The search for a pedagogy for postgraduate education in the emerging profession of project management

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Biography

Barrie Todhunter is an ‘accidental’ academic, coming from a background of professional practice in architecture and project management in Australia and overseas. He currently coordinates the project management specialisation programs in the MBA program at the University of Southern Queensland, and is carrying out doctoral studies into the effectiveness of postgraduate project management education.

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Abstract
This paper considers the pedagogical issues of professional education in distance mode for project management. There has been little educational research carried out on the issues associated with adult learners returning to higher education for continuing professional education. Postgraduate educational research is mostly limited to research programs, with little recognition of the specific needs of experienced practitioners returning to study in coursework Master's degrees. The variables that impact on the effectiveness of postgraduate professional education are numerous and are related to the requirements of the profession, the constraints imposed by educational institutions, and the needs of the individual learner.

In formulating a conceptual framework for evaluation of educational programs for project management, this exploratory research suggests that existing programs in postgraduate project management are ineffective and inappropriate for an emerging profession. A literature review has been carried out on project management education, and interviews have been carried out with representatives of the major stakeholders, and these have indicated a need for detailed research into the relationships between the needs of stakeholders and the development of theory relating to postgraduate project management education.

Introduction

This paper discusses the initial exploratory stage of doctoral research into the effectiveness of a distance mode of education for project management at postgraduate level. The focus of this paper is on one aspect of the initial research stage - the identification of a conceptual framework for subsequent evaluation of educational programs in project management. Initially it looks at the issues that affect the selection of a suitable pedagogical framework for evaluating the effectiveness of project management educational programs including reviews of the limited body of recent literature on project management education. It then provides a context for the research by considering the nature of project management, student attributes, and the needs and objectives of major stakeholders in the education, training and development of future generations of project managers. It concludes with a summary of progress to date, and suggestions for the completion of the final stages of the doctoral research.

Research Proposal

In this paper, the author asserts:

- that project management education in Australia, and perhaps globally, lacks an adequate conceptual framework that is aligned with the objectives of valid professional development,
- that the existing bodies of knowledge and competency standards developed by the professional bodies representing project managers do not provide a suitable framework for evaluation of educational programs, and
- that a pedagogical framework for evaluation of the effectiveness of a postgraduate educational program must consider a much broader range of higher-level outcomes than those considered in most evaluation methodologies.

Research Background

This preliminary stage of doctoral research provides a literature review of prior research and an analysis of detailed interviews with representatives of major stakeholders in project management education and practice. Subsequent stages of the doctoral research will define a conceptual framework for project management education and use that framework to evaluate the effectiveness of existing and emerging modes of distance education at postgraduate level. It is proposed that parts

of the research findings will be generalisable to other aspects of professional education at postgraduate level.

Effectiveness of Education

At the outset, exploratory research to define the effectiveness of a distance mode of education for project management at postgraduate level seemed a simple task as the author is currently responsible for delivery of postgraduate education in project management at an Australian university, both in paper-based and online delivery modes. However, the major problem soon became that of identifying a suitable frame of reference for the effectiveness of project management generally, before the evaluation and comparison of the effectiveness of specific programs could be undertaken. An approach using surveys of student satisfaction was deemed to be unacceptable because it is argued that students' perspectives of their educational objectives:

- will vary from student to student,
- may not consider the full range of educational objectives and outcomes, and
- may not consider the objectives of other stakeholders.

Phipps & Merisotis (1999, p. 5) have carried out a meta-analysis of research into the effectiveness of distance education and their conclusions include:

- Much of the research does not control for extraneous variables and therefore cannot show cause and effect,
- Most of the studies do not use randomly selected subjects,
- The validity and reliability of the instruments used to measure student outcomes and attitudes are questionable, and
- Many studies do not adequately control for the feelings and attitudes of the students and faculty – what the educational research refers to as 'reactive effects'.

They go on to identify gaps in the research into distance education, and suggest that existing research 'does not include a theoretical or conceptual framework' (Phipps & Merisotis, 1999, p. 6). They suggest that theories 'provide explanations for specific phenomenon with maximal probability' and that they 'provide an underlying framework for observation and discovery by governing the kind of phenomena that

investigators study' and note that 'several researchers have lamented that there are no theories that deal with the interactions and interrelationships of variables in terms of the effectiveness of distance learning programs' (Phipps & Merisotis, 1999, p. 26).

Perraton (2000, p. 1) suggests that 'unless research is grounded in theory, it cannot be much more than data gathering', that 'research on the context of open and distance learning, considering its purposes, outcomes, and relevance to major educational problems, has been relatively neglected as contrasted with research on its application', and that 'theoretical insights are more likely to be found from a range of educational and social theories than from attempts to develop theories'. From her meta-analysis of research into distance education, Perraton (2000) concludes that 'we are short of well-founded research findings on many aspects of open and distance learning, while findings about its context, critical for policy makers are especially scarce', and that 'context concerns the purpose for its use, its role alongside other forms of education and its outcomes'.

