ABSTRACT

This is a theoretical paper with practical intent. It builds on the approach to entrepreneurship education outlined by Fiet (2000a, 2000b). It discusses, in the specific context of entrepreneurship education in Australian universities, the issues and challenges involved in designing an integrated program of study in which units of study build on and complement each other and relate to overall program objectives. It identifies barriers to integrated program design and suggests an approach to help overcome those barriers. Drawing on the literatures of teaching and learning in higher education and of entrepreneurship education, it proposes the use of “general principles” as an integrating framework simple enough to work within the constraints of the institutional environment.

INTRODUCTION

Since first enrolling as a postgraduate student more than a decade ago, I have had the opportunity to observe entrepreneurship education as a student, a program coordinator, a lecturer, and a contributor to program design.

As a student, I observed that some units of study complemented and extended the core foundations of the program whereas others were peripheral or repetitive. Lecturers often had limited awareness of the content of other units in the program and repeated or contradicted aspects of prior learning. Unit content could depend significantly on who was teaching. Overall, the program was very valuable, but the impression of an overall integral design was weak.

As a program coordinator, I discovered that there were significant practical obstacles to implementing or maintaining an integrative framework. Enrolment numbers were unpredictable, hindering planning and disrupting “normal” progress through the program. Use of sessional lecturers (though it enhanced “real world” credibility with students) limited opportunities to discuss the program as a whole. Despite substantial passion for the program and goodwill toward fellow lecturers, it was never possible to get all teaching staff in the same room at the same time.

As a sessional lecturer, I encountered the practical difficulty of avoiding overlap or conflict with other units in the program, with only ad hoc access to other lecturers. I experienced the frustration of dealing with ever-changing administrative procedures and gained some empathy for sessional staff’s increasing reluctance to get involved beyond teaching their own classes and marking assignments.
As a contributor to the design of the new MBA program, I observed the natural tendency for discipline experts to lobby for inclusion of their own discipline and to confine their input to designing a unit centred on that discipline. It was clear to me that to achieve an integrated program design, somebody (with considerable authority) would have to manage this process and constantly remind contributors of the overall learning objectives and integrating principles. Opportunities for students to bring together the skills and knowledge from individual units into integrated practice would not naturally arise, but would have to be deliberately created and managed.

In summary, my observations led me to conclude that an education program in which all the units of study were integrated to build on and/or complement each other, needed to be consciously and actively designed as such, and integration needed to be actively managed throughout the lifetime of the program.

Fiet (2000a) highlighted this issue with respect to entrepreneurship education. He noted a wide divergence of topics in program syllabi and asserted that, in the absence of a general theory of entrepreneurship, the tendency was for curriculum to be driven by “academic autobiography” (the research background of the teaching faculty) or by cases and anecdotes without an integrating theoretical basis.

This paper examines the underlying concepts, benefits associated with and issues arising from integrated program design, with specific reference to entrepreneurship education. It discusses: the value of integration; approaches to integration from other fields; approaches to entrepreneurship education; and institutional constraints. It proposes an integrative framework in the form of “generic principles” of the discipline of entrepreneurship.

This discussion is in the context of:
1. Higher Education programs (not high school, not TAFE)
2. Entrepreneurship as an activity involving some degree of market creation or expansion, and a scale that goes beyond simple income substitution (“buying a job”).

THE VALUE OF INTEGRATION

Biggs (2003) argued the importance of what he calls constructive alignment across a teaching program. This argument is based on the premise that good learning is deep learning, where the objective is to make sense of the curriculum in order to mentally file it; to retrieve it; and to apply it, not just in the classroom, but also in real life. Surface learning, where students focus on short-term retention of facts and techniques in order to pass exams or meet the requirements of an assignment, is not good learning because it does not have a lasting impact.

Good teaching is therefore that which supports deep learning and is a partnership between teacher and student to construct an environment within which the student can develop a deep approach to learning. Conceptual pre-requisites of this are (Biggs, 2003: 13):

- a shared understanding of learning objectives (“where we are supposed to be going”)
- motivation on the part of students to get there
- freedom to focus on the task (rather than the test)
- collaborative and dialogue-based learning, involving fellow students as well as teachers

Constructive alignment involves designing coordinated programs that support these conceptual elements. The first essential component is, therefore, clear communication of the learning objectives of the program - what is it that we want students to have learned through completion of this program. All study units within the program should then support these overall learning objectives, so that the clear sense of “where we are going” is retained throughout the program.
The elements Biggs identified as needing to be aligned were (p25):

- Curriculum
- Teaching methods
- Assessment processes
- Climate created by interactions between teachers and students
- Institutional climate: the rules and procedures that must be followed

The last of these, Biggs acknowledged, is often dictated and cannot be changed; the challenge, therefore, becomes minimisation of any adverse impact on alignment across the remaining four elements (more on this issue later).

