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Collaborative Academic/Practitioner Research in Project Management: Theory and Models

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Abstract

Paper Type – This paper provides a review of the theory and models underlying PM research degrees that encourage reflective learning.

Purpose – The paper argues the case for the potential usefulness of reflective academic research to project management (PM) practitioners. It also highlights theoretical drivers of and barriers to reflective academic research by PM practitioners.

Design/methodology/approach – Review of the literature and reflection on the practice of being actively involved in conducting and supervising academic research and disseminating academic output.

Findings – A reflective learning approach to research can drive practical results though it requires a great deal of commitment and support by both academic and industry partners.

Practical implications – This paper suggests how PM practitioners can engage in academic research that has practical outcomes and how to be more effective at disseminating these research outcomes.

Originality/value – Advanced academic degrees, in particular those completed by PM practitioners, can validate a valuable source of innovative ideas and approaches that should be more quickly absorbed into the PM profession's sources of knowledge. The value of this paper is to critically review and facilitate a reduced adaptation time for implementation of useful reflective academic research to industry.

Key words: Knowledge Transfer, Diffusion, Project Management, Collaboration, Learning Models.

Introduction

Much of the research collaboration between academics and practicing project managers is focused upon making sense of the way that PM theory is applied in practice. This often revolves around action learning in which interventions (whether generated as part of the research or simply part of a change management process being observed) are the triggers for reflection and sensemaking in which the researchers are active participants. The outcomes of this process of experimentation and knowledge generation are learning for the team of researcher, the collaborating academic institutional unit and the organisation sponsoring the research through its engagement. However, there is a further desirable outcome; dissemination of this knowledge to the wider PM community through appropriate journals and conferences. Collaboration and knowledge transfer provides the condition for incremental improvement and upskilling of the PM community that has been achieved for more than a century by the medical profession through its dedicated medical practitioners and researchers publishing results of case studies and details of their reflections upon various medical interventions. Thus, gaining insights of how collaborative research can be undertaken, and the types of PM research outcomes, is of value to the PM community as well as academia because each step forward that can be shared reduces wasting valuable resources and intellectual energy.

This paper is intended to focus our attention upon the way that collaboration between PM practitioners and academics are generating new PM knowledge and this is generated largely though reflection upon PM practice. While new PM frameworks, tools or techniques may be

occasionally originally developed within the PM community we find that most PM knowledge derives from existing general management or engineering management theory (and more recently social science theory) that is applied to a PM context through reflection of how PM practice and these theories interact.

The term reflection has become increasingly popular—suggesting thoughtfulness and a level of wisdom that we should aspire to. The Oxford Dictionary defines reflection as “*serious thought or consideration*” (Oxford Dictionary). Webster’s New Collegiate Dictionary defines it as “*a thought, idea, or opinion formed or a remark made as a result of meditation*” and “*consideration of some subject matter, idea, or purpose.*” This is a good starting point for understanding how this term has been seen as in a positive light. Schön’s (1983) influential book extolled people to become ‘reflective practitioners’ and it has been a quarter of a century since he set out ways and means in which we can sit back from situations and observe them in terms of their wider context and impact. This process includes investigation, matching theories of which we are aware to what we observe happening in situations under study and making sense of what we observe. This reflection meets the Oxford Dictionary and Webster’s Dictionary definitions well, as it involves serious thought, consideration, and meditation.

Reflection contributes to double loop learning which is based on moving beyond fixing problems’ symptoms by thinking of the fuller interaction of that which is observed within its context and considering theories relating to the observed phenomenon so that it can be appreciated in a systemic way. Thus the system can be fixed rather than the problem (Argyris, 1977; Argyris and Schön, 1978; Argyris, 1982; Argyris and Schön, 1996). The strength of this process is that cause and effect loops can be hypothesised and tested by the process of reflecting and making explicit the series of mental deliberations (deep consideration). Reduction of *causal ambiguity* tends to clarify links between action and impact because understanding cause and effect loops reduces ambiguity that can confuse, confound or complicate thus facilitating improved knowledge transfer among engaged participants (Szulanski, 1996; 2003; Szulanski and Jensen, 2004). The deliberation stage of reflection requires one to attempt to make sense of a situation. Weik (1995; 1996; 2001) argues that sensemaking is a process where one becomes a *bricoleur* (French for ‘handyman’) taking whatever is useful at hand and employing it to make sense of a complex situation. It involves flexible thinking about theories, how they may be applied, and about the detailed realities of the context in which the situation is set. Thus, reflection is an important skill or craft that can be learned and nurtured.