Burns (quoted in Dunn, 2002) suggests that learning is a 'relatively permanent change in behaviour… including both observable activity and internal processes such as thinking, attitudes and emotions'. Using Bloom's taxonomy as a guide, evidence of effective learning will show up as:

- Changes in the cognitive domain, including increased knowledge and skills in higher order learning processes,
- Change in the affective domain or behavioural changes, and
- Changes in the psychomotor domain with improved skills relevant to the learning context.

The author's search then became one of finding criteria that reflected the effectiveness of project management education, and to this end, the research process went back to first principles. It was decided that preliminary qualitative research was essential to identify the specific issues that represented 'effective' postgraduate education in project management. Detailed interviews were then carried out with representatives of the major stakeholders, and data from those interviews were analysed to confirm

major themes and categories suggested by the literature reviews, and to identify any new ones.

Once again, a problem became apparent, because the major stakeholders in project management education did not agree on the definition of fundamental criteria for the development and training of project managers. Two major camps emerged – one being the professional bodies, employers and practitioners, many of whom favoured competency-based vocational assessment and accreditation, and the other being educators, who saw a more philosophical role for project management education in the development of the professional community.

Saba (2000) has carried out meta-analysis of research publications on distance education and suggests that 'distance education research has been dominated by quasi-experimental research', that 'research questions are rarely posed within a theoretical framework or based on its fundamental concepts and constructs', and that 'one of the major challenges of researchers in distance education in the future will be to devise methods of data collection and analysis that correspond to the theoretical complexity of the field'. In his own research, he has used discourse analysis for data collection and a systems dynamics simulation method for data analysis to deal with the complexity of concepts and variables.

Seibold (2002) maintains that there is confusion as to 'what constitutes a theoretical as opposed to a conceptual framework' (p.3) and suggests that a theoretical framework is 'a broad, general explanation of the relationship between the concepts of interest generally based on one theory' (p.3) and that a conceptual framework is the 'linking of concepts selected from several theories , or from previous research, or from the researcher's own experience' (p.4). Based on the views of Grbich (quoted in (Seibold, 2002), this study would be most aligned with the 'theory/concept-driven' approach to research.

Research into the effectiveness of educational programs recommends consideration of the learning outcomes over the entire program, rather than perceptions of the effectiveness of a single component of the program, or of the learning processes themselves, which is the focus of most theoretical frameworks, including those of

Gagne (quoted in Bostock, 1996) and Laurillard (1993). The conceptual framework sought for project management education comprises the significant components of learning outcomes mapped to an overall framework.

As Kretovics and McCambridge (2002) have indicated, 'previously, accreditation efforts focussed on input measures', but 'the focus has now shifted to value-added measures that assess what students have actually learned as a result of their participation'. They add that 'although there are no generally accepted or preferred ways to measure student learning and educational outcomes… historically the most common assessment techniques included student evaluations, employer perceptions/opinions, objective tests, and student exit interviews'. They add that 'one systematic way to measure student learning would be to compare measures of student competencies at the beginning and end of their educational experience' but concede that 'few schools of business have conducted outcome studies that compare their graduates to their newly admitted students'. This is currently the case for project management students at the University of Southern Queensland and will be an early issue to be tackled as a result of this research to date.

Kretovics and McCambridge (2002) provide a comprehensive review of literature on the effectiveness of distance education and conclude that 'there are no significant differences in the learning outcomes of students enrolled in distance courses as compared to traditional face-to-face classroom settings'. They compared scores of incoming and exiting student groups in a cross-sectional study using a Learning Skills Profile (LSP) to measure twelve learning skills, rather than job performance or academic competencies, grouped into four major skill areas:

- Interpersonal skills – helping, leadership, and relationship skills
- Information gathering skills – sense-making, information gathering, information analysis
- Behavioural skills – goal setting, action, initiative
- Analytical skills – theory, quantitative, technology

Using this methodology, they were also able to measure differences across different delivery methods, making this an attractive approach to consider if the project

management context can be facilitated. They concede however that ‘confounding or extraneous variables may have influenced the findings’, including work experiences, time taken to complete the program, curriculum changes and class sizes. They highlight the fact that their research ‘represents an attempt at ‘program-level’, as distinct from ‘course’ or ‘certificate’ level, assessment’ in the light of their assertion that ‘outcome assessment is the perhaps the best vehicle available at this time with great potential for affecting positive change and addressing the issues of accountability within higher education’.

Determination of the effectiveness of an educational program requires some degree of measurement of outcomes. Kirkpatrick (quoted in Strother, 2002) provides a possible framework for the measurement of the effectiveness, especially as it covers the needs and objectives of a wide range of stakeholders, and suggests that four levels can be considered, namely:

1. Reaction – measure of learners’ reactions to the course
2. Learning – measure of what they learned
3. Transfer – measure in the changes to behaviour
4. Results – measure of the business outcomes

A Professional Framework

In the 1980s, the major professional body in the United States, the Project Management Institute (PMI), developed a Project Management Body of Knowledge (PMBoK) based on practice at that time, and this has since been updated and continues to be used as a de facto ‘bible’ for the development of professional standards, competencies, and training.