The term “constructive” refers to the idea that the student constructs his or her own learning environment with the support of the teacher and fellow students. Biggs explains how a constructively aligned program works (p26):

“The curriculum is stated in the form of clear objectives, which state the level of understanding required rather than simply a list of topics to be covered. Teaching methods are chosen that are likely to realize those objectives; you get students to do the things that the objectives nominate. Finally, the assessment tasks address the objectives, so that you can test to see if the students have learned what the objectives state they should be learning. All components in the system address the same agenda and support each other. the students are ‘entrapped’ in this web of consistency, optimizing the likelihood that they will engage in the appropriate learning activities.”

Conversely, any of these elements being out of step destroys the constructive nature of the learning environment. Assessment is particularly in danger of damaging alignment. Black (1998) identified three broad purposes of assessment: i) to support learning; ii) to report achievement of individuals for certification, progress and transfer; and iii) to satisfy the demands for public accountability. For constructive alignment, assessment to support learning is vital. However, as Earl (2003) pointed out, no single assessment can adequately fulfil all three purposes and any attempt to combine them is likely to result in none of them being adequately addressed. Of the three broad purposes, the last two are directed at the community that funds the educational institutions and on which their continued existence depends, thus the purpose of assessment most important for constructive alignment is the one least likely to be supported by the institutional framework.

THE CONCEPT OF CAPABILITY

As explained above, the prerequisite for constructive alignment within a program is a clear understanding of the learning objectives of the program. I would argue that the desired outcome of an education program is not just that students should know things they did not know before they commenced the program, but that they should be able to do things they did not know how to do, or lacked confidence in their ability to do, before the program. In other words, to apply their knowledge. This ability is associated with employability (Knight & Yorke, 2002), defined as “a set of achievements, understandings and personal attributes that make individuals more likely to gain employment and be successful in their chosen occupation” (ESECT 2005). This inclusive definition embraces self-employment and new venture creation.

Traditional learning objective frameworks, such as Bloom’s taxonomy of educational objectives (Bloom, 1956), do not necessarily distinguish between knowing how to and being able to. For example, a student may use “synthesis” and “evaluation” (the two highest order cognitive skills in the taxonomy) to combine information from a variety of sources and disciplines to evaluate a range of options and recommend a course of action on paper, but this does not necessarily mean that they have the confidence to do so in the real world, where poor judgement may lead to loss of status, credibility, employment, income or even life.
The ability “to do” in real life circumstances, has been termed “capability” (e.g. Stephenson & Weil, 1992) and, in keeping with the richness and complexity of what it represents, does not lend itself to simple definition. Stephenson offers the following explanation:

“Capability depends much more on our confidence that we can effectively use and develop our skills in complex and changing circumstances than on our mere possession of those skills. The following definition of capability, however, has been useful in exploring the essence of capability with academics:

**Capable people have confidence in their ability to**
- take effective and appropriate action,
- explain what they are about,
- live and work effectively with others and
- continue to learn from their experiences

*as individuals and in association with others, in a diverse and changing society.*”

(Stephenson, 1992:1)

Thus a capable accountant, for example, should be able not only to manage the production of an accurate set of financial accounts for a company, but to identify issues that need attention and recommend actions, to explain to non-accountants what the figures mean, to work productively with colleagues from their own and other areas of specialisation and to keep up to date both with the knowledge and skills base of their profession and its practical application in a wide variety of circumstances.

Capability is distinguished from competency by the degree of familiarity of problems and contexts. *Competent* practitioners can deal confidently only with familiar problems in familiar contexts, whereas *Capable* practitioners also have confidence to deal with unfamiliar problems in unfamiliar contexts (Stephenson, 1992: 5).

This is achieved through their own belief in their ability to apply their skills and knowledge and acquire new skills and knowledge as the occasion demands. The ability has been termed self-efficacy (Bandura, 1997) and is believed to increase the propensity of an individual to transform ideas into entrepreneurial action (Krueger & Brazeal, 1994).

**Teaching for capability**

Stephenson argued that teaching capability requires that students take responsibility for their own learning (1992: 8), which in turn implies a student-centred approach to teaching. This approach also favours progression in the workplace where employers increasingly rely on employees to take responsibility for their career development (1992: 9).