Daudelin (1996: p39) describes reflection as “*a highly personal cognitive process. When a person engages in reflection, he or she takes an experience from the outside world, brings it inside the mind, turns it over, makes connection to other experience from the outside world and filters it through personal biases.*” She discusses an experiment that she conducted with 48 managers from *Fortune 500* corporations where she presented them with a structured reflection exercise lasting one hour using one of three modes of reflection. The first mode was solitary reflection where they responded to a structured set of questions on their own. The second also used a structured small discussion group approach (but also using a trained reflective learning facilitator). The third mode employed a structured set of questions but the participants formed small groups to respond to the questions posed without a facilitator. Her results suggest statistically significant improvement in learning for the individual and facilitated mode with the peer group mode being less effective. Many of the academic and practitioner learning collaborations discussed in this paper relate to research projects in which participant learners conducted facilitated learning exercises in which they also employed solitary reflection along with facilitated interaction through an effective academic supervisor.

This paper focuses upon a collaborative process of research between PM practitioners and supporting academics in which reflection is embedded and supported so that participants build their reflection skills. This process has also facilitated the PM practitioner’s collaborating organisation gaining benefits along with advanced degree candidates, by increasing their level

of *absorptive capacity*. Cohen and Levinthal (1990: p128) describe absorptive capacity as the ability to recognise the value of new knowledge, information or innovation and to assimilate it and apply it to commercial benefit. Absorptive capacity enables reducing knowledge stickiness and facilitates effective knowledge transfer (Szulanski, 1996).

Lewin (1947) is credited as being a pioneer in action research in his studies on change processes in which interventions are planned and action is carefully monitored and observed to better understand how the change action evolves and to what cause and effect loops may be taking place. Original action research studies tended to be somewhat hands-off to minimise the effect of bias, however, more recent trends favour researchers participating in the action (Coghlan, 2001; Coghlan and Brannick, 2005) as they often have deeper and richer insights to offer at the interpretation and sensemaking stages of the research. Action learning can involve the study of, and making sense of, knowledge-in-action such as that described by Argyris and Schön (1996) with the practitioner as enquirer moving from a technical rationality to reflection-in-action (Schön, 1983; Raelin, 1997). It can also be used highly reflectively so that while studying the action-intervention the actual process of reflection can be simultaneously studied so that the practitioner-researcher is also reflecting upon their reflective learning skills (McKay and Marshall, 2001). Action learning and action research are often terms used interchangeably. However, action research is understood to be more intense and resulting in double loop learning while simply observing and reflecting on situations results in single loop learning (Raelin, 1997)

A further feature of some of the collaborative research that we describe in this paper is that candidates undertake an action learning approach, often as participants, so that they not only develop new PM approaches, frameworks, tools or techniques but that they also test them as part of their participative action research (PAR) to consolidate learning (Coghlan, 2001). A rigorous reflective approach, particularly using PAR encourages a multiple perspective view of the problem being researched, taking into account power asymmetries, emotions, history, and complexity of the specific project context and the lived experiences of practitioners in real time. It is normally supported by qualitative methodologies and/or phenomenological or critical approaches. A reflective approach assumes deliberations about values, ethics, reflexivity, self-consciousness, and emotions above and beyond instrumental mechanistic studies of projects. PAR has an added advantage of widening the pool of insights and perspectives to include participants engaged as subjects as well as the practitioner (Lennie, 2006).

This paper will be structured as follows. The next section outlines context of opportunities of reflective learning through projects by referring to theories of knowledge, skills, abilities, and other attributes (KSAO) moving from a focus on five levels of skills identified by Dreyfus (2004) and adapted by Cicmil (2006) to a model of reflective learning at the level appropriate for academic study at an advanced degree level. This is followed by a discussion of the value of theory and how it may be appropriately used in an academic setting by PM practitioners reflecting on their lived experience of projects to advance an organisation's potential for a knowledge competitive advantage.

Conceptual Frameworks for PM Collaborative Research

In this section we will present models to help us understand how collaborative PM research can be most effectively enabled. The first model is a typology of skill levels, the second is the reflective learning process and the third shows how this approach can be integrated into doctoral research.

