data about past and current performance” (p. 13).

There is also the need to address the conflict between the sense that quality management is management *by* quality rather than management *for* quality (Connor, 1997), which is inconsistent with the autonomous nature of academic work and perhaps lies at the heart of the resistance and distrust of quality mechanisms encountered in higher education (Hoecht, 2006). Perfunctory compliance can be an undesired outcome of systems that have been ill-thought through or mandated from above in a heavy-handed way (Davies, 2010).

Despite these issues and previous failed TQM initiatives, De Jager and Nieuwenhuis (2005) suggest that the underlying principles of TQM are consistent with those that underlie constructive alignment and an outcomes-driven approach to pedagogical design and practice. The AoL approach presented in this paper reflects an understanding of the need to develop applications of the ideas underlying TQM in manners that support academic engagement with pedagogical decision making. Outcomes-driven analysis, combined with the evidence gathered in the AoL process, drives the continuous improvement focus that lies at the heart of TQM.

The various issues raised above underline the difficulties of setting and achieving standards not just from the technical – in this case, pedagogical – viewpoint but also the political and economic feasibility of change. Several management theories provide frameworks to guide

change management, including the Theory of Constraints which provides a process to guide the design and implementation of change (Goldratt, 1994; Mabin, Forgeson, & Green, 2001). The development and implementation of the AoL System have been viewed by the first author as an action research project, in which the Theory of Constraints methodology has been used to identify key constraints or obstacles and address those in turn. Mabin (2009) describes this overarching framework for the development and implementation of the AoL system addressing the political and economic aspects, while in this present paper, we concentrate on the pedagogical aspects.

Description of the Approach Taken and Process Developed

In this section we will provide an overview of the AoL system that the Faculty has put into place drawing on the aforementioned literatures, while the next section will discuss the results we have achieved and take the opportunity to reflect on our approach, comparing it with other systems, and to comment on current challenges.

The Faculty has sought accreditation from various international bodies, including the AACSB. To achieve AACSB accreditation, it is necessary to provide evidence that a continuous improvement process is in place that is focused on improving the achievement of student learning outcomes. The approach can be encapsulated in the following four questions:

1. What do we want our graduates to know, do, and be?
2. Where/how will we provide opportunities for them to learn these things?
3. How will we know if the students have acquired them?
4. What will **we** (the Faculty) change if the students haven't learnt these things?

These form a continuous improvement cycle, akin to a Plan-Do-Check-Act cycle, inspired by Shewhart but popularised by Deming (1982, p. 88), as shown in Figure 1.

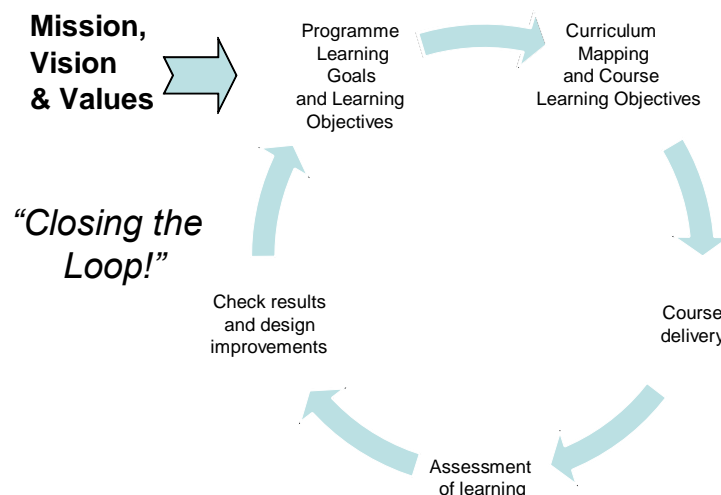


Figure 1: The Assurance of Learning Cycle

'What we want our students to know' is guided by our mission, vision, and values, which in turn inform the learning goals and learning objectives for each programme. The second question of 'where we will provide opportunities' is considered through curriculum design, mappings to course learning objectives, and subsequent delivery of courses, to provide students opportunities to learn the knowledge, skills and values we have laid out in programme learning goals, programme learning objectives, and course learning objectives. The 'how will we know?' question means we need to assess to see whether the students

have learnt the desired learning objectives, and check whether there are gaps. The 'what will we change?' question 'closes the loop' and involves adjustments to programme elements or teaching methods in order to improve student learning outcomes where most needed. Periodically we would revise the mission, and/or programme learning goals, but for the most part, the cycle results in changes in one of the later stages.