The term “heutagogy” has been used to describe student-managed learning, and has been explicitly linked to capability (Hase & Kenyon, 2000). The term itself builds on the progression from earlier views of education, “pedagogy” and “andragogy”. The progression is summarised in Table 1. In pedagogy (literally child-leading) it is the teacher who decides what the students should learn and how it should be taught. In andragogy (adult-leading), the student takes a greater degree of control over their learning and is treated as an equal partner by the teacher. The core concepts of andragogy derive from Knowles (1970).

Hase and Kenyon (2000: 3) describe heutagogy (self-leading) as going beyond andragogy toward a broader concept of self-determined learning, which does not necessarily involve a teacher at all. It places greater emphasis on knowledge sharing and learning how to learn. They further distinguish between andragogy, which they argue still describes learning as a linear process (identify need, formulate goals, find resources, develop strategies, implement strategies, evaluate outcomes) and heutagogy, which is non-linear, spontaneous, action-oriented and reflective. The heutagogical approach redefines the roles of teacher and learner:

“A heutagogical approach recognises the need to be flexible in the learning where the teacher provides resources but the learner designs the actual course he or she might take
by negotiating the learning. Thus learners might read around critical issues or questions and determine what is of interest and relevance to them and then negotiate further reading and assessment tasks. With respect to the latter, assessment becomes more of a learning experience rather than a means to measure attainment. As teachers we should concern ourselves with developing the learner’s capability not just embedding discipline based skills and knowledge. We should relinquish any power we deem ourselves to have.” [Hase & Kenyon, 2000: 6]

Table 1: A comparison of the assumptions of pedagogy, andragogy and heutagogy

<table>
<thead>
<tr>
<th>Pedagogy</th>
<th>Andragogy</th>
<th>Heutagogy</th>
</tr>
</thead>
<tbody>
<tr>
<td>The teacher</td>
<td>Guru</td>
<td>Expert</td>
</tr>
<tr>
<td></td>
<td>Directs what, when, how a subject is learned and tests that it has been learned</td>
<td>Encourages and nurtures movement toward independence</td>
</tr>
<tr>
<td>The learner's experience</td>
<td>Of little worth. Hence teaching methods are didactic</td>
<td>A rich resource for learning. Teaching methods include discussion, problem-solving etc.</td>
</tr>
<tr>
<td>Readiness to learn</td>
<td>Learn what society expects Standardized curriculum.</td>
<td>Learn what they need to know Programmes organised around life application.</td>
</tr>
<tr>
<td>Orientation to learning</td>
<td>Acquisition of subject matter. Curriculum organized by subjects.</td>
<td>Based around experiences Performance centred in their learning</td>
</tr>
<tr>
<td>Learning process</td>
<td>Linear</td>
<td>Linear with feedback</td>
</tr>
</tbody>
</table>

[Adapted from Jarvis (1985: 51) and Hase & Kenyon (2003:3)]

Teaching capability in holistic fields of practice

An MBA student does not study marketing in order to be able to design a sophisticated marketing plan, or finance in order to take over their accountant’s job. Their role is to manage these activities, not to do them, and to manage them not in isolation but in an integrated fashion. A marketing plan for a new product may require, for example, negotiation of a budget, a target for sales generation, availability of human resources or sub-contractors, and coordination with production to ensure that increased sales generated can be delivered. The manager’s capability is judged by his or her ability to balance competing requirements and limited resources to develop, and oversee a coordinated plan. And all of this frequently within a limited timeframe and with incomplete information. This task calls on knowledge of different management disciplines and on generic skills (such as communication, emotional intelligence, planning). An education program teaching disciplines in isolation does not provide the opportunity to practice dealing with the inevitable messiness when these disciplines must all be managed simultaneously.

The shortcomings of management education programs have been highlighted recently by prominent management writers. Warren Bennis (2005) criticised business schools for becoming too academic to be relevant to practitioners, and Henry Mintzberg (2004) for insufficient use of experiential learning. The problem is even more acute for entrepreneurship education programs, where there is a greater emphasis on “doing” (Hindle, 2006).

Management demands the ability to apply diverse skills and knowledge in a wide variety of situations - in other words to be able to solve unfamiliar problems in unfamiliar contexts. This is true even more so for entrepreneurship, which by its very nature operates outside of conventional, familiar structures. The capability approach to teaching would therefore seem to be particularly well suited to these holistic fields of practice.
Boyatzis et al. (1994) reported a 7-year study of taking a capability approach focusing on learning rather than teaching in an MBA program at a US university. The outcomes were favourable, with students showing a higher degree of confidence in their ability to apply the skills and knowledge they gained from the program. The success was attributed in major part to the self-directed approach to learning that students were encouraged to take, developing their own learning goals and learning plans.