Collaborative research between PM practitioners and academics requires skills from both sides. Academics facilitating and supervising this research need to be experienced effective researchers with adequate PM insights and experience to know how to effectively collaborate. Practitioners need a base set of knowledge, skills, and other attributes (KSOA) to be able to deliver on their side of the relationship.

Model 1 – Expertise Building

Fully functioning project managers require more than mere skill or ability, regardless of the qualification obtained. The term often used in human resource circles in relation to workforce planning is the concept of knowledge, skills, and other attributes (KSOA) (Lado and Wilson, 1994). *Knowledge* refers to both explicit and tacit knowledge. *Skills* are the ability to perform actions or to actively apply knowledge. *Other attributes* include motivation, attitude behaviours and responsiveness (DeSimone, Harris and Werner, 2006: CH 2). This relates to what is referred to as the knowing-doing gap where there is the knowledge or capability to do certain things but either through lack of motivation, or some form of personal or organisational inertia, the promise is not realised (Pfeffer and Sutton, 2000). The ‘doing’ part of the knowing-doing gap relates to not just the reflective learner but the organisational context that both encourages reflective learning to take place and commitment to taking action based on that reflection to make improvements. Therefore, we must also look at the organisational context when perceiving a gap between an individual’s ability to reflect upon knowledge in light of their experience, their reflection activities and beneficial outcomes from that process. We will discuss this issue in more depth later in this paper. Readers interested in further discussion of types of knowledge and their definition may wish to refer to (Davenport and Prusak, 1998; Skyrme, 1999; Zack, 1999).

Momentarily setting aside reflection, we can now concentrate our discussion on the knowledge and skills that build the intellectual foundation of reflection. Dreyfus (2004) offers a five stage model of professional expertise development that Cicmil (2003; 2006: p35) further developed by relating the model to PM.

Table 1 suggests that the novice and advanced beginner level project managers might be well qualified with much theoretical knowledge but have limited experiential knowledge to reflect upon. Further, their ability to advance from this level to high levels of expertise (proficient performer or expert) is limited by their capacity, ability and environmental conditions to reflect upon experience and consolidate their knowledge.

Table 1- PM Expertise, competence and knowledge

| Level | Experience | Real-time action in context is driven by |
|--------------------------|--|---|
| <i>Novice</i> | Faces a given problem and a given situation for the first time | <ul style="list-style-type: none"> • Instructions (training courses, PMBOK® Guide) • learning to recognise objective facts about and characteristics of the situation (models and definitions of project) • learned generalised rules for all similar situations on the basis of identified facts, thus context-independent (project management methodology, procedures) • evaluation of the performance of the skills on the basis of how well the learned rules are followed |
| <i>Advanced beginner</i> | Has gained some real-life experience | <ul style="list-style-type: none"> • Learning to recognise relevant elements in relevant situations on the basis of their similarities with previous examples (e.g., awareness of a typology of projects) • The awareness of the importance of the context of experience; thus making a choice about what are the key elements of the given situation, in addition to context-independent rules (learning from experience, limited reflection, PMBOK® Guide recommendations) • trial-and-error |

| | | |
|-----------------------------|---|---|
| Competent performer | Amount of experience increases and the number of recognisable learned elements and facts becomes overwhelming | <ul style="list-style-type: none"> • Learning from own experience and from others to prioritise elements of the situation • Organising information by choosing a goal and a plan • Dealing only with a set of key factors relevant to the goal and plan, thus simplifying the task and obtaining improved results • Deliberation about the consequences of using own judgement in relation to the given goal and plan (simultaneous subjectivity and objectivity), the relationship of involvement between performer and environment • the model of analytical, proficient performer: Elements-rules-goals-plans-decision • Ability to think on one's feet (confidence, reflection, choice of action and risk taking) |
| Proficient performer | Away from cognitivist, analytical rationality (rules, principles, and universal solutions) towards | <ul style="list-style-type: none"> • The awareness of interpretation and judgement involved in such decision making, rather than logical information processing and analytical problem solving only • understanding of the situation on the basis of prior actions and experience, acts as deeply 'involved-in-the-world' manager/performer who already knows • Reflective understanding and participation in power relations |
| Expert or virtuoso | perceiving situations rapidly, intuitively, holistically, visually, bodily, relationally | <ul style="list-style-type: none"> • Reflective learning; simultaneous thinking and doing • intuitive, synchronous understanding of the situation with an overarching participative critical reflection of the self and the group • the thought, body, knowledge, and action are inseparable, are simultaneously forming and are being formed by one another; • understanding that power relating is an intrinsic part of intersubjective relating, always there • considerations for the present and deliberations about the future |