The steps undertaken in answering each of the four questions are described in more detail below.

1. What do we want our graduates to know, do, and be?

The Faculty's Mission: to pursue and share knowledge of business, economics and management, to develop capability and provide our stakeholders with a global perspective, and our Vision: to be the scholarly hub driving New Zealand's capital development, provide a starting point.

From this we lay out learning goals for each of our programmes (degrees) such as our main undergraduate degree, the Bachelor of Commerce and Administration (BCA). For the BCA, the Learning Goals are:

Learning Goal 1: Critical and Creative Thinking

Our graduates will demonstrate application of critical and creative thinking skills to practical and theoretical problems

Learning Goal 2: Communication

Our graduates will be effective communicators

Learning Goal 3: Global and Multicultural Perspective

Our graduates will have a global and multicultural perspective

Learning Goal 4: Leadership

Our graduates will recognise, support and display leadership

Learning Goal 5: Major Attributes

Our graduates will develop specific knowledge and skills in at least one business, economics or public policy discipline area.

There is a clear and deliberate link between these Learning Goals and the Victoria Graduate Attributes that all Victoria graduates are expected to display, namely, Critical and Creative Thinking, and Communication and Leadership skills (Strategic Plan 2005-2014, Victoria University of Wellington). In addition, we have a Learning Goal relating to global and multi-cultural perspectives, in line with our mission, and we have also included 'major attributes' to cover discipline-specific learning goals.

The learning goals need further elaboration to aid their use for programme development and assessment. Accordingly, we list a set of operationally manageable learning objectives that are indicative of the graduate attribute we are aiming to develop. For example, for Learning Goal 1: Critical and Creative Thinking, the Programme-level Learning Objectives are:

Our graduates will be able to:

- a. analyse a complex situation which could be viewed from multiple perspectives;
- b. use/apply analytical techniques, models and/or frameworks appropriately in specific contexts;
- c. reflect critically on practical and theoretical issues;
- d. display creative thinking when faced with practical and/or theoretical problems.

A full list of learning objectives for all of the BCA learning goals is attached as Appendix 1.

2. Where/how will we provide opportunities for them to learn these things?

In order to be confident that graduates of our programmes will achieve the stated learning goals, it is necessary to show that curricula and pathways are in place to ensure that all students are provided with opportunities to learn and demonstrate the knowledge, skills and values we have laid out in the programme learning goals. Each student's degree is acquired through a set of courses, required and elective. The second question of 'where we will provide opportunities' was therefore addressed by considering curriculum design, mappings of course learning objectives, and delivery of courses. These were redesigned where necessary to ensure each programme provides all students with opportunities to learn the knowledge, skills and values we have laid out in course learning objectives and programme learning goals.

Since our BCA consists of a common first year core followed by separate pathways for each major, we have addressed both the first year core, as well as individual majors. The first year should aim at empowering students to take accountability for their own study and should provide clear pathways into future courses. It is essential that courses allow for the development of skills needed for success in future years. In addition, for business school accreditations, there are a number of elements and topics that are expected to be included in any business programme, regardless of any specific programme learning goals. The first year core provides opportunity for introductory-level coverage of required programme elements for all students regardless of their choice of major(s).

An early decision was made to expand the first year core to seven courses, to provide this coverage of the key elements at a basic level for all students. Obviously many of these elements will be further developed within a major. The University also decided to standardise points values of courses, and BCA courses moved to 15 points to improve coverage and flexibility. We have been working with academics involved with individual majors, using a combination of curriculum mapping, as shown in Figure 2, and constructive alignment principles to redesign the curriculum, adjusting points values, and providing pathways for all students to develop all the learning goals.