TEACHING ENTREPRENEURSHIP

Experiential learning

Experiential learning, where students learn from actual experiences rather than textbook knowledge, is strongly associated with teaching for capability (Stephenson & Weil, 1992). It is also implicitly associated with andragogy, since recognising the adult student’s existing reservoir of experience is one of its core principles (Knowles, 1970). Experiential learning, the principles of which were outlined by Kolb (1984), involves a heuristic approach to learning, where skills and knowledge accumulate through a cyclical process of concrete experience, reflective observation of that experience to form abstract concepts leading to active experimentation, which in turn leads to new concrete experiences (see Figure 1). Learning styles characterise preferences for specific stages of this cycle.

Entrepreneurship has been defined as “the pursuit of opportunity without regard to the resources currently controlled” (widely used, and generally attributed to Howard Stevenson of Harvard Business School). This immediately sets it apart from Management, which is largely concerned with (though not limited to) the administration of “resources currently controlled”.

Entrepreneurship has also been defined as the disciplined management of opportunity: existence, discovery (or recognition); evaluation; and exploitation (Shane & Venkataraman, 2000). Existence involves understanding the circumstances likely to lead to opportunities; discovery involves recognising opportunities that others do not see; evaluation involves determining what would be required to convert an opportunity to a viable venture and whether you (or the team or organisation you believe you can put together) can achieve this; and exploitation involves developing a plan and building an organisation to harvest the benefit from the opportunity.

Unlike other disciplines where there is a clear body of knowledge to be mastered (such as accounting practices) or proven analysis techniques to be understood and applied (such as Porter’s 5 forces), entrepreneurship capability depends more on using judgement, making assumptions, analysing risks, building relationships and a large amount of trial and error. While there are areas of knowledge that can be applied (it is useful, for example, to be able to read a balance sheet), entrepreneurs habitually tread new ground and can only rely on conventions and standards to a limited extent. Indeed, their success often depends on actively challenging conventional wisdom. Experimentation and learning from experience are important skills in the entrepreneur’s toolset. Experiential learning is, therefore, an essential component of teaching entrepreneurship.
The importance of experiential learning in teaching entrepreneurship is well-recognised and needs to be consistent throughout a program or else a substantial part of an experiential-based unit of study is spent accustoming students to a different mode of learning. For this reason, entrepreneurship education has been seen to work best as a dedicated program rather than an elective (McMullen and Long; 1987).

Hindle (2007) took this further, arguing that entrepreneurship programs do not belong in the Business School of a university at all, which is, nevertheless, where they are usually to be found. This view was supported by David Birch (originator of the term “gazelles” to describe fast-growing businesses carving out new markets) in an interview in 2004:

"Quite a few business schools teach you exactly the opposite of entrepreneurship. They teach you to do the quarterly numbers for Wall Street, teach you to conserve, teach all the wrong motivations for being an entrepreneur, teach you to take something that is there and make certain that it does well on Wall Street. Basically, business schools teach you to work for somebody." (Aronsson, 2004: 290)

**How entrepreneurs learn**

In order to guide students toward the self-directed learning that is associated with deep learning and acquiring capability, it is necessary to have an understanding of how learning approaches differ. A recent special issue of *Entrepreneurship Theory and Practice* dealt specifically with how entrepreneurs learn, giving emphasis to experiential learning.

Corbett (2005) made a detailed examination of the application of experiential learning to entrepreneurship, with the proposal that each of the learning style preferences (as defined by Kolb’s (1984) learning cycle model, see Figure 1 above), was more suited to a different stage of the entrepreneurial process. It was therefore useful to help students to identify their preferred learning style, and where it was most applicable, in order to help them recognise when it was critical to bring in others with different learning styles. This implies that students of entrepreneurship need to understand the principles of experiential learning and identify their own preferred learning style, which in turn implies that teachers of entrepreneurship need to be able to facilitate that process. Corbett also recommended a greater focus on the entire process of entrepreneurship, rather than the technical challenges of individual stages, in order to encourage students to construct their own concept of what entrepreneurship means to them and how they would apply it.

Politis (2005) examined the impact of prior entrepreneurial experience on entrepreneurs’ approaches to learning. He proposed that past failures would encourage an explorative approach to learning, emphasising diversity (“I don’t know what will work, but it needs to be different from what I did last time”), while past successes would encourage an exploitative approach to learning, emphasising predictability (“I know what works, I just need to learn how to get better at it”).