What is required to reach the proficient performer/expert level is a broader understanding of relevant theoretical concepts and applying them to relevant experiences to build reflexive mental models that can be instantly called upon when needed. Limits placed upon this skills enhancement can be individual in terms of KSOA attributes. A lack of knowledge and ability to reflect could be caused by not having the necessary methodological knowledge about how to reflect and undertake reflective research. Finally, limits could be institutional or systemic so that the PM organisation does not facilitate and perhaps even hinders reflection.

Developing PM professionals at the novice level can be effectively accomplished at the workplace through on-the-job training, short courses and training programs. As the skill level moves from novice towards advanced beginner and beyond, the emphasis should be placed on combining knowledge of theoretically what 'should happen' with experience of what 'does happen' and reconciling how any gap contributes to good or poor performance results. This can be done at the workplace, in part through mentoring and coaching, but it also needs exposure to a wide range of knowledge. This knowledge may reside well outside the workplace and industry segment. Novices and advanced beginners should widen their repertoire of potential responses to situations through broadening their frames of reference beyond their current experience. At this stage they may then best benefit from extensive networking and communication with others at their skill level or higher. This may enable them to use learned explicit knowledge and re-frame it based on experience gained that generated tacit knowledge. This can then be internalised and reformulated in more flexible and reflexive routines and approaches to cope with ambiguity and complexity. This is the realm where academia can play a useful role by providing the environment, means, intellectual support and 'safe playground' for people to experiment, fail (if necessary), learn from feedback, self-critique and reflect to fast-track building experience and moving towards being competent and perhaps proficient performers.

Reflective learning is of value at all levels of expertise though at the 'novice' level we can see that their potential to gain from reflecting upon their experience is likely to produce a shallow

result simply because many situations are encountered for the first time, therefore, these do not offer the opportunity for any action learning feedback.

We can see from this model that collaboration between academics and experienced PM practitioners at the advanced beginner and beyond where the academic partners act as action learning facilitators can accelerate the participating practitioner's ability to reflect upon experience in a more demanding and rigorous manner as well as help the practitioner's organisation engaged in such research to enhance their absorptive capacity. This can produce valuable collaborative synergy.

Model 2 – The Nature of Reflection

Lewin (1945: p128) made the now often quoted statement that “*nothing is as practical as a good theory*”. A special edition of six papers in the *Academy of Management Review* was based on this quote with an introduction from Van de Venn (1989) confirming the value of theory as a starting point for improved understanding. To make sense of something we observe we need a theory to begin with so that we can test what we observe against what ‘theory’ predicts should happen (Weick, 1989; Weick, 1995). The gap, the difference between what was expected to happen and what is happening can be then explained in terms of modifying theory to take into account the observed situational context—that is improving the validity of the existing theory (Wacker, 1998). Alternatively, we can build theory from the ground up so that theory is grounded in the data gathered and is highly context specific to begin with (Strauss and Corbin, 1998; Locke, 2001). Whichever approach is taken we will need to investigate the literature to find out what sense others have made of the types of situations under investigation.

Figure 1 illustrates the process. The research question being asked is generally triggered by some form of impetus. This could be a sudden shock where a phenomenon is disruptive and requires study and attention or it could be an impetus from a gnawing problem that an individual has that a PM practice or situation troubles the individual. This gnawing issue will stem from the person's experience as an unresolved problem that needed attention.

The individual that will undertake reflective learning research will have knowledge assets that include concepts (theory) about PM as well as other management and technical aspects embodying knowledge about the specifics of the context to be studied. These include knowledge about the organisation's culture, its processes and procedures, its tacit political dimensions and aspects of its history. These form knowledge assets that can be combined with the person's past general experience.