In the 1990s, Australian practitioners of the emerging ‘profession’ of project management established guidelines for training and development of future project managers based on the PMI PMBoK. Influenced by the strong competency movement that existed globally at that time, this was done in terms of vocational competencies within the Australian Qualifications Framework, but it is argued here that they lack a theoretical and empirical basis, and that compliance with the resultant competency standards does not necessarily lead to the competencies that are expected of the members of a profession. This is particularly so where new project managers are often

graduates from allied disciplines such as engineering, construction, architecture and information technology (IT), and enter a postgraduate phase of their education as adult learners, with distinctly different requirements and expectations to those held by trainees and undergraduate students.

Adult Learning

An early goal of the author's research was to understand and define effective outcomes of project management education in order to establish a theoretical and conceptual, or pedagogical, framework for evaluation of alternative modes of teaching and learning. This search for a suitable pedagogy was a frustrating one for the author because it became so elusive. The term 'pedagogy' appears frequently in the literature in the definition of effective teaching or learning, but the use of this term led to confusion rather than understanding. The author found it simpler and easier to identify and define the specific components of the learning system in question.

The Macquarie Dictionary defines pedagogy as 'the function, work, or art of a teacher; teaching' or 'instruction' (Delbridge et al., 1999). Its derivation is attributed to observations relating to the teaching of children in European monastic schools many centuries ago, and this is consistent with the Greek derivation of the words 'paid' meaning 'child' and 'agogus' meaning 'leader of' (Holmes & Abington-Cooper, 2000, p. 50). Common usage today infers much more of the art and craft of teaching at all levels as an holistic systematic process, and educational programs are often criticised for being pedagogically unsound, with no explanation of what aspect of the educational process is ineffective, nor why.

It is more effective for the evaluation of an educational program to understand the components of the system as a framework containing inputs, processes and outputs. In the case of project management education, as in most 'professional' education, there are many stakeholders who influence those components to varying degrees, and in the context of project management education, this can be illustrated as shown in figure 1.

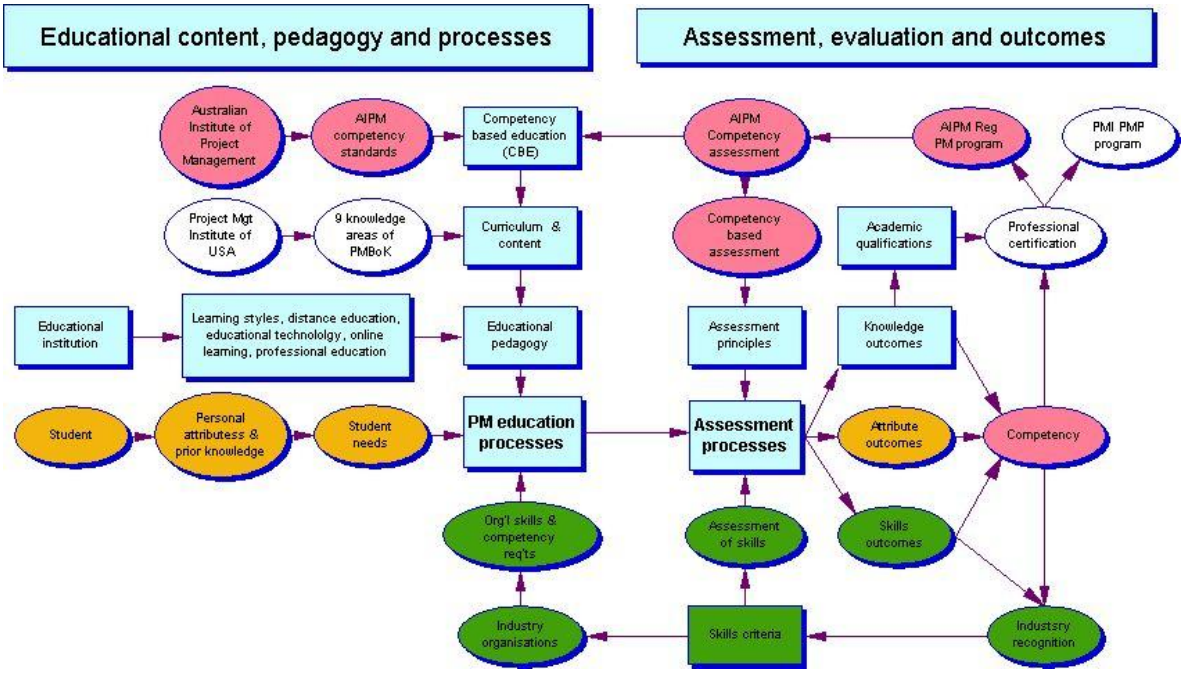

Figure 1: Overview model of project management education

Stakeholders in this model who influence the educational inputs, processes or outcomes include:

- The student
- The institution
- The professional community and accrediting bodies, and
- Regulatory bodies at various levels of government.