One factor that influences how an entrepreneur transforms experience into knowledge is their dominant logic of reasoning. Sarasvathy (2001) identified two kinds of predominant logic (drawing on economic theory): causation and effectuation. Causal reasoning favours established techniques of analysis and estimation to exploit existing and latent markets: to make the most of what already is. Effectual reasoning favours synthesis and imagination to create new markets that do not already exist: to imagine and bring into being what could be. Politis draws on Sarasvathy’s work to propose that causal reasoning would encourage an exploitative approach to learning, while effectual reasoning would encourage an explorative approach. Although Politis does not make any such connection, the description of these two modes of reasoning suggests that causal reasoners would operate more comfortably in the “concrete” quadrants of Kolb’s learning cycle (1984) while effectual reasoners would prefer the “abstract” learning styles (see Figure 1).

Experiential learning helps students to understand their own learning style preferences; how these both help and hinder them; and an appreciation of, and ability to leverage, the differing learning styles of other members of their teams.

Fiet (2000b) argued the case for experiential learning as a means of embedding theory through active application to practice, using methods that maximise student participation and direction, consistent with Hase’s (2000) definition of heutagogy. The focus should be on what the student learns and does.
(acquires enthusiasm for and confidence about being an entrepreneur) rather than the performance of the teacher.

**Generic principles and generic skills**

The capability approach to teaching has drawn extensively on the promotion of generic skills (also referred to as key competencies or graduate attributes) through curriculum design. The justification for linking these two concepts appears to be that teaching generic skills across a program (or indeed across an entire educational institution) encourages students to think beyond the narrow confines of the academic discipline or vocational skill they are studying.

Alverno College in Milwaukee, Wisconsin, has been recognised as a pioneer of ability-based education (OBU, 2007), developing and implementing ability-based undergraduate programs since the 1970s. Alverno’s website states the specific learning objective that students should be able to do something with what they know, and identifies eight generic skills (termed “abilities”) they consider essential to operate as a capable practitioner and citizen.

Alverno College is an independent, Catholic liberal arts college for women, which puts it somewhat outside of mainstream tertiary educational institutions offering science, arts and humanities programs to men and women. In the UK, the capability and generic skills approach has been embraced most strongly by the “new” universities, such as Oxford Brookes University, which published a paper on the ability-based curriculum at six such universities in the UK (OBU, 2007). These universities arose from the conversion of former “polytechnics” (institutes of technology in Australia) to universities, and therefore retain a strong vocational emphasis in their teaching.

The OBU study found four generic skills common to all six UK universities it investigated: communication; problem solving; working with others; and managing yourself. These were also common to the six generic skills listed by the NCVQ, the national body for vocational qualifications, further emphasising the link between capability, generic skills and vocational education.

Specific definitions and implementations of generic skills varied considerably, but a common finding was that developing and embedding a generic skills strategy across a university was a complex and time-consuming project and the effort involved was almost universally under-estimated.

In Australia, universities have tended to use the term “graduate attributes” to describe the generic skills that they expect all graduates to have acquired through their education programs. These have been closely related to the “key competencies” defined by the bodies that govern the vocational education and training (VET) sector. Both contribute to the capacity of students to make judgements about how to apply knowledge in life and professional work (Down et al., 1999).

A report commissioned by the Business/Higher Education Round Table (BHERT) suggested that the experience of implementing generic skills / graduate attributes has been no easier in Australia than in the UK (Hager et al., 2002). The report found that the teaching of generic skills had a wide range of benefits, aligning the objectives of employers, teachers and students, and thus gaining acceptance among a community of stakeholders whose agendas have often diverged. Teaching of generic skills was found to promote good learning outcomes and to encourage learner-centred teaching and promote life-long learning skills.

However, it was cautioned that a “check list” approach to generic skills did not achieve these benefits. Possessing generic skills in isolation did not apply skills in a particular context to frame an appropriate response, thus failing to satisfy employers’ demands for graduates to be able to apply their disciplinary or professional knowledge in the workplace context. Generic skills, they argued, needed to be tailored to the specific field of study and the workplace context in which that field would be applied. This point was also made by Bennett et al. (1999) in a study of generic skills implementation in UK educational programs, observing, for example, that communication in a particular way would be a core skill in a law degree, but a generic skill in other programs. The contextual nature of generic skills was specifically linked to the capability approach to teaching.
DESIGNING AN ENTREPRENEURSHIP EDUCATION PROGRAM

While there is substantial evidence that generic skills or graduate attributes can be effective in developing the ability of students to think beyond their discipline to its interaction with the workplace and society in general, whether they could contribute to linking the individual disciplinary components of a holistic program, such as management or entrepreneurship, has not been discussed.

