

## TRIALING A GRADUATE OUTCOMES CAPABILITY FRAMEWORK: AN EVALUATION

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### ABSTRACT

During 1998 the then Orange Agricultural College (now Faculty of Rural Management, The University of Sydney) underwent an Undergraduate Review in which nine capabilities were identified as key expectations of graduates of the various management education strands. In order to streamline the process and design ways of assessing the achievements of the capabilities, academics agreed on the following initiatives: embedding the capabilities into each unit of study, development of a portfolio to record student progress in each of the capabilities, an evaluation of the portfolio at the end of each year prior to either progression into the next year of study or for graduation, and a staff-student mentoring system. The paper documents the results of the three-year trial and identifies the critical success factors associated with introducing a system to measure the attainment of generic attributes.

### INTRODUCTION

In the 1990s many universities in Australia published lists of generic attributes of their graduates. This movement made visible university intentions, in terms of achievements, which should be applicable in the workplace and the community. During the same period, research and policy advice confirmed the importance of broadly agreed generic attributes while at the same time lamenting that graduates coming into the workplace did not adequately demonstrate achievement of these attributes (Aulich 1990; Karpin Report 1995; Hemmings, Quinn, & Hill, 2000). This may reflect a situation that few universities have actually developed a process for determining whether their graduates have attained those attributes to confirm that the institutional rhetoric has practical outcomes. Where such processes are in place, they are, though still rare, more likely to be situated at the level of a faculty or a program.

This paper briefly describes how the University of Sydney's Faculty of Rural Management developed a set of generic graduate attributes within a capability framework for its undergraduate curricula. It then sets out the development and implementation of a process for assessing students' achievement of those capabilities. Data on evaluation of the process with regard to the first cohort to complete the program are presented. Finally, experience to date and changes for the future with their implications for others choosing this curriculum pathway, are discussed.

### A BRIEF GENERAL CONSIDERATION OF THE GENERIC ATTRIBUTE MOVEMENT IN AUSTRALIA

In 1990 Australia's Senate Standing Committee on Employment, Education and Training stated the problem:

"Australia is producing graduates who, all too frequently, are not familiar in any disciplined sense with the society in which they are going to practice their chosen profession, who are not critical, analytical, creative thinkers, whose education does not provide a basis for adequate flexibility, who are not sufficiently attuned to the need for lifelong learning, and who are not good communicators" (Aulich 1990, p.xiii).

Any survey of published generic graduate attributes in Australia demonstrates a response to this challenge.

Candy, Crebert, & O'Leary. (1994) identified the following critical factors in constructing a curriculum which will support the development of broadly accepted generic attributes:

- Provide a systematic and integrated introduction to a discipline or study.
- Offer a comparative or contextualised framework of that discipline or field of study.
- Encourage the broadening of the student, and the progressive development of certain generic skills.

- Allow some freedom of choice and flexibility to meet the needs of a range of students, and
- Have a structure which explicitly devolves to learners a greater responsibility and opportunity for self-direction (pp.110-111).

An internet search of Australian universities on the theme of graduate qualities suggests that universities fit into one of two camps – either building generic attributes into the curriculum on the assumption that exposure equates with achievement (Griffith University), or seeking a mechanism for evaluating whether students have acquired the attributes. The University of South Australia is well advanced in this context with the recent development (May 2001) of an online Recording of Achievement portfolio. It appears that the online recording of evidence is voluntary at this stage (personal correspondence).

#### **A SPECIFIC CASE OF GENERIC ATTRIBUTES: THE FACULTY OF RURAL MANAGEMENT'S CAPABILITIES**

The Faculty of Rural Management (FRM) is one of the University of Sydney's eighteen faculties. Its mission since 1973 has been to provide management oriented education to rural Australia focusing on agribusiness and land resource management. It currently offers eight undergraduate courses (as well as a range of postgraduate programs). All courses are unitized.