Satisfaction of all stakeholders' requirements is essential for the creation of an effective educational model. The inputs, processes and outputs are fundamentally linked, and changes in any one will cause changes throughout the system. It is maintained here that the problem with the existing competency-based model used for most project management education and training is twofold:

- Educationally, it focuses on lower level learning processes as defined in Bloom's taxonomy of learning (Bloom, 1956) which are inadequate for effective professional education, and
- Professionally, it has a narrow view of professional practice and does not cater for the needs and objectives of all stakeholders.

Malcolm Knowles (1973) carried out extensive research in the area of adult education during the 1970s and 1980s and recognised the problem of inappropriate learning for mature age students. He revived the use of the term 'andragogy' and defined it as the 'art and science of helping adults learn' (quoted in Jarvis, Holford, & Griffin, 1998, p. 61). The emphasis in andragogy is for learning to be student-centred rather than teacher-centred, for the educator to take the role of facilitator rather than teacher, and to allow each student to realise his or her own potential (p.77). Jarvis suggests that self-directed learning is most appropriate for adult learners because:

- 'Self-directed learners are better learners
- Adults do not need teachers, in the sense that they are perfectly capable of taking charge of their own learning, and
- Open and independent learning systems are creating a need for students to develop appropriate skills (in self-directed inquiry)' (p. 81).

As a result of the research by Knowles and Stephen Brookfield, adult learning is now strongly 'identified with personal growth and social change' (Jarvis et al., 1998, p. 85). This situation is highly relevant for mature age students who return to tertiary education at postgraduate level to prepare themselves for senior positions within their professional communities, and is at odds with a narrowly defined and highly prescribed competency-based evaluation along vocational guidelines. This conflict is at the heart of the problem for project management education at tertiary level.

Learning styles differ between individuals, and these need to be reflected in the learning processes created for the program. Conner et al. (1996, p.11) identify three general categories of learning as follows:

- Perceptual modality – the way we most efficiently adopt data
- Information processing – the way we sense, think, solve problems and remember information, and
- Personality patterns – focusing on attention, emotion and values.

Many of the principles contained in Jones & Paolucci's (1999) research framework for evaluation of the educational effectiveness of learning technology can also be applied to the evaluation of generic educational programs. They maintain that 'a research

framework must exist, into which specific studies can be placed, and from which practitioners can draw unified, high level conclusions…', and suggest a three-dimensional framework as indicated in figure 2 comprising:

- instructional objectives
- delivery system, and
- learning outcomes.

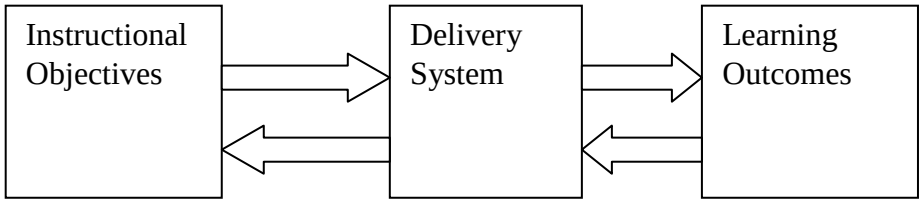

Figure 2: Research framework for evaluation of program effectiveness
(Source: adapted from (Jones & Paolucci, 1999))

Learning Objectives

Jones & Paolucci (1999) suggest that 'learning is achieved when a permanent change in thinking, attitude, or behaviour is experienced' and that 'instructional objectives can and should be based on one or more of the following factors:

- learning domain – cognitive, affective or psychomotor
- learner profile – objectives should be appropriate for the learner's level of ability
- task characteristics – instructional objectives should be appropriate for the tasks associated with the subject matter that is to be learned, and
- grouping – instructional objectives should be appropriate for the grouping arrangement and learning situation'

From the 1950s to the 1970s, Bloom (1956) and other researchers developed a taxonomy of learning objectives in three domains as indicated in figure 3:

- Cognitive domain
- Affective domain
- Psychomotor domain

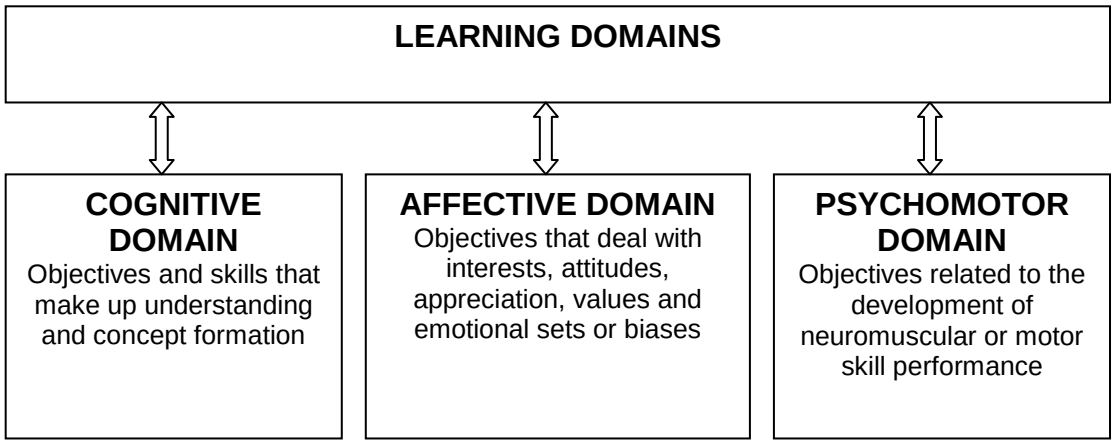

Figure 3: The three domains of Bloom's taxonomy of learning objectives
(Source: adapted from (Farivarsadri, 2001, p. 4))