Hindle (2007) specifically addressed the challenge of designing entrepreneurship education programs in a paper that originated as a keynote address to a conference in 2004. He drew on the philosophy of Alfred North Whitehead outlined in his collection of writings The Aims of Education and Other Essays, published in 1929. [Fiet, 2000a & 200b, also drew on Whitehead’s earlier writings on education, in Whitehead (1917)]

Throughout these writings (based on the quotes cited by Hindle), Whitehead emphasised the importance of general principles over specific facts (page numbers are from the 1967 edition):

“In a sense, knowledge shrinks as wisdom grows: for details are swallowed up in principles. The details of knowledge which are important will be picked up ad hoc in each avocation of life, but the habit of the active utilisation of well-understood principles is the final possession of wisdom.” (p37)

“The function of a University is to enable you to shed details in favour of principles.” (p48)

The parallels with the objectives outlined by contemporary writers on teaching for capability are striking. In Whitehead’s philosophy detailed (and perhaps fragmentary) knowledge, through application eventually distils into general principles of a discipline or field of practice. Thus, just as there are generic skills or attributes that it is beneficial for all students to acquire regardless of their discipline, there are generic principles within every discipline that serve to frame the specific knowledge items within the discipline.

Whitehead also prefigured some key concepts of self-directed learning, in particular the sharing rather than hoarding of knowledge: “It should be the chief aim of a university professor to exhibit himself in his own true character - that is, as an ignorant man thinking, actively utilising his small share of knowledge.” (1929: 37).

Compare this with the definition of heutagogy cited earlier: “As teachers we should ... relinquish any power we deem ourselves to have.” (Hase & Kenyon, 2000: 6)

Hindle (2007) drew on Whitehead’s philosophy to identify a component of curriculum design, which he calls the “plus zone”. He describes it thus:

“[The plus zone] is the area where curriculum attention is given to transcending vocational specifics in the quest for general principles.” (Hindle, 2007: 112)

Implicit in the concept of a “plus zone” approach to entrepreneurship curriculum design is a commitment to Whitehead’s notion of university’s function of “the imaginative acquisition of knowledge” and “commitment to an integrated program – as distinct from isolated courses – and at least some full-time entrepreneurship faculty” (Hindle, 2007: 117). Thus the importance of an overall program of education within which each unit of study is integrated within a common framework is once more underlined.

Hindle’s proposed solution to this problem was a template for curriculum design represented as concentric circles representing from outer to inner:

- external stakeholders (e.g. networks, alumni, mentors and allies);
- subject units: relevant disciplines (marketing, organisational behaviour, finance) together with holistic skills (creativity and opportunity evaluation), and provision for subjects not yet envisaged. By representing these in the same layer, an absence of hierarchy is intended.
An integrating unit of study: the business plan, which draws together the skills and knowledge provided by the outer units.

At the very centre, the “plus zone”, is the space for the “distinctive competence of the university (whatever that may be) to add unique value to an entrepreneurship program.” (such as social entrepreneurship, history & philosophy of entrepreneurship)

The point of the “plus zone” is that it is where the university or school adds its point of distinction to an entrepreneurship program.

Finally, Hindle emphasised the need to embrace creativity, imagination and a bit of risk in teaching entrepreneurship. He drew the analogy with the jazz music tradition of improvising around a theme. This is in keeping with key elements of heutagogy: equal partnership between student and teacher, the two of them engaged in learning together, with the student potentially setting the theme and rhythm.

Hindle’s template moved beyond traditional curriculum approaches by explicitly including external stakeholders, minimising hierarchical structure and emphasising creativity, imagination and the need for integration. It is not explicit about how integration is to be achieved, other than by means of a single integrating unit, the business plan. Should the units preceding the business plan be inconsistent or poorly integrated, it is questionable whether a single unit could provide the necessary integrative framework.

Institutional constraints

The national, local and institutional regulations that govern the process and content of curriculum design are sufficiently complex to justify an entire paper on their own. They are dealt with only briefly to provide context around the process of program design.

First, it is acknowledged that standards and regulatory frameworks are important and add value. There is no benefit in each program designer in every institute of higher education starting from scratch with their design. There would be no consistency within or between institutions and a massive duplication of effort. Furthermore, it would be difficult, if not impossible, to compare program offerings across institutions, something which is important to students, employers and the government departments that finance higher education.