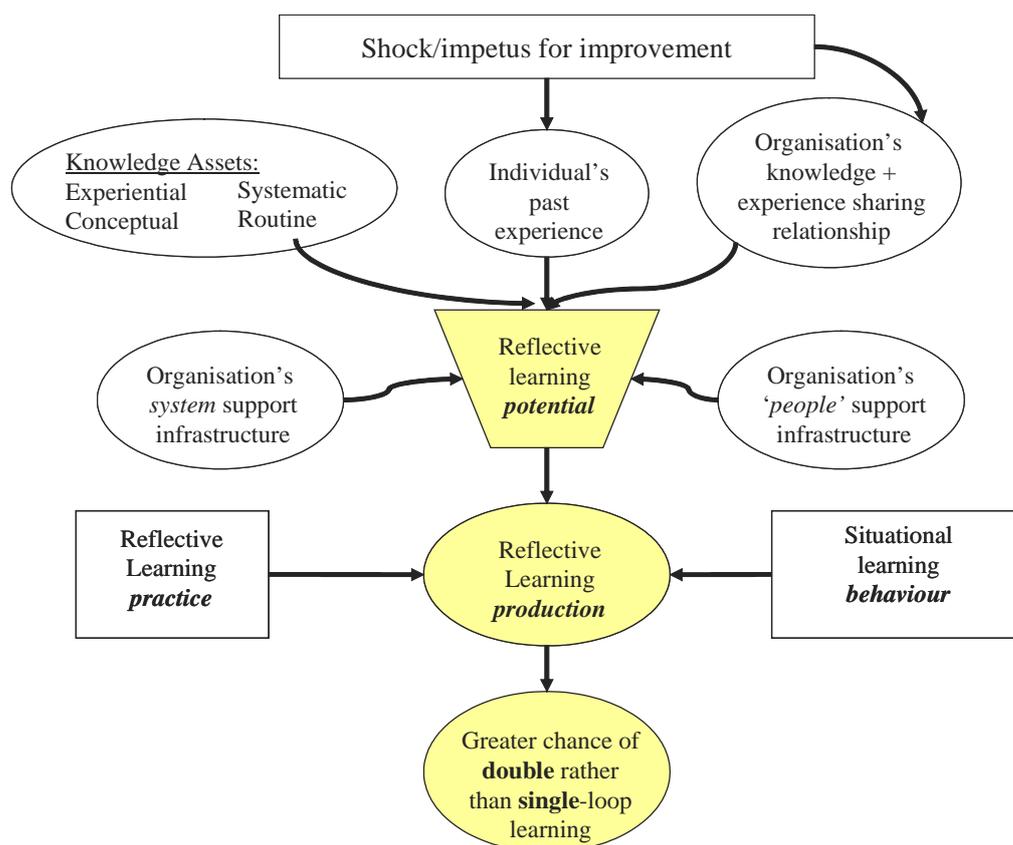


Figure 1 - A model of Reflective Learning

The organisation will also have a stock of knowledge of experience that will be encapsulated in the culture of the organisation as well as residing in the 'heads' of its staff. This provides the individual's reflective learning potential but there also needs to be support from the organisation in which that person operates. The form of that support includes people (mentors, research collaborators, participants in action learning exercises, etc.) as well as a systems infrastructure. The system's support infrastructure is a combination of the organisation's culture (the openness to questioning and reflection and the knowledge sharing propensity), its processes and procedures (that may make data and information readily obtainable or difficult to access) and technology support (such as information and communication technology that allows rapid and effective communication, access to data, information and people, etc.). At this point the potential for reflective learning is established.

To convert potential into actuality there needs to be a motivation that could be provided by the organisation recognising the need due to a shock, perhaps from competitive advantage concerns, or by the individual either from enhanced curiosity or from participation in an educational program that demands reflection as part of its requirements. The situational learning behaviour is the way in which learning may take place within the context of the workplace situation. Sense (2005) in his study of situated learning occurring in an Australian heavy industrial engineering plant, found that project situated learning behaviour is influenced by the cognitive style of those involved (their preferred way of learning), the authority structures and culture of the organisation, the learning relationships between participants, the situational context and the way that knowledge is managed.

If reflective learning can be encouraged and effectively deployed, then it can contribute to both single loop and double loop learning. With double loop learning, the underlying system is well understood so that the problem (rather than a quick fix) can be designed out of the system, usually through an innovative approach (Lenoard-Barton and Sviokla, 1988; Von Hippel, 1988;

Leonard-Barton, 1995). One of the points that Sense (2005) makes is that by preparing a solid basis for situational learning, it is possible for more sustainable improvement to be enacted.