#### **Preparation: The Undergraduate Course Review**

In 1997 the FRM initiated an Undergraduate Course Review. This involved a significant evaluation of the Faculty's dedication to rural management education. Out of that complex process a number of significant changes emerged (Cochrane, Bone, Johnson, & Mahoney, 1998). Commitment to adopting the concept of capability and its use in describing the outcomes sought in FRM graduates was one of those outcomes. Stephenson & Weil (1992, p.190) provide a definition of capability:

"an integration of specialist expertise, personal skills, self-esteem and values and can only be satisfactorily demonstrated through the effectiveness and appropriateness of actions taken, the explanations given, the support and cooperation achieved, and the learning derived from the experience."

Other outcomes included increased cross-course use of units of study leading to a reduction in the number of units and an increase in the heterogeneity of students enrolled in those units. Implementation of review outcomes commenced with curriculum redesign and implementation for the 1999 commencing cohort of undergraduate students.

#### **Design: constructing the capability framework**

With agreement in principle to use generic attributes framed in terms of capabilities as the central element of the new curriculum, staff began building a capability framework around the Faculty's accepted description of learning: "Learning is a creative, active process in which information and experience are framed, in which meaning is constructed, and which is a continuous lifelong process facilitated by open-mindedness, discussion and a stimulating environment". A working party was assigned to the task and over a period of four months, and other considerable debate – (informed by Cairns (1997a, 1997b), work of the Australian Capability Network, and Stephenson & Weil (1992) – nine capabilities (Table 1) were described and adopted by the Faculty as curriculum principles.

Transformation of the concept of capability into a specific curriculum framework congruent with the Faculty's rural management education mission was challenging. Essential to the development of the framework was a close integration of the concepts of constructivism and praxis with that of the more traditional objectivist approach to management science and agricultural science. This meant confronting the difficulty of marrying apparently opposing learning theories (Biggs 1996; Bednar, Cunningham, Duffy, & Perry, 1992). The number of capabilities needed to be manageable but also comprehensive. Consensus amongst academic staff that the qualities identified were an appropriate outcome for a graduate of the Faculty of Rural Management was needed, and the capabilities also needed to be congruent with the University of Sydney's institution-wide generic attributes (University of Sydney, 1993, revised 1997). (For a more detailed presentation of the conceptual development of the capability framework see Cochrane et al., 1999.)

1. Apply creative and critical thinking processes.
2. Develop communication abilities by connecting with everything involved in communication: people, ideas, texts, media, and technology.
3. Work with, manage and lead others in ways which value their diversity and equality and which facilitates their contribution to the organization and the wider community.
4. Acquire and apply appropriate management, technical and practical skills, and knowledge.
5. Display a confident but realistic judgement of one's capacity to achieve.
6. Recognise and accept continuous learning as being central to one's capacity to realise potential and live a fulfilling life.
7. Hold personal values, beliefs and ethics necessary for a sustainable and healthy planet.
8. Hold a perspective which acknowledges local, national, and international issues.
9. Value a citizenship role which is connected to and responsible for the social, environmental, political and economic systems in which we live.

*Table 1. The nine graduate capabilities of the Faculty of Rural Management.*

## ASSESSING STUDENT ACHIEVEMENT IN THE CAPABILITY CURRICULUM

After this initial work it was then necessary to design teaching strategies and an assessment process which would enable staff, students, and industry representatives to observe and measure student achievement of the nine capabilities. This needed to occur both within individual units of study and from extra-curricular activity. During the later part of 1998 staff worked in teams to review each unit to be offered in Semester 1 of 1999, to establish the capabilities to be addressed in each unit of study, and to design appropriate assessment items to ensure the attainment of those capabilities, with the following specific outcomes.

### 1. Integration of capability development within individual units of study

It was essential that the nine capabilities were not mere rhetorical principles. Each Unit Coordinator was required to indicate in the Unit Information document (provided to students and kept as an official record of a unit of study's intentions) the capabilities addressed in the unit. This made visible to all the relationship between an individual unit of study and the capability curriculum framework. All units of study addressed capability 1 and capability 4 while some units addressed all of the Faculty's capabilities. By establishing a matrix demonstrating the relationship between capabilities, unit of study, and stage of study, it was possible to determine the degree of exposure of students to each capability.