BCA Programme			H M L Skill development				G = Assessment for Grading								GA 5 Major specific att															
Pathways			GA1				GA2				GA3				GA 5 Major specific att															
BCA Learning Goals			LG1 Critical & Creative Thinking				LG2 Communication				LG3 Global and Multicultural Perspectives				LG4 Leadership				LG5 MGMT MA's						LG 5 HR MA's					
Course Codes	Learning Objectives		LO1a	LO1b	LO1c	LO2a	LO2b	LO2c	LO2d	LO3a	LO3b	LO3c	LO3d	LO3e	LO4a	LO4b	LO4c	Holistically analyse complex and ambiguous organisational situations	Strategy	Behaviour in organisations	Demonstrate systems thinking in decision making and operations management.	Demonstrate knowledge of, and the implications of, different perspectives of the employment relationship	Critically analyse and solve workplace issues	Apply HRM and IR competencies to contribute to organisational capability and worker wellbeing	Identify issues and interactions between local and global employment relations and work environments	Identify and describe the major differences between how these businesses operate compared to those of each other.				
ACCY 111	M G																													
ECON 130	L G																													
QUAN 102	L G																													
MARK 101	H G L																													
INFO 101	H G																													
MGMT 101	M G	M G																												
FCOM 111	M	H																												
BCA Core																														
MGMT 202	H G	H G																												
MGMT 205	H G	H G																												
MGMT 206	H G	H G																												
MGMT Major																														
HRIR 201	H G	H G																												
MGMT 202	H G	H G																												
HRIR Major																														

Figure 2: Section of the BCA Curriculum Map

Figure 2 shows one of the curriculum maps developed by one of the six Schools in the Faculty for two of its majors. Along the top are the University's graduate attributes, then the BCA Learning Goals and below that, the BCA learning objectives. Down the left hand side, are listed individual courses, first the core (7 papers) and then the individual courses

for a particular major (just the compulsory courses are shown in the diagram, though we have mapped elective courses as well). Curriculum coverage is indicated by H, M, L (High, Medium, Low), while G indicates where the learning objective is assessed, contributing to a student's grade. The red shading is used to show where we decided to assess for AoL. Decisions on where to assess each learning objective for AoL purposes are made by considering where the learning objective is most likely to be demonstrated, along with workload implications for both staff and students. Assessments usually utilise existing coursework, with development/adaptation as needed. The curriculum maps quickly reveal where there are gaps or overlaps, and several Schools have used them to reorganise courses to more effectively and efficiently cover the various elements required.

3. How will we know if the students have acquired them?

The next step is to collect evidence on student achievement of the desired learning goals (graduate attributes). We need to assess student work to see whether there is evidence that they have learnt what we set out for them to learn (be able to do/ how they behave etc – i.e., a mix of knowledge, skills and attitudes/dispositions). This task is greatly aided by the curriculum maps, as they show where student work relating to specific learning objectives is already being assessed as part of determining students' grades. Such places should therefore be able to provide evidence on the levels of achievement of the particular learning objectives that contribute to the learning goal. Our aim is to ascertain the proportion of students who have demonstrated that they have achieved specific learning objectives, and hence learning goals.

For programme improvement purposes, it is sufficient to group students into just three categories, described by Martell (2009) as 'good enough, way good enough, and not good enough'. In our assessments, we use the terms Exemplary, Satisfactory and Unsatisfactory. We can then use this information to focus improvement efforts on the places (learning objectives, levels, or disciplines) where a significant proportion of students has not demonstrated an ability to reach the Satisfactory level.

The AoL system places a heavy emphasis on direct measures of learning, in two respects. Firstly, direct measures of learning are used in preference to indirect measures such as surveys, anecdotal evidence, focus groups, employer feedback, and student feedback. Indirect measures are considered by our accreditation bodies to be less reliable than direct measures, though they may be used to augment direct measurement, or where it is impossible to measure the learning objective directly (AACSB, 2007). Secondly, we cannot rely on grades, as these reflect overall performance on a combination of learning goals, and are unhelpful in assessing achievement on particular learning goals. Grades can also be influenced by relative performance of cohorts and often do not reflect absolute standards of performance. The relationship between student grades and the cohort's level of achievement on learning objectives is indicated in Figure 3. Assessors are asked to mark student work as usual to arrive at a grade (across a number of aspects being assessed), and then to assess it for AoL by collecting data on the student cohort's performance on one or more particular learning objective (indicated by the vertical arrows). The relevant rubrics are used for the AoL assessment, while the assessor's own marking scheme is used for marking. External assessors are used periodically to provide an independent assessment. The dovetailing of assessment for AoL with normal assessment with periodic audit provided something of a departure from most other AoL systems, and was arrived at as a result of the action research project using Theory of Constraints, described in Mabin (2009).