Bloom's taxonomy of learning in the cognitive domain (Bloom, 1956) provides an essential framework for understanding desirable educational objectives and skills and the processes necessary to achieve them. The hierarchy of learning outcomes (with the lowest level learning listed at the top) is:

- lower order learning objectives of
  - knowledge
  - comprehension
  - application, and
- higher order learning objectives of
  - analysis
  - synthesis, and
  - evaluation.

Lower level learning processes are prerequisites to form a platform for the higher learning processes, and for the author's proposed research, it is necessary to place those outputs and processes into the context of project management to create a suitable educational framework. However, as the competency movement realised, there are many levels in any professional community and it is necessary to create a wider matrix of educational needs for the respective layers of project management for our pedagogical framework to begin to emerge. Just as there are many layers and

dimensions to professions such as medicine (specialists, general practitioners, nurses) and engineers (designers, technicians, draftpersons), project management covers a wide range of roles and responsibilities as discussed below, and it is essential to understand that range and the respective professional and personal needs. Conner et al. (1996, p. 33) remind us that 'what might be effective when we're novice learners, meeting complex bodies of information for the first time, may not be effective, efficient, or stimulating for learners who are more familiar with the content'.

Consideration of competencies in the affective domain is rarely evident in evaluation of educational programs, but it becomes increasingly significant as higher levels of education are reached, such as those in postgraduate studies.

The importance of competencies in the psychomotor domain varies from discipline to discipline. They are of considerable importance to professional activities such as medicine (surgery) and architecture (design and drawing), but of marginal importance to project management and many other business disciplines.

Delivery system

The research by Jones & Paolucci (1999) is specifically related to educational technology and is beyond the scope of this paper, although such considerations will be relevant to future stages of the author's research.

Learning Outcomes

Jones & Paolucci (1999) suggest that 'assessment of learning outcomes provides the major feedback mechanism' and 'is critical in evaluating the instructional system and its effectiveness. The information that is collected as evidence of learning achievement will depend on the nature of competency being measured'. These consist of:

- 'cognitive tests (measurement of intellectual skills),
- performance tests measurement of capability) and
- attitudinal tests (measurement of disposition and perspective)'.

Farivarsadri (2001, p. 2) has examined the pedagogy associated with architectural education, for which many parallels with project management exist, and asserts that

‘education’s purpose goes much beyond the mere transformation of knowledge; it aims at implementing changes in the patterns of behaviour of a social group in the desired direction’.

He also indicates that apart from preparing students for a profession, a university architectural education ‘is different from training that is only giving knowledge and skills necessary to serve a profession’ and that:

> *‘a holistic university education aims at addressing the whole person, developing the personalities of students in different dimensions, making them know how to acquire knowledge, to communicate, to be aware of his own values, and those of the other’s as well. So does a holistic architectural education. This education in one end should prepare student for the profession with necessary abilities and skills and on the other end should educate them as people aware of social realities, being able to see the problems, to find solutions, have critical thinking, have their own values, etc’ (Farivarsadri, 2001, p. 2).*

There are considerable parallels here to the education of project managers, and extends the range of issues to be considered well beyond Bloom’s (1956) cognitive domain, and firmly into the affective domain as well. This is consistent with the views of tertiary educators from a review of the literature and from interviews carried out to date, but it is in conflict with the limited range of competencies considered for professional development and accreditation by professional bodies.

Professional Education

Benson et al. (2001) provide a view of professional education through the words of Donald Schon (1987):

> *Schön argues that the most important areas of professional practice lie beyond the instrumental boundaries based on technical expertise and go into the more indeterminate areas of practice that deal with uncertainty, uniqueness and value conflict. The outstanding professionals in all areas, including those with high levels of formal rationality, reflect wisdom, intuition and artistry beyond the instrumental. Schön argues that this is not a gift but involves a process that*

he terms 'knowing in action' which is often combined with 'reflection in action'.

Although there is a tension between the two forms of action, it is the combined iterative process that enables professions to achieve the outcomes that the practice of their art demands.

Attributes of Project Managers

The Project Management Institute (PMI) (Project Management Institute, 2000a, p. 4) has defined a *project* in its Project Management Guide to the Project Management Body of Knowledge (PMBoK) as a 'temporary endeavour undertaken to provide a unique product or service', and *project management* as the 'application of knowledge, skills, tools and techniques to project activities to meet project requirements' (Project Management Institute, 2000a, p. 6). This is a neat and tidy definition of what a project manager does, but it does not reflect how complex that process might be in many professional situations. In 1996, the Australian Institute of Project Management (AIPM) published the National Competency Standards for Project Management (NCSPM) (Australian Institute of Project Management, 1996) in line with Levels 4, 5 and 6 of the Australian Qualifications Framework (AQF) and these were adopted by the AIPM as the basis for accreditation with the Institute for the three levels of accreditation defined under their Registered Project Manager (RegPM) award program as:

- Qualified Project Practitioner (QPP) (Level 4)
- Registered Project Manager (RPM) (Level 5), and
- Master Project Director (MPD) (Level 6).