### 2. Adoption of a student portfolio as a holistic learning and assessment tool

To measure the achievement of graduating students a means of measuring the development of their capabilities was necessary. Recognising the need for holistic assessment across the students period of study, students were required to keep a portfolio, to include a summary of their understanding of each of the capabilities, and a record of supporting evidence of their personal development of each capability. This evidence was collected both from their studies and from extra-curricular activities (both on-campus and off-campus).

Portfolios were collected and assessed at the end of Year 2 and again at the end of Year 3, just prior to graduation. At the second assessment students were required to include not only an executive summary of achievement in relation to the nine capabilities, a list of evidence of achievement in relation to each of the capabilities, and a summary statement of understanding about each of the capabilities, but also a curriculum vitae and an outline of career direction.

### 3. Agreement to award a grade for satisfactory achievement of the capabilities

The Faculty was of the opinion that for the portfolio and its assessment to be taken seriously by students it needed to have some 'muscle'. Achievement of the nine capabilities is a whole-of-course activity. During the 1998 curriculum design debates it was decided that no specific unit of study should be devoted solely to the

capabilities and the portfolio. Nevertheless, it was agreed that a capability certificate should be awarded to grade achievement (either satisfactory grade, merit grade, or re-submit). If a student either failed to submit a portfolio or failed to get a satisfactory grade after several re-submissions, he or she would not be permitted to graduate.

#### **4. Support materials for students**

In the first year of the trial, an extensive Portfolio Guide was prepared to guide students' reflections. This was found to be too confusing and led to considerable angst regarding the amount of material to be recorded. (The Faculty now operates a minimalist approach in Year 1. In Year 2 students receive considerable documentation and this is added to in Year 3.) A critical component of the process is to allow students as much autonomy as possible in the design of the portfolio and its contents.

To support the initial cohort in preparation of a summary statement demonstrating understanding of each capability, students were provided with a brief literature review on each capability. They were also given examples of good summary statements and evidence. This proved vital in guiding their thinking. Students had great difficulty understanding how to state their evidence in a manner that was succinct and yet comprehensive. The process of writing a summary statement and designing ways of creating evidence is a test of capability 1 – creative and critical thinking.

#### **5. Mentoring of students in Year 3**

In Year 1, students were generally informed in large groups about the program, and were shown how to collect evidence. In Year 2, students were required to submit a mid-stage portfolio in a particular unit of study, and were allocated a grade within that unit for the work completed. (This stage was critical in the overall process of preparing them for their third year final presentation and assessment.)

In Year 3, Academic Advisors were appointed to mentor students. Ten staff volunteered, with each being allocated six students. They met with students on three occasions to assist with the design of the students' portfolio statements and the preparation of their curriculum vitae. A fourth meeting involved the end of Year 3 interview and portfolio assessment with the industry representative.

#### **6. Assessing achievement of the nine capabilities through portfolio and interview**

Ten members of industry were selected to take part in end of course interviews in association with the Academic Advisors. They received a briefing by phone and mail on the process of evaluating student portfolios in order to validate the entry of the student graduate into the industry. Each student was interviewed for 30 minutes and no industry representative had more than a total of six students to interview.

A poor interview performance by a student, or a portfolio of poor quality, signalled to the Faculty that graduation should be denied until such time that a satisfactory portfolio was submitted. Students who failed the interview or submitted an unsatisfactory portfolio were able to re-submit the portfolio on several occasions in order to qualify for graduation. In effect, the final adjudication on the suitability of a student to graduate in these circumstances is made by the academic.