Most reflective learning takes place in the context of action learning where experiments are designed to instigate an improvement and a plan-do-check cycle (Deming, 1982) is undertaken to monitor and fine tune the change being investigated (McKay and Marshall, 2001; Zuber-Skerritt, 2002). Much of its power lies in the embeddedness of the researcher in the situational context so that not only are knowledge assets of all participants potentially marshalled, but that a greater capacity for sense making is accessed through available multiple perspectives (Coghlan, 2001; Coghlan and Brannick, 2005). Another reflective learning approach that can be used is soft systems methodology (SSM) as first outlined by Checkland (1999) several decades ago, applied in a PM context by (Winter and Checkland, 2003) and successfully undertaken as a research approach in a recent PhD study of knowledge transfer (Maqsood, 2006).

Model 3 – Academic Study

We have advanced our discussion from illustrating a model of competency and skill acquisition to indicate how these may be focused by reflecting upon a situation under study. This paper, however, is aimed at specifically showing how university level doctoral study can marshal the resources of both PM practitioner and the university partners. We will now explain, as this brings us to the crux of this paper, how this can occur in the context of advanced level PM study, first with reflective research at the Master level and then research at the Doctoral level.

Master degrees generally provide an educational experience over a period of the equivalent of three or four full-time semesters of study (two academic years). Participants in these programs may be full-time or part-time, on-campus or distance students. The extent of coursework components vary. Many MBAs require that all study be coursework based but there is a highly practical element introduced to develop skills from knowledge through case studies where the context of a case study, together with substantial data, is introduced. In these cases, a bounded case is usually presented with all facts and data and the candidate has to make sense of this to respond to the posed assignment questions. The MBA case study approach introduces a closed-loop bounded situation where students identify ‘the answer’ to a challenging question(s) posed by the case study. However, such MBA courses are often prescriptive and rarely incorporate challenging non-standard PM theory. There are exceptions to this and one innovative example can be found in (Cicmil and Hodgson, 2005). Many coursework master degrees are aimed at the cusp between the novice and advanced beginner level indicated by Dreyfus (2004).

Other specialised master degrees undertaken by project professionals who gain their skills through an advanced degree include the Master of Project Management (MPM) and the Master of Science in Project Management (MSPM). For example, the MPM offered by RMIT University in Melbourne and the MSPM offered by The George Washington University in Washington, typify the general structure of these degrees. Coursework incorporates an applied PM context with many examples, cases or examinations of PM practice. Assignments tend to be open-ended and challenges students to make sense of a PM situation—the intention here is for students to respond to an open-ended rather than closed scenario situation. These series of coursework activities are integrated with, and culminate in, a final capstone open ended practical PM application.

Capstone courses have the objective of challenging students to make sense of complex and ambiguous situations through a research exercise(s)—for example see Walker (1999). The focus of the typical MSPM and MPM is on knowledge application to simulate or build PM skills through the student’s experience. However, MBA degrees can also challenge novices, advanced beginners and competent performers with concepts outside their comfort zone, particularly by exposing them to seeing the management of projects from an alternative perspective rather than as being necessarily always being managed in a rational and highly controlled manner. Cicmil

and Hodgson (2005) report on a study of MBA student experiences at the University of the West of England and reveal that these students experience valid practical barriers to their fully gaining value from such exercises but that they appreciated the opportunity to be challenged and to reflect upon this. In our experience, many PM practitioners in our specialised MSPM and MPM courses (that we would classify at the novice, advanced beginner, competent performer and perhaps proficient performer level) may feel threatened but also welcome the challenge to critically analyse PM practice as they see it performed. This is encouraging as it suggests that PM practitioners welcome the opportunity to be reflective. To do so they usually need a supporting infrastructure. This comprises: a thinking or knowing space (Nonaka and Konno, 1998) with a supportive environment and time to be reflective; motivation to reflect and learn; and an ability to re-frame problems and make judgements. The latter is based on understanding cause-and-effect relationships as part of the ‘other attributes’ required of KSAOs.

Besides offering coursework specialised master degrees in PM, many universities offer doctoral research degrees that can benefit the proficient performer to potentially advance to an expert or virtuoso level. The skills that are required of this level are deep inquiry and reflection skills, mastery of PM technical knowledge and an ability to synthesize concepts to reframe deep existing knowledge into new knowledge (that may be the application of knowledge in novel situations).