As there is no government control over the use of the title 'project manager' nor requirements for registration as there are for professions such as teaching, medicine, engineering and architecture, this award program 'provides the ability for project managers to gain a recognised Australian professional qualification' as part of the 'continuing development of excellence in the profession of project management' (Australian Institute of Project Management, 1999, p. 4). The Master Project Director represents the highest level of professional recognition for Australian project managers, yet level 6 is equivalent to an Advanced Diploma or Associate Degree in

the AQF. The Australian competency standards in themselves do not provide a suitable conceptual framework for project management education at postgraduate level of study and, one assumes, nor were they intended to.

The PMI is the largest body in the world representing project managers with more than one hundred thousand members, and has utilised a multiple choice examination format to assess applicants for their professional recognition program, the Project Management Professional (PMP) (Project Management Institute, 2003). Pre-qualification for this assessment has been partially based on recognition of formal academic qualifications (unlike Australian accreditation) and partially on achieving substantial professional experience. Over recent years, the PMI has commenced preparation of its own set of competency standards with a view to changing to competency-based assessment of applications for professional accreditation. They have recognised the merit of the AIPM National Competency Standards and incorporated many aspects of them into their own standards. In addition, they have carried out a large-scale professional survey to further identify the attributes of a project manager, and published their findings in their Role Delineation Study (Project Management Institute, 2000b) which is used to prepare questions for the multiple choice examination for PMP accreditation. However, this is very practitioner-oriented, and does not provide the educational framework that is sought for the research in question. PMI has also recently released its Competency Development Framework (Project Management Institute, 2002), and although this framework includes personal competencies in addition to the vocational competencies covered in the Australian standards, it still does not provide a suitable educational framework.

Project Management Research

Research into project management education has been extremely limited to date, with the emphasis on professional practice and 'tricks of the trade'. Morris (2000) carried out a meta-analysis of professional research articles on project management published between 1990 and 1999, and found that predominantly they related to project practice in the narrow areas defined by the bodies of knowledge produced by the respective professional bodies. Although professional competency development received some attention, papers tend to focus on the definition of desirable practice-level competencies in the lower level of the cognitive domain, rather than on the higher

level competencies in the cognitive and affective domains, nor do they focus on the means by which competencies can be achieved, which is the focus of this research. On the matter of project management as a career, Morris (2000, p. 17) comments that it is often not a core career so 'how then to build best practice professionalism?'. He concludes that 'the way we deal with and build knowledge, learning and competency development is key, and…is an important area of research' (Morris, 2000, p. 20).

A survey by the Centre for Innovative Management at the Athabasca University in 2001 indicates that 'those organizations that did not invest in PM tended to have "accidental project managers" attempting to do damage control who, in the process, created or contributed to other crises' (Thomas, 2001, p. 9). The report also indicates that 'The majority of participants (54%) have taken no more than individual PM courses' (p. 7) indicating a low level of formal education and training, reinforcing the common perception of project management as the 'accidental' profession.

Project Management Education

As Morris (2000) indicates, project management is often not the core career of those with project management responsibilities, and that 'project management, though a generic discipline, is contextual' (p. 19). Project management may be seen as an applied profession, requiring a context for its very practice. This is reflected in the enrolments at the University of Southern Queensland where project management students are mostly postgraduate mature age learners requiring generic skills to apply to their professional disciplines, be they construction, engineering, architecture, IT, health, Defence, education, biochemistry or manufacturing as typical examples. This suggests the value of a comprehensive educational framework housed in a broadly-based discipline such as business, rather than in the 'hard' disciplines of engineering and construction.

Traditionally, tertiary project management education has been housed in engineering faculties as a means of developing skills for the management of large and complex capital works projects, such as those in the University of Queensland and the University of Sydney. Some programs have been established in schools of construction management or architecture such as the Queensland University of Technology (QUT) and the University of Technology Sydney (UTS), but few have

been located in business schools with a focus on the alignment of project objectives with organisational objectives. This strategic alignment of general business management, or 'management by projects' rather than 'management of projects', is a relatively recent phenomenon.

As a result of this evolutionary process of a constantly broadening scope of project management education, the demographic profile of project management students is rapidly changing as well. Once a male dominated discipline, project management has seen strong growth in the enrolments of women in programs such as the one at the University of Southern Queensland. This may have been encouraged by the location of the program within the Faculty of Business, and research is required to better understand the reasons behind changing student profiles. Students' backgrounds, needs and expectations must be fully understood so that the educational framework can be matched to them. Research suggests the need for such data, as 'few schools of business have conducted outcome studies that compare their graduates to their newly admitted students' (Kretovics & McCambridge, 2002). Anecdotal evidence in research to date indicates that some students have an immediate practical focus and enrol to obtain skills to satisfy existing and urgent needs, while others may have a more strategic focus on their career progression.