#### **EVALUATION OF THE IMPACT OF THE NEW CURRICULUM**

Evaluation of this major curriculum change was essential for two reasons. Firstly, as was indicated in the introduction to this paper, the literature on measuring the achievement of generic attributes as a graduation requirement is sparse. In the United States, Alverno College, a liberal arts all female college, has developed a set of eight 'abilities' which students are expected to develop in their studies. Emphasis is placed on the role of assessment in assisting students to achieve the designated abilities (Alverno College, 1994). Alverno does not, however, use a reflective journal or portfolio to measure students' abilities at the point of exit from the institution. It is assumed that since the abilities are imbedded into the curriculum and constantly measured that students develop each of the abilities as required. Clearly the Faculty of Rural Management's approach to capabilities and the use of a portfolio to determine a student's development prior to graduation has a contribution to make in this respect. Secondly, the Faculty had agreed to the capability approach in the new curriculum as a trial as doubts were held by some staff as to the approach's utility and to the ability of the Faculty to deliver it within the resource-constrained environment of Australian higher education.

A longitudinal study was undertaken by an independent external evaluator. This comprised a series of interviews with students and staff over the three years. Fifty participating students were then surveyed by questionnaire in 2001 at the end of Year 3. The students comprised an equal gender balance, with an average age 22, graduating from the Bachelor of Business, Bachelor of Farm Management, Bachelor of Equine Business Management, and the Bachelor of Management courses. Industry representatives were interviewed following their interviews with students for the portfolio assessment. The statistics below are from the evaluator's final report (Squires 2001).

### Student views

The end of course student survey (83% response rate) indicated a high level of acceptance of the ideas underpinning the program. Disagreement with the propositions ranged from 7% to 21%. Of the 50 students involved in the Year 3 program, 8 students received a merit grade, 38 a satisfactory grade, and 4 were required to resubmit. In relation to the program's five primary purposes, the following was revealed.

#### *Purpose 1: To identify 'within unit' development of capabilities*

Eighty-three percent of students indicated that completing units of study had a positive impact on their development of the nine capabilities. Fourteen percent indicated no relationship at all. This percentage is likely to reflect the level of strong opposition to the program. Fifty-five percent indicated that the ongoing assessment within units allowed a determination in relation to each capability.

#### *Purpose 2: To integrate 'across unit' learning experiences*

Sixty-two percent indicated that the program had effectively integrated their learning across units. Students were asked to indicate the extent that the process of developing the capabilities influenced their understanding of the core ideas in each capability. For example, how did their understanding of capability 1 (critical and creative thinking) grow along with the process of documenting their evidence? The results demonstrated the process had enriched their understanding of each of the capabilities in significant ways for eight of the nine capabilities. For example 73% students felt their understanding of capability 1 had developed significantly through the process. The lowest response (52%) was for capability 8, which

involves being able to "hold a perspective which acknowledges local, national and international values".

#### *Purpose 3: To capture 'out-of-unit' experiences*

Eighty-one percent indicated the capability program enabled them to "reflect upon and record knowledge, skills and learning experiences gained outside the academic curriculum".

#### *Purpose 4: To personalise their academic development in a career sense*

This was a significant objective of the capability program. Sixty-seven percent indicated the capability program gave them "a way to present to potential employers a clearer and fuller description of myself than the usual academic transcript". Fifty-two percent indicated that the program enabled "me to demonstrate a degree of proficiency in those qualities that industry expects of its employees".

- "It made me more aware of the things industry employers are seeking in candidates and so I can work them into an interview and develop them in the future."
- "The development of a portfolio has helped me to display my ability to achieve."
- "I have been able to compile a set of readily identified and proven capabilities that will prove useful in interviews and the actual workplace. I can confidently display an understanding of my own capability."
- "I feel that this program has made me realise how capable I actually am when applying for jobs towards the end of my degree. It has helped me to identify weaknesses and develop them to make me more 'industry ready'."