Universities offer advanced degrees to help educate, train, and challenge students to reach this skill level—Doctor of Philosophy (PhD), and Professional doctorates (Doctor of Business Administration with a PM concentration, or a Doctor of Project Management degree). The latter relies more frequently on mixes of reflective learning, studies using action research/learning, case study, SSM, or grounded theory approaches. The aim should be to develop or refine a novel PM technique, to explore the lived experience of project teams to enable better understanding or sense making of what actually happens in PM, or developing performance metrics or tools for example. This type of research leads to improved understanding (and knowledge) of PM, improved tools and techniques or improved PM processes. Students pursuing both types of doctoral degrees may do so on a full-time or part-time basis. Some universities (such as The George Washington University) require the traditional continual residency during which the student participates in courses, seminars, and meetings with advisor(s) and committee members on a regular (typically weekly) basis. Other universities (such as RMIT and ESC Lille) require intensive residencies in one or two week blocks, during which the student participates in block courses and seminars, as well as meetings with advisor(s) and committee members. The student then conducts independent research for several months while interacting electronically with advisor(s) and committee members until the next block residency. Upon completion of their doctoral studies, graduates of both types of programs may pursue academic positions, careers in research, consulting work, or leadership positions in their organisation or other organisations.

Lauriol (2006) presents an institutional (university) context for doctoral research. This has been adapted for PM reflective research as illustrated in Figure 2. Doctoral studies that are focused on PM need to recognise and be adapted to both the university and industry context. Defining and framing the research question requires skill in scoping the question so that it is answerable within the constraints of the doctoral study. It requires mastery of the subject matter to know what might be a suitable research question that is leading edge in that it spans the boundary of PM and other disciplines.

A research question is addressed from the researcher’s ontological stance, the researcher’s belief of what constitutes reality. This may challenge the prevailing PM paradigm. Widely-used textbooks and standards often stress planning and control as playing a central role in PM. However, a number of academics, for example Green (2006), have cited cases in Hodgson and Cicmil (2006) that argue that observed PM practice often seems to emerge out of coping with complexity and apparent chaos. This is particularly true in projects that have ambiguous or

changing goals. Tight planning and control can be counter productive for such projects (Andersen, 1996; Courtney, Kirkland and Viguerie, 1997).

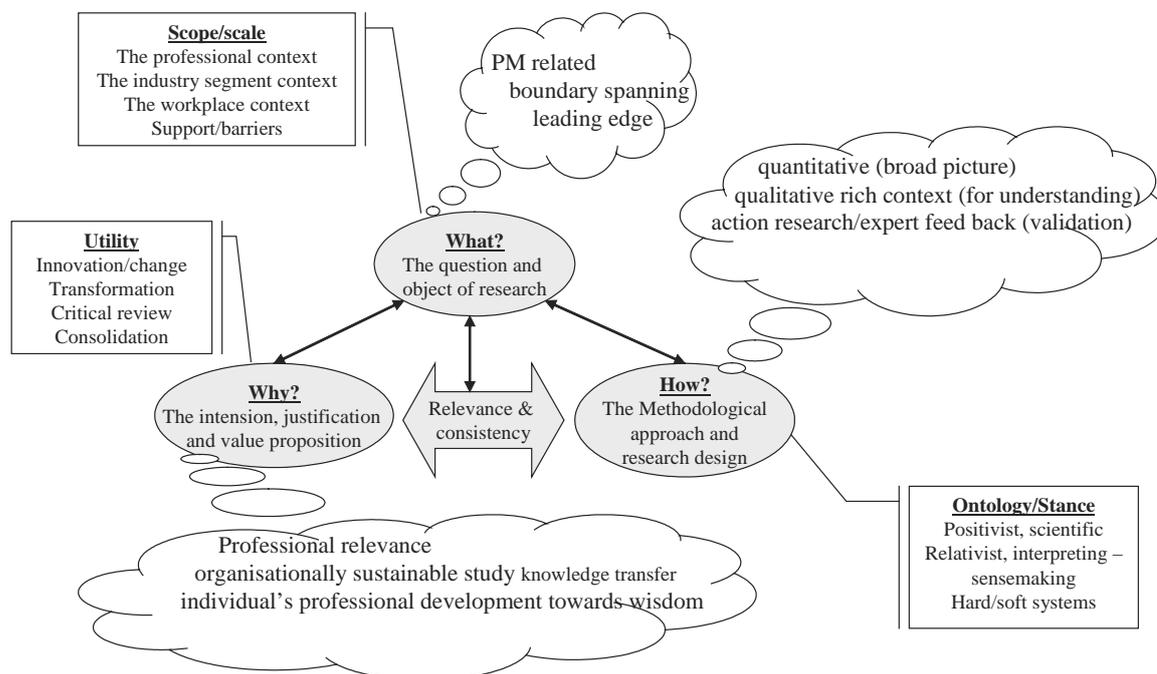


Figure 2- A Model of Reflective Learning Adapted from (Lauriol, 2006)