Some of the constraints imposed by the institutional and regulatory framework include:

- Accreditation, happening only every five years in Australia, which fixes:
  - Learning objectives
  - Prerequisites / corequisites
  - Assessment (team, individual, exam)
  - Teaching methods (lectures, tutorials, seminars)
  - Outline content

- HESA reporting requirements, which require notification of new programs and new or amended units of study well in advance of first delivery, which in turn imposes a significant lead time for introducing a new program.

- Institutional requirements to plan timetables a year or more in advance.

- Increasing workload of academics and continued dependence on sessional staff to deliver and often design units of study (DETYA, 2001; Herbert et al., 2002).

Without commenting on the desirability or otherwise of these procedures, it is clear that the initial accreditation documents for a new program (or the reaccreditation of an existing one), set parameters for a program that impose real limits on what is taught and how it is taught and when it is taught. In order to design (or redesign) an integrated program, it is therefore imperative that everyone involved in the design should be aware of the entire program’s learning objectives and the principles through which it is to be integrated. In order to provide a productive framework for individual unit design, it is necessary for learning objectives, teaching methods, assessment and content to be aligned both within and across units of study within the program.
In practice, due to the long lead time for introduction or renewal of a program and the shortage of academic resources, activities that have a significant and long-term impact on the quality of the resulting education program are often undertaken largely by individuals with limited time, limited reward, limited understanding of the overall process and limited ongoing commitment to the final result.

The probability of this approach resulting in an integrated program with units that build on and complement each other and a consistent approach to teaching and assessment is not high.

An integrating set of principles as the starting point for program design would not remove all the barriers outlined above, but it would greatly assist the objective of creating, maintaining and delivering an integrated program.

I illustrate this with a hypothetical example, an amalgamation of actual experiences. In this example, an objective of program redesign is for the new program to have a stronger emphasis on entrepreneurship. Rather than include a standalone unit in entrepreneurship, the objective is to weave (undefined) principles of entrepreneurship throughout the program, consistent with a constructive alignment approach (Biggs, 2003). However, units in the program are broadly based on relevant disciplines and the faculty involved in developing individual unit content have no expertise in the entrepreneurship discipline. How are they to introduce entrepreneurship into these discipline-based units of study, without a clear statement of entrepreneurship principles? Even assuming good will and enthusiasm for that particular objective, learning curve, tight timeframes and other workload would tend to militate against explicit inclusion of entrepreneurship themes in most units.

By contrast, with a definition of entrepreneurship principles and an objective for each unit to explain how these principles were introduced or reinforced by their unit, the task would be less onerous and the process would at the very least result in a broader understanding of the principles of entrepreneurship across the faculty.

**A SUGGESTED APPROACH**

From the review above, several messages emerge:

- A capability approach, aimed at helping students to learn how to apply their skills to unfamiliar problems in unfamiliar situations is suited to teaching entrepreneurship, where practitioners habitually challenge conventions and operate in unfamiliar territory.

- Entrepreneurship is a holistic discipline, calling for an integrated approach to designing programs;

- Generic skills (or attributes) have been found to have some benefit in providing integration across programs.

- Experiential learning and student-centred teaching approaches are suited to entrepreneurship education programs.

What has not been covered is the concept of general principles specific to a field of practice, for example, a set of general principles defining an entrepreneurship program. At first sight, this may seem incompatible with student-centred learning, in that it might appear to involve teachers dictating a “correct” set of principles that define the discipline.

Furthermore Whitehead (cited above) talks of general principles as an *outcome* rather than the starting point of education. Whitehead actually suggests, however, that general principles are not presented fully formed at the outset of study, but are embedded through active utilisation of knowledge acquired.

Similarly, the literature on generic skills and graduate attributes suggests that, while skills may be specifically defined as desired outcomes of learning, they are only acquired through habitual practice. By designing opportunities for students to practise communication (for example), each student will arrive at their own conception of what constitutes good and effective communication.
Thus, defining the general principles of a discipline or field of practice, does not necessarily constitute an old-fashioned teacher-centred approach to learning, where the teacher tells the student what they should know. Instead, it defines a conceptual framework, where the specific content of each concept within the framework would be provided by the student through a cumulative and evolutionary process of adding personal meaning to a general concept. In Whitehead’s words:

"The way in which a university should function … is by promoting the imaginative consideration of the various general principles underlying that career. Its students thus pass into their period of technical apprenticeship with their imaginations already practiced in connecting details with general principles." (1929: 96)

With this in mind, I suggest that a set of principles, which outline the essence of entrepreneurship, would provide an integrating framework to be used in conjunction with existing approaches to program design.