#### *Purpose 5: Demonstrate a commitment to lifelong learning*

Students indicated that the portfolio effectively "documented my growth and development as a learner" (71%); "assisted me to become a more reflective learner" (62%); "took into account the increased responsibility I have for my own learning" (55%); and, "provided me with adequate opportunities to reflect upon and record the ways in which my personal learning develops" (69%). Comments reinforced the strong message to emerge regarding this purpose:

- "It has allowed me to look at what I really have learned in the Faculty. Makes you

think about what you have done rather than just leave with a certificate."

- "It has helped me to conceptualise and visualise how I have developed and grown at uni."

### Staff views

Academic Advisors were interviewed. They were strongly of the opinion that the capability framework in the curriculum provided students with a way to present to potential employers clearer and fuller descriptions of themselves than the usual academic transcript. While the Academic Advisors were generally supportive of the capability approach, there was some staff strongly opposed to it. In Year 1 in particular, students complained of staff who openly criticised the approach. By Year 3 the opposition had dissipated to a large extent partly due to staff departures and partly due to strong student support as evidenced in the end of year 3 evaluation.

### Industry views

At a debriefing after the end-of-Year 3 interviews the industry representatives expressed strong support for the program, its achievements, and its potential. One spoke of the power of the capabilities to support students' transitions, particularly in helping them to move their focus from a primary concern with learning towards an appreciation of things happening 'outside'. More than one spoke of the need for students to see their portfolio as a reference – a tool to be used in preparing for an interview or job, as a means rather than an end. For this, one representative urged Faculty staff to see that the task did not become too prescriptive. It was argued that while students might feel more secure in a system that enabled them to identify and supply the 'right' answer, the capabilities approach should be about students articulating their own 'self'. Another commended the values and philosophies implicit in the capabilities, especially capabilities 7, 8, and 9, because of the way in which they highlighted ethical considerations that, in the view of this industry representative, were becoming increasingly important to industry.

### DISCUSSION

Trialing of the capability framework through the initial cohort's three-year progress provided an opportunity for much learning by the FRM.

### The importance of constructive alignment

Biggs (1996) highlighted the need for constructive alignment between philosophy, strategy and operational components of a curriculum. FRM's outcomes bear this out. The core philosophical components were the Faculty's definition of learning and the concept of capability as expressed for the FRM in the nine capabilities. The definition first meant that the curriculum could not lead merely to the accumulation of knowledge. Rather, it was essential that the curriculum ensured that learning for FRM students was a meaning-making process. This transferred the onus of learning from the teacher to the student. It also enabled constructivist learning approaches alongside more traditional behaviourist and cognitivist approaches to learning. Adoption of a portfolio to record, and therefore measure, students' cognitive and conative development operationalised the intent.

In effect the FRM has been able to achieve what Bednar et al. (1992) refer to as impossible – the marriage of objectivist and subjectivist pathways to learning. The majority of the learning at the Faculty is objectivist. Units of study are about the objective world, e.g., taxation, plants, animals, and soils, with a limited exposure to subjectivist-type units which encourage an exploration of one's self. The framework of the nine capabilities provided both a set of attributes and a language with which to talk about those attributes and what their achievement would look like. Through the portfolio activities students were able re-formulate their learning that was first expressed in the language of the units of study, into the language of the capabilities, and therefore demonstrate greater ownership of it. Students also synthesised evidence collected from units of study and out-of-unit experiences with the results emerging as one under the banner of each capability. In this way a degree of holism has been achieved within a unitised curriculum.

### Gradual constructivism

Student ownership of learning and the sense of empowerment which comes with that built slowly over the program. In Year 1 the approach fit within the tradition of objectivist learning theory. By Year 2 self-directed and contract-based learning processes were introduced to a limited extent. By Year 3 these approaches became commonplace. In the transition from Year 1 to Year 3 expectations of student

attainment of capabilities further increased, culminating in the expectation of demonstrated graduate level achievement; students met that challenge, demonstrating greater ownership of their assessment tasks and the ability to relate the assessment of capability achievement to their own contexts. This confirms work reported elsewhere (Jonassen, Mayes, & McAleese, 1993).