Skills-based training in non-tertiary educational institutions may cater for many of the training and competency needs of existing and prospective project managers, but it is asserted here that postgraduate studies are essential to achieve the transformative education necessary for many of the students to achieve their personal and professional goals and objectives.

Interviews with Stakeholders

As part of the preliminary exploratory research completed to date, interviews have been carried out with representatives of major stakeholders including:

- One senior full-time academic staff member from each of two universities providing postgraduate project management programs in Australia, and one part-time academic staff member from a third

- A senior State Government public servant responsible for providing project management services and training to a wide range of public servants across a range of disciplines including organisational restructuring and IT
- An executive office holder from a major professional body in Australia who is a practising project manager from a large consulting firm
- A senior project manager from a large international corporation providing project management services to the Department of Defence, and who has partial responsibility for the professional development of internal project managers, and
- A part-time postgraduate project management student who is studying by distance education

Detailed semi-structured interviews were carried out with the individuals listed above, and the discussions taped and transcribed. Contents of the transcriptions were analysed and coded to identify strong themes and recurring concepts, using procedures that were influenced by the 'grounded theory' approach of Glaser and Strauss (1967). The approach adopted falls short of total adherence to grounded theory, but similar to the comments in Morgan (1990, p.11) on the use of critical theory for research into distance education, 'you don't have to take the full intellectual journey to Frankfurt' to gain insights from critical theory and the essence of such an approach. As a tentative framework and context had been formulated, the purpose of the interviews was to review and confirm the relevant issues.

Seeing the issues through the eyes of other stakeholders has been of assistance to the author in clarifying the focus of the research. Typical comments made by interviewees on the objectives of project management education (which was but one of a number of questions) included:

Project management trainer

- Two lots of objectives - those who just want qualification and people who just want to improve their project management
- They want practical training
- They want hands-on tools oriented training

Postgraduate project management student

- Want an overall balanced view of PM
- Up to date information, knowledge and skills
- Want methodologies that can be used
- Want to obtain a toolkit
- I am at Uni to obtain a Master's
- Am after formal qualifications and lifelong learning
- What I need now is information

Project management academic

- Training is for vocational training and learning to do current job better
- Education is about developing one's perspective further and changing the platform of thinking
- PM education lacked intellectual platform
- Education should shift the level of thinking and focus of professional development from mentality of doing to mentality of value creation, value delivery, strategic objective
- Educational institutions have historic responsibility to lay foundations for proper professional development
- PM lacks professional development when compared to architecture, medicine, engineering, law
- PM education has to be theory based and should have major focus on research
- PM education should develop people's abilities in order to further the field theoretically and professionally
- Ability to create best practice
- Education should be leading industry and should educate future industry leaders

Project management consultant

- To give the participants the basic knowledge and skills in the PMI PM knowledge areas
- Understand the basic methodologies that are used and some of the basic tools
- Subject matter experts can relate a real life experience and talk about how they apply some of this knowledge to their workplace so you get that realism

Office holder in project management professional body

- Hands-on knowledge of project management tools and techniques
- Educational institutions are more advanced in terms of explaining the principles and talking about… the softer side of things…than actually teaching people some hands-on hard skills
- People walk out of programs with a general understanding of the principles of project management – the nine competency areas… but there is a gap in terms…of using tools
- When I look at outcomes, I suppose it depends on what stage in people's career they're at.
- If it's a junior person, I would want more hands-on understanding of tools, techniques
- As you get more senior and more experienced, then revisiting the principles and more of the softer skills and people skills become quite important
- National competency standards – there's three levels - team player level, project manager, and the third level is the leadership and managing multi-projects
- The educational system does not meet those three levels - we just have generic programs

Data reduction and analysis of the interview material has identified the following themes and concepts relating to postgraduate education in project management:

- The incorporation of autonomous learning processes including:
  - Reflective and self-referential learning skills
  - Deep learning
  - The academic role to be one of facilitation
  - Mapped to an overall competency framework
  - Incorporating a range of assessment techniques including self-assessment and peer-assessment
  - High levels of communication among educators and students
- Personal transformation outcomes to include:
  - Change mindset and perspective
  - Generate new visions

    - Change platform of thinking
    - Development of personal competencies and soft competencies
    - Becoming a lifelong learner
    - Challenge and address prejudices
    - Qualifications, recognition and status
- Professional transformation outcomes to include:
    - Development of professional competencies
    - Become self reflective with regard to ongoing professional development
    - Involvement in the definition and development of the profession
    - Provide a positive influence on changing the professional culture
    - Establishment of professional standards and best practice

These conclusions are consistent with the views of Jarvis (1998, p. 77) who suggests a focus on such concepts as 'self-determination, self-actualisation or self-transformation as the underlying concepts of all education for adults', but few of the above outcomes align with the narrow focus of vocationally based competencies, apart from mapping professional outcomes to an overall competency framework, and development of professional competencies. Such competencies should cover a much broader range than those derived from an analysis of what current practitioners do, especially when only a small percentage of current practitioners have tertiary qualifications, let alone postgraduate qualifications in project management.