An apparent obstacle to be negotiated would be agreement on what these principles should be. Fiet (2000a) observed that in the absence of a general theory of entrepreneurship, the tendency was for curriculum to be inconsistent across universities, driven by “academic autobiography” (the research background of the teaching faculty) or by cases and anecdotes without an integrating theoretical basis. However, he did not accept this as an excuse for inconsistency, instead advocating that: “Until we arrive at a general theory of entrepreneurship, entrepreneurs may obtain valuable insights from considering the predictions of multiple theories, which will be useful for ensuring that they are asking pertinent questions about the future effects of their decisions.”

His suggested approach to teaching multiple theories was contingency-based consideration, based on three questions: (1) Upon what assumption(s) does this conclusion depend? (2) What evidence is there for this assumption? (3) What alternative assumption(s) could explain this conclusion?

Thus, it is not necessary to have total agreement about a general theory of entrepreneurship, but only to agree broadly what are the theoretical themes to be presented as “containers” within which multiple theories can be explored and tested against real life contexts.

This approach also allows individual universities to frame a specialised entrepreneurship education program (e.g. technology entrepreneurship; social entrepreneurship) with reference to a framework of entrepreneurship in general.

An example of integrating principles in action

At a more practical level, I would argue that it is possible to start from the opposite direction and work from the general principles that implicitly underlie existing curriculum in order to arrive at a framework that is i) more clearly understood by all faculty involved in teaching the program and ii) more strongly and explicitly aligned to established theory. This process is analogous to uncovering the “theory in use” that operates within the program (or indeed the absence of it (Fiet, 2000a)) and examining it for consistency with any explicitly espoused theory (Argyris & Schön, 1978).

By way of example, I offer some principles (see Appendix A) that I have derived from the Opportunity Evaluation unit, a foundation unit the Swinburne Master of Entrepreneurship and Innovation program, which has also been taught as a standalone “Introduction to Entrepreneurship” in the past. It is broadly consistent with Shane and Venkataraman’s (2000) conceptualisation of entrepreneurship as disciplined opportunity management. Students have consistently reported that they found Opportunity Evaluation the most useful and memorable unit of study in the program.

These guiding principles should be considered as a draft providing a basis for discussion. The review of the literature, and reflection on my personal experience as a participant in program design convinces me that such integrating principles are essential to creating an entrepreneurship education program that makes sense as a whole. Further, in keeping with principle no. 2 in Appendix A, I suggest that when the status quo is unsatisfactory, it is better to experiment with something unproven than to do nothing while pursuing theoretical perfection!
REFERENCES


Implicit principles underlying entrepreneurship education at Swinburne University of Technology. Items in brackets list (non-exhaustively) units of study with potential to reinforce these principles. Fiet (2000a) provides a starting template for mapping these to extant entrepreneurship theories.

<table>
<thead>
<tr>
<th>1. Opportunity recognition based on identifying a need: people do not buy products, they buy solutions to problems</th>
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| • What problem are you solving? What need are you meeting? *(Marketing)*  
• Identifying emerging needs *(Strategy, Foresight)*  
• Locating the need – who has this need, how widespread, how urgent/compelling *(Marketing)*  
• Who else can meet this need? *(Strategy)*  
• How sustainable is the need? Fad or durable? How can it be renewed? *(Strategy, Business Plan, Innovation)* |

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<tr>
<th>2. Opportunity evaluation through management of uncertainty: assumptions and risk management</th>
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| • Making assumptions in the absence of facts and building them into models as assumptions *(Finance, Marketing)*  
• Testing assumptions early and cheaply where possible *(Marketing, Innovation)*  
• Risk analysis and management *(Finance, Risk Management)*.  
• Low cost experimentation *(Innovation, Corporate Entrepreneurship)* |

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<th>3. Opportunity exploitation based on generating and harnessing human energy</th>
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| • Building a vision; inspiring leadership *(Leadership)*  
• Identifying internal sources of energy, champions *(Leadership, HRM)*.  
• Going with, rather than against, the flow. Investing where there is already momentum rather than trying to overcome inertia *(Strategy)* |

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<th>4. Opportunity exploitation based on attracting resources and building relationships</th>
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| • Alliances and partnerships *(Negotiation)*  
• Assets, channels, networks *(Strategy)*  
• Financial resources *(Finance)*  
• Return on ‘investment’ – what can you offer in return for others’ contribution of resources? *(Finance, Negotiation)* |