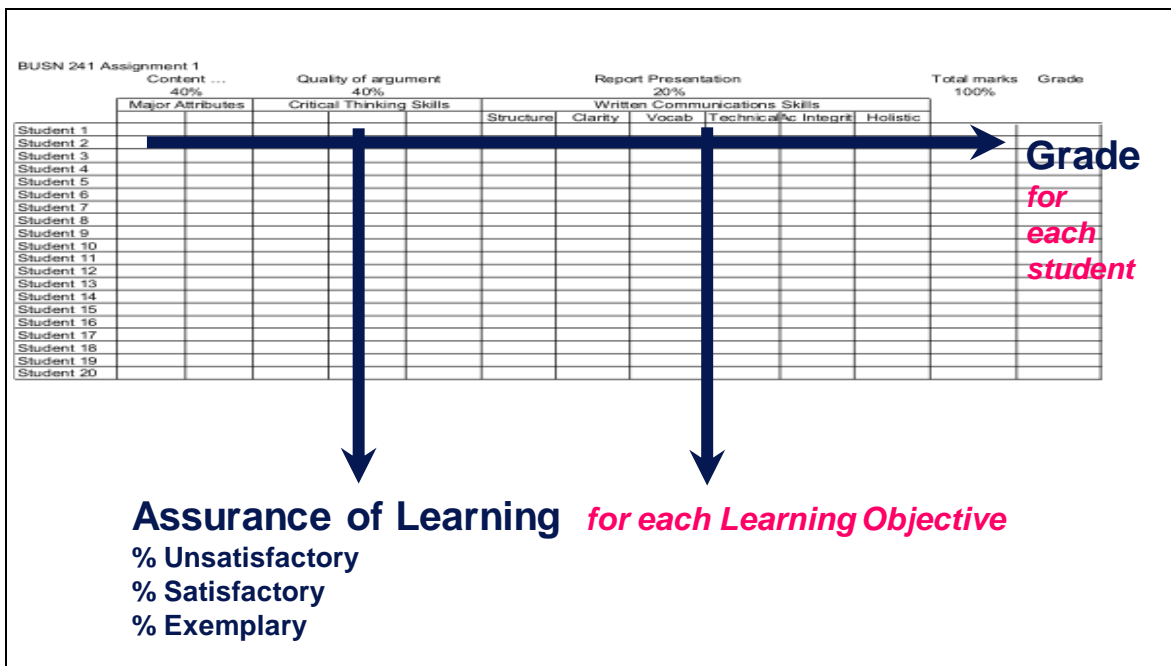


Figure 3: Assessing for grades vs. achievement of learning goals/objectives

Assessment plans were developed for all programmes for a set time period – the BCA, a 10-year plan, and for other degrees, a five-year plan. Each learning goal is being assessed at least twice in this period. For the BCA, we have already collected data over three years, with some on each learning goal, but with particular emphasis on Communication, and Critical and Creative Thinking. For each assessment, we take a representative sample of student work and assess it using an AoL rubric. Rubrics have been developed for communications skills (three rubrics: academic writing, business writing, and oral presentations using appropriate technology); for critical and creative thinking (four rubrics); and for leadership (rubrics for teamwork, and plan and lead a seminar or tutorial discussion). A sample rubric for one learning objective for Critical Thinking is shown in Figure 4. Rubrics have been developed for selected learning objectives relating to global/multi-cultural contexts, the role of ethics and public/private sector context and governance, and various Major attributes. Marksheets have been developed to assist with assessing research-related learning objectives as evidenced in masters theses. A selection of such rubrics and marksheets has been made available online (<http://www.victoria.ac.nz/fca/teaching/rubrics.aspx>).

Trait	Exemplary	Satisfactory	Unsatisfactory
Question assumptions	Identifies key assumptions of situation and disciplinary tools and discusses them in thorough and/or insightful fashion, validating, challenging, and/or revising as appropriate.	Key assumptions of disciplinary tools and situation are identified and clearly stated.	Assumptions are not identified, only tangentially discussed or implied rather than stated.
Draw conclusions	Draws thorough, appropriate conclusions demonstrating an ability to identify priority, significance and impact. Makes ethical judgements where appropriate	Draw appropriate, justifiable conclusions addressing major outcomes.	Conclusions do not follow from evidence and analysis, are far-fetched or trivial in scope.
Reflect	Comments in a structured and insightful way on: <ul style="list-style-type: none"> • Outcomes • Process • The initial situation • The disciplinary tools used • Their learning experience. 	Makes a substantive reflective statement addressing at least one of: <ul style="list-style-type: none"> • Outcomes • Process • The initial situation • The disciplinary tools used • Their learning experience. 	No attempt at reflection, or only superficial comments apparent.