Future Research

The challenge now is to bring these disparate elements together to create a suitable theoretical framework for evaluation of selected programs, and some of the influences on that framework are illustrated in figure ??.

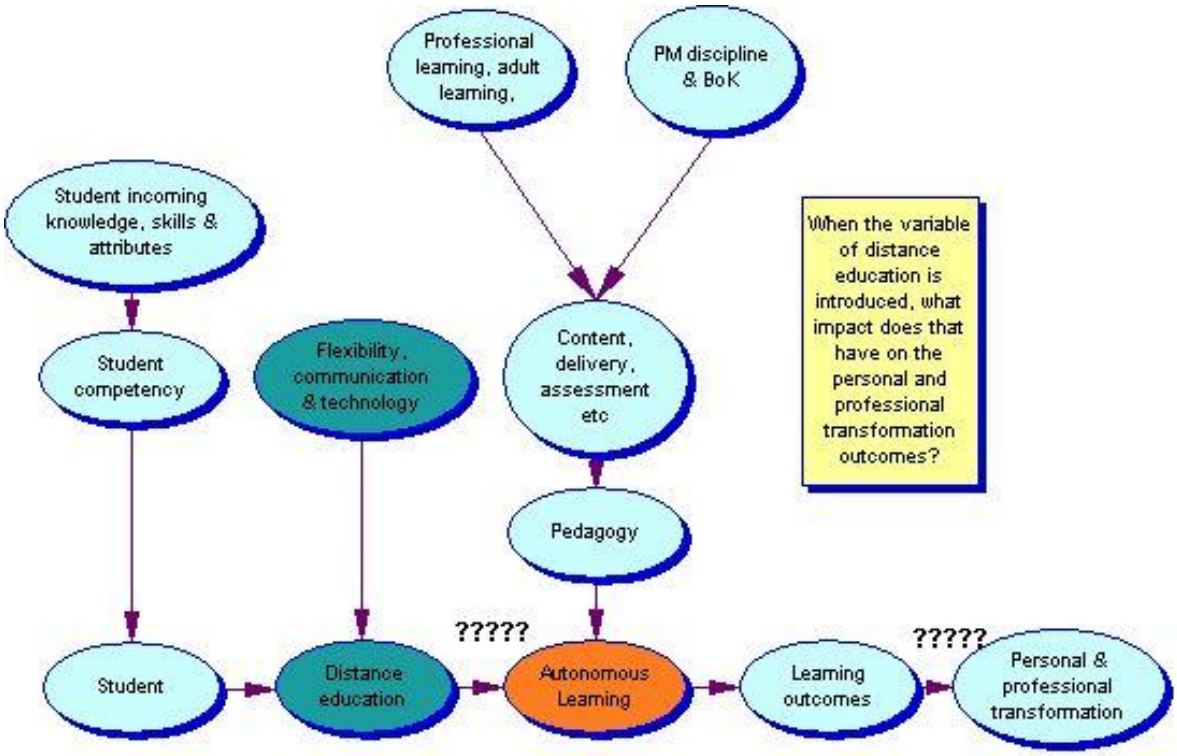

Figure 4: Project Management educational outcomes in distance mode

When a suitable framework has been established, research will be carried out into the effects of introducing the intervening variable in the form of distance education into the system.

From the analysis above, it is suggested that the following issues will have to be incorporated into the framework:

- The educational objectives of adult learning as defined by students and educators, and
- The professional objectives of project managers as defined by industry and professional bodies.

Evaluation of learning objectives may well be determined and measured by a framework similar to the Learning Skills Profile as illustrated in the study by Kretovics and McCambridge (2002), using a multiple scale to measure a range of learning skills appropriate for postgraduate students including interpersonal,

information gathering, behavioural and analytical skills(Kretovics & McCambridge, 2002).

Evaluation of professional objectives may well be determined and measured by a framework based on the PMI Competency Development Framework (Project Management Institute, 2002), which incorporates a range of vocational competencies along the lines of the PM Body of Knowledge, and personal competencies defined in clusters under the headings of:

- Achievement and Action
- Helping and Human Service
- Managerial
- Cognitive, and
- Personal Effectiveness.

Conclusion

This paper has looked at the outcomes of preliminary qualitative research into the effectiveness of distance education for postgraduate project management education. This stage of the research is qualitative in the sense that it is not attempting to test theory, but to generate theory for further research as part of doctoral studies.

Initially, the concept of effectiveness of project management education has been explored through review of literature in the fields of education theory including the objectives of adult learning, and in the field of project management education, for which little research is evident.

The final section has looked at the results of analysis of data obtained from semi-structured interviews with representatives of major stakeholders in the field of project management education, and has then brought these issues together into suggestions for a theoretical framework for evaluation of project management educational programs at postgraduate level. This suggested framework will form the basis of future doctoral research.

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