Through documenting their understanding of each of the capabilities, and adding evidence to support that understanding, students grew in their relationship with each capability. Where their understanding of critical thinking (capability 1) was shallow it became deeper; where their understanding of leadership (capability 3) was superficial it became meaningful. For example, in relation to these two capabilities, 73% of students indicated that the capability program enabled them to either "gain a somewhat clearer understanding of the ideas" or was a "significant help to me in understanding the meaning and implications of ideas".

The process not only supported the development of objectivist knowledge (capability 4) but by the design of the capabilities encouraged a development of values as well. This was seen as an important development by one industry representative who commented on the importance of capabilities 7, 8 and 9 to the workplace.

### Quality assurance

One of the hidden benefits of the capability program has been its role in quality assurance. The portfolio and its assessment provided both external and internal quality assurance mechanisms.

Externally, involving industry representatives to evaluate students' portfolios of learning provided an answer to the Karpin Report (1995) on the failure of education to meet the needs of industry. This facilitated critical comment to be made about the learning outcomes of FRM's undergraduate courses.

Internally, it was possible to evaluate curriculum outcomes more holistically. For example, while capability 7 – sustainability of the planet – is a key outcome for FRM programs, it had not been possible to assess at faculty level whether this was being achieved. Through studying students' comments in the portfolio, and the associated list of evidence, it was possible to judge the efficacy of courses in regard to this. With this

capability, in particular, it is evident that the Faculty will need to adjust its courses accordingly.

Thus, student comments have provided a rich source of feedback on the relevance and quality of our curriculum and its delivery, while equally powerful insights have been provided by industry. The Faculty is in effect validating its courses by this process.

### Staff commitment

While the Faculty has been able to implement a mechanism for measuring student achievement of generic attributes, this is not a simple task. One of the most difficult hurdles is gaining the support of staff. Longworth (1999) suggests part of the problem lies in defining what we mean by learning and how this should be implemented. Some staff view learning in traditional terms as the transfer of information leading to the accumulation of knowledge, and therefore cannot see any value in a system which encourages students to keep a portfolio of evidence of the achievement of generic attributes. There has been a group of FRM staff who cannot see the need for a portfolio believing that the capabilities need only be listed at the front of the unit outline alongside the list of unit objectives. These staff members have not yet connected with the philosophy underpinning the capability curriculum. This reinforces the important point of the need for alignment between philosophy and strategy.

### Factors necessary for success

Critical factors in the success of a capability framework (generic attributes) integrated into a whole curriculum are:

1. ideological agreement amongst staff regarding the need for students to demonstrate their achievements in a form other than the traditional passing of individual units of study;
2. staff to act as mentors to students, guiding them in the development of their generic attributes;
3. appreciation by students that they must demonstrate achievement of generic attributes in order to graduate;
4. involvement of industry in the assessment of generic attributes;
5. gradual development of generic attributes with a minimalist start in Year 1, adding

emphasis to the program with each year of study; and

6. a portfolio as a means whereby students can record their academic journey to 'achieve' the generic attributes embedded in a course of study.

## CONCLUSIONS

While many generic attributes of graduates are often stated, few mechanisms for determining whether the attributes have been achieved are reported. FRM has created and tested such a mechanism through a portfolio and student interview process.

There have also been significant side benefits. The approach has enabled a degree of holism to exist in a otherwise strongly compartmentalised approach to course delivery; it has enabled students to reflect on out-of-unit experiences and to acknowledge these in their learning portfolios; it has provided a mechanism for enabling students to prepare themselves for the workforce; it has facilitated a broadening of student learning by requiring them to collect evidence in relation to a set of capabilities that relate to values and, importantly, it has provided students with a greater sense of self worth.

## POSTSCRIPT

At a meeting of Faculty on 11 December 2001 staff reaffirmed the value of the capability approach now embedded in the Faculty's undergraduate curricula. It is no longer a trial but an established curriculum.

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