**Figure 4: Sample Rubric
BCA Learning Objective LO1c: Reflect critically on practical and theoretical issues**

4. What will we (the Faculty) change if the students haven't learnt these things?

The results of each assessment are scrutinised by discipline specialists as well as the Associate Dean, in order to draw out any lessons for the future. Results are collated into a Faculty-wide summary report so that patterns can be identified for each learning goal, within and across the disciplines and levels. An extract from a summary report is shown in Figure 5. Discussions take place at the Faculty management level, in 'Teaching and Learning' committees, and back in the Schools. Suggestions are discussed and agreed and actions taken to 'close the loop,' with any common causes being addressed at the Faculty level.

Recommended actions have included redesign of rubrics, redesign of assignment question(s) or format so that students are led to demonstrate the learning objectives more explicitly, improvement to teaching methods or support provided, and better scaffolding or preparation in preceding courses. Faculty-wide actions have included writing skills development, and tutor training.

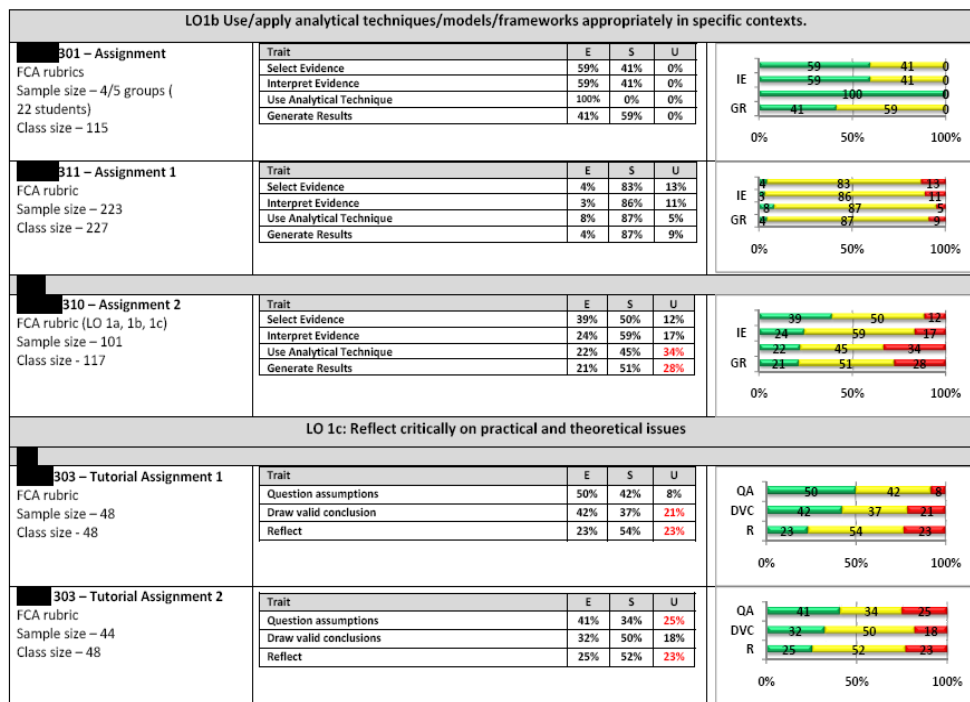


Figure 5: Extract from a Summary Report on AoL exercises

Discussion

The result of these developments is a feasible, working system, supporting continuous improvement via a cycle of planning, collecting data, learning and acting. Samples of student work are being assessed at various places throughout the degree to determine the levels of achievement of specific learning goals, allowing the Faculty to focus programme improvement efforts on the most needed areas. So far, efforts have been concentrated on one learning goal at a time, starting with communication (written and oral presentations), then critical and creative thinking, and now other learning goals, and have led to demonstrated local improvements in these areas, as discussed below.

Indicators of success include the achievement of accreditation from the AACSB, an achievement shared by only 0.3% of business schools worldwide. The peer review panel described the Faculty’s AoL as being ‘ahead of its peers’, and a top official wrote she was “very impressed how you took the ‘problem’ of establishing an AOL process and got it in place in what I would suggest was record time! We need other schools to realize how this can be done because some schools find it remarkably difficult to do this in any reasonable time. Also your data collection is efficient being real-time and in sync with the normal process of collecting grades” (E. Peacock, personal communication, March 9, 2011). This led to an invited presentation to business schools (Mabin, 2011). Internal recognition has been reflected in the voluntary uptake by two programmes that did not need to use AoL because they are officially ‘outside the scope’ for accreditation. The fact that these programmes chose to use AoL processes and found them useful, provides helpful endorsement to other colleagues within the Faculty.

The results of the processes introduced to date may be assessed in terms of the impacts and outcomes – both measured and observed – though as the system is being progressively developed, it is hard to evaluate year-on-year progress totally objectively.

Improvements in student learning outcomes through AoL have been achieved in each of the areas tackled so far. These include writing tasks, oral communication such as presentations, and critical and creative thinking. Firstly, there are many cases of

demonstrated improvement in writing quality following assessment and feedback using the Faculty's written communication rubric. Discussions on results are leading to sharing of best practice across the Faculty. For example, in several courses, staff have conducted successive writing exercises, with the rubric providing a framework for students and staff to discuss and clarify expectations and provide students with a way of deciding where they should focus their efforts. Improvements in student achievement have been noticeable. In one case, the writing in a second assignment was significantly better even though students were not told that their writing *per se* was being assessed separately in the second assignment. In another case, a mixture of student self-assessment using the rubric was then combined with staff feedback using the rubric, resulting in observable improvements in later written work. In oral presentations, students are performing well, and getting better with repeated practice, as with the writing skills exercises.

Critical thinking is also being progressively developed. Learning objectives were revised after failed attempts to devise rubrics for the original objectives. The resulting set of four revised learning objectives and their rubrics were trialled and then fine tuned, and are now being used widely with good results. The suite of rubrics has been found helpful in developing a shared understanding of what is meant by critical thinking. While this provides just one interpretation of critical thinking, the suite of rubrics developed has provided a common language and some benchmarks, which are proving to be useful for students and staff in laying out a framework for the achievement of this graduate attribute. Actions resulting from their use include improved assignment design, and more attention to important aspects like questioning assumptions, selecting, interpreting and using evidence, interpreting results and drawing conclusions.

The system uses criterion-based assessment using rubrics for each learning objective. The primary aim for AoL is to provide feedback to the teachers on how the student cohort is faring, in a formative rather than summative fashion. Poor performance may be addressed in future courses in a variety of ways, including changed teaching methods, or a more clearly worded assignment. However, students are also beneficiaries in gaining more clarity of expectations and feedback on their own performance.

Rubrics can form a useful basis of discussion for students and staff to clarify the task required and set high expectations, as well as providing useful feedback to students. Rust, Price, and O'Donovan (2003) recommend a lengthy discussion, but shorter discussions are also beneficial. Where the rubrics are marked up for every student, these marked rubrics can be returned to students, saving time for markers to provide directed personalised feedback. Where only a sample is marked using the rubrics, the teacher can use the statistics on the level of achievement of the student cohort to alert the class to common areas of concern and patterns of failure as well as strengths, and provide a stronger rationale for subsequent developments.

One early area of concern was written communication skills, and a Faculty plan of interventions was instigated. The Faculty provides academic writing skills tutorials alongside a 100-level core course, with specially trained tutors, and the performance of students in this course is assessed with AoL exercises. In addition, the effects of the writing skills course are being seen in later years. For example in a 200-level class where writing performance had been poor, we found that around 40% of students had not done the Faculty's 'writing skills course'. We also noted a correlation between the proportion of courses successfully completed and completion of the Faculty's 'writing skills course', which will be investigated further. Since 2010, all BCA students have been required to enrol in the 'writing skills course' in their first year of study, and the ongoing effects of this policy are being monitored.

The AoL process has also positively impacted on curriculum development, from our perspective and based on comments relayed by several School representatives. Early benefits of the process came from curriculum conversations which identified areas of overlap, repetition of material, and gaps in coverage, for a typical student in the major. As

to be expected, there has been a range of attitudes to this exercise. Some Schools in the Faculty recognised and grasped the opportunity for better coordination of effort, which assisted in the adjustment required for the changes in points value of courses, and in meeting concerns of staff and students regarding workload. These Schools are making more deliberate use of staircasing and scaffolding of student exercises within courses and between courses in the major. Several Schools have added capstone or compulsory courses at the 300-level to allow them to provide an integrative experience and build graduate attributes that may otherwise have been underdeveloped, as well as bringing the cohort together. There is still a long way to go before we have a curriculum that builds all learning goals, in an interlocked fashion, in all majors, but at least we have started the journey.

The Schools responding favourably to the opportunity to review their curricula have also taken on the AoL tasks with ease, and have readily incorporated the AoL tasks into their normal assessment regimes in quite remarkable fashion. At the other extreme, some staff have regarded the curriculum mapping merely as a chore, according it perfunctory compliance, and gaining little from the exercise. However, all Schools are undertaking assessments, and are starting to gain more familiarity and confidence with the process.

The development, usage and acceptance of rubrics over time have been interesting to observe. We have developed a growing suite of Faculty-agreed rubrics for generic skills, as well as tailored rubrics for major-specific attributes. Rubrics for communication skills, and critical thinking are being widely used, and for teamwork and creative thinking, and a marksheet for thesis research is in use, while rubrics for global/multicultural perspectives are being developed.

Rubrics have clarified expectations for staff as well as students. Some teachers have used these rubrics for AoL after normal marking using their own marking schemes, as was intended. Others have integrated rubrics into their own marking schemes to good effect. However, some have done so rather too well, adding weights, and using them for grading in place of their own marking schemes. Too tight a connection between rubrics for AoL and their use for grading is not advised (Sadler, 2009) and indeed has led to concerns being raised by students. Balanced/appropriate use of rubrics is therefore being urged, to avoid overuse or misuse of rubrics.

We have been careful with our rubrics to avoid some of the known drawbacks seen in other rubrics. In particular there are several key respects in which our rubrics differ from those used in New Zealand's National Certificate in Educational Achievement (NCEA). For example, our rubrics include only two 'passing' categories, whereas NCEA makes finer distinctions with three. NCEA rubrics are used directly for grading, whereas ours are used primarily for gauging the level of achievement of the cohort, based on a sample of students. NCEA rubrics do not allow the assessor any discretion to compensate for poor performance on one trait by exemplary performance on another trait. We have added a holistic trait to many of the rubrics to allow the assessor to make an overall judgement, bearing in mind the balancing out of inadequate and excellent performance, as well as any other factors in determining effectiveness as a whole. This holistic judgement also acknowledges that the rubric traits may not completely capture every aspect of the learning objective being assessed.

The AoL system has been developed over the last three years, and is now used for conducting assessments in the BCA and other programmes at Masters and Bachelor levels, including Masters research by thesis. We have made many improvements to the system itself over the three years – streamlining the process, dovetailing AoL assessments with normal marking, and providing materials and resources on the Faculty's newly launched Teaching Matters website (see <http://www.victoria.ac.nz/fca/teaching/aolresources.aspx>).

As with any new initiative, we have made many mistakes. Improvements to the system are just as much a part of the process as continuous improvement of student learning outcomes.

- Some assessments used group reports to assess learning objectives for which group reports are inappropriate. While group reports may be a good indicator of the effectiveness of group work, they do not provide a reliable indicator for assessing the proportions of students who have achieved learning objectives such as writing skills or critical thinking. A satisfactory score merely indicates that at least one student in the group achieved this level; valid inferences cannot be made about the cohort as a whole. This has led to some interesting observations though, such as when the same class's group projects scored worse than individual reports, which was attributed to a lack of coordination and consistency in writing and presentation style.
- In other cases, the rubric was not tuned or the assessment was not suitable, resulting in too many Exemplary scores, or too many Unsatisfactory scores. Such results may be prevented by a pilot, or by better moderation. In other cases, it may be necessary to revise the assignment so students are able to demonstrate their abilities well.
- Some assessors found it hard to decide on a category, and assigned a borderline score. AoL is not grading! For AoL, we are really only interested in the proportions of the cohort in each category, which only needs to be approximately right.
- Some teachers did not take copies of student work before handing it back to students, underlining the need to have systems in place to catch it in time.

Improvements for the future are to encourage staff to use the results with their classes, and we are also noting course pass rates alongside the percentages of Exemplary, Satisfactory and Unsatisfactory, as an aid to interpreting the percentage of students falling in the Unsatisfactory category for each AoL exercise. Assessment results are being collated and will be reported in future papers, and results from Victoria are being compared with results from other institutions, particularly other Australasian business schools.

Conclusions and Recommendations

We have developed a system that is working effectively, providing us with information on the levels of achievement of the various learning goals, and allowing the Faculty to focus on programme improvements. So far, efforts have been concentrated on communication (written and oral presentations) and critical and creative thinking, and have led to demonstrated local improvements in these areas. We are trialling activities to develop global/multi-cultural perspectives, taking a coordinated approach to addressing gaps in the curriculum. In addition to providing feedback to teachers on how the student cohort is faring, students are also benefitting from greater clarity of expectations and feedback on their performance.

The proactive approach to assuring student learning also provides greater accountability to external stakeholders, including students, advisory boards, accreditation agencies, funding agencies and quality monitoring agencies such as TEQSA, NZQA and TEC.

Our next steps include: 1. developing more clarity and consistency of interpretation of the rubric standards, using advisory panels to advise on standards, and improved training of tutors to provide better consistency of assessments, an issue that is also being researched in Australia and USA (Baker, 2011; Freeman, 2011); 2. a more streamlined process for collating and analysing data, and compiling and disseminating results; 3. revisiting curriculum maps and using constructive alignment in curriculum planning on a regular basis and with greater emphasis on 'interlock'; and 4. continuing to build the understanding, acceptance and uptake of AoL. These developments will continue to form

part of the broader action research project, with effects being measured through AoL assessments, wherever appropriate, with data being collected and collated for future publication. Ongoing developments at Victoria will inform and be informed by comparable work at other business schools.

While such developments indicate that the system is still work in progress, the AoL processes developed for business schools are proving to be very useful in ways that could enhance other programmes, and deserve wider consideration. In particular, universities with graduate attributes may find that similar processes would enable better-informed curriculum decisions as well as claims about student achievement of graduate attributes. The processes described provide a way of ensuring that graduate attributes are developed and assessed in each student's programme, so that universities can make evidence-based claims about their students' capabilities. When carefully designed to utilise existing content and coursework, the overheads of a superimposed system can be lessened. Furthermore, it empowers institutions to develop systems and standards to suit their own mission, rather than being forced into a one-size-fits-all standards model.

Acknowledgements

The authors wish to acknowledge the invaluable contributions of their many colleagues in developing and implementing the system described.

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Appendix 1. BCA Learning Goals and Learning Objectives

Learning Goal 1: Our graduates will demonstrate application of critical and creative thinking skills to practical and theoretical problems (“Critical and Creative Thinking”)

Learning objectives. They will be able to:

- a) Analyse a complex situation which could be viewed from multiple perspectives.
- b) Use/apply analytical techniques/models/frameworks appropriately in specific contexts.
- c) Reflect critically on practical and theoretical issues.
- d) Display creative thinking when faced with practical and/or theoretical problems.

Learning Goal 2: Our graduates will be effective communicators (“Communication”)

Learning objectives. They will bring creative skills to the research, analysis, planning, and writing stages of academic essays and other documents, and will be able to present them clearly and effectively to an audience. That will involve being able to:

- a) research, plan, and produce written assignments meeting academic standards;
- b) apply advanced written communication skills in a private or public sector ‘business’ context;
- c) deliver a professional quality presentation accompanied by appropriate technology;
- d) demonstrate oral communication skills by their participation in small group learning environments such as tutorials and workshops.

Learning Goal 3: Our graduates will have a global and multicultural perspective (“Global and Multicultural Perspective”)

Learning objectives. They will be able to:

- a) define key components of countries’ business environments and give examples of how they differ across countries;
- b) adapt a domestic strategy to a foreign operational setting and/or adapt a foreign strategy to a domestic setting;
- c) assess the way in which legislation and government policy influence the business environment in national and global contexts;
- d) diagnose cross-cultural communication issues in a case setting and propose appropriate solutions;
- e) demonstrate an awareness of cultural differences and the skills needed to work effectively in multi-cultural environments within New Zealand and internationally.

Learning Goal 4: Our graduates will recognise, support and display leadership (“Leadership”)

Learning objectives. They will be able to:

- a) plan and lead a seminar or tutorial discussion;
- b) demonstrate an understanding of the relevance of ethics to the public and private sectors, and of the role of ethics in public and private governance;
- c) work constructively in groups.

Learning Goal 5: Our graduates will develop specific knowledge and skills in at least one business, economics or public policy discipline area (“Major attributes”)

Learning objectives as specified for majors, that is, each major in the BCA specifies several discipline-specific attributes that each of its graduates is to possess.