Doctoral research requires a sound knowledge of research methods and choosing the appropriate tools and techniques to undertake a research project. A question may be viewed from a number of perspectives—tending towards a positivist or interpretive philosophical stance on the source and value of data—or from the locus of data to be gathered and analysed (the organisation as an entity, the business unit/project or the individual working within a team). It also could be looked at from the project, program or project portfolio perspective. This ‘how’ aspect of the research also deals with validation and how findings and the research approaches can be justified and conclusions defended. The question will also need to be justified in terms of the institutional and industry context. It must be relevant and meet the value proposition of the organisation as well as the individuals involved with the research process and outcomes. Relevance, coherence and consistency govern the entire exercise.

Conclusions

Clearly, there are compelling advantages to organisations encouraging in-house staff to participate in master’s level courses, doctoral research degrees or to collaborate with mature doctoral students from outside the organisation in mutually beneficial research.

We stressed the value of reflection in learning by understanding theory through challenging it and testing it in practical ways. The kind of learning that is generated by this process ranges from reflective learning arising out of master degree capstone research projects or minor research projects to high level understanding of the context of PM practice and new tools, techniques and approaches derived from deeply reflective research undertaken by doctoral candidates.

This paper is concerned with the issue of the usefulness of collaborative research involving deep reflection by PM practitioners undertaking advanced study of PM organisations. We stress in this paper that the ability to gain advantage from reflection is highly dependent upon the organisational learning-culture maturity level. While this may have been an obvious subtext

issue from the outset, we have endeavoured to explain why this may be the case. We explained the process of reflective learning and how it can practically take place. We indicated how universities and academics can play an important role in this process. We stressed that individuals at this level (who are advanced degree candidates) are the key to success in delivering understanding about better PM practice benefits; however, they must gain the necessary support from industry partners and from academics who can harness and encourage these talented individuals to push forward the boundaries of PM knowledge and practice.

In a subsequent paper, we will provide examples of reflective research work being undertaken at the masters and doctoral level by senior PM practitioners at universities in North America, Europe and Australia. In that paper, we will discuss the cost/benefit analysis that affects a reflective practitioner's capacity and motivation to generate value through their lived project experience, and conclude with implications for PM practice as well as the way that academia can better engage with project managers deeply embedded in their projects.

References

- Andersen, E. S. (1996). "Warning: Activity Planning is Hazardous to your Project's Health!" *International Journal of Project Management*. **14** (2): 89-94.
- Argyris, C. (1977). "Double Loop Learning in Organizations." *Harvard Business Review*. **55** (5): 115-125.
- Argyris, C. (1982). "The Executive Mind and Double-Loop Learning." *Organizational Dynamics*. **11** (2): 5-22.
- Argyris, C. and Schön, D. (1978). *Organizational Learning: A theory in Action Perspective*. Reading, MA Addison-Wesley.
- Argyris, C. and Schön, D. (1996). *Organizational Learning II: Theory, method, and practice*. Reading, MA Addison-Wesley.
- Atkinson, R., Crawford, L. and Ward, S. (2006). "Fundamental uncertainties in projects and the scope of project management." *International Journal of Project Management*. **24** (8): 687-698.
- Baruch, Y. (2001). "Employability: A substitute for loyalty?" *Human Resource Development International*. **4** (4): 543-566.
- Bentley, C. (1997). *PRINCE 2 A Practical Handbook*. Oxford, UK Butterworth-Heinemann.
- Checkland, P. (1999). *Systems Thinking, Systems Practice*. Chichester, UK John Wiley & Sons Ltd.
- Cicmil, S. (2003). *From Instrumental Rationality to Practical Wisdom*. Leicester, Simon de Montfort.
- Cicmil, S. (2006). "Understanding Project Management Practice through Interpretative and Critical Research Perspectives." *Project Management Journal*. **37** (2): 27-37.
- Cicmil, S. and Hodgson, D. (2005). "Knowledge, action, and reflection in management education - the case of project management." *BBS Teaching and Research Review*. **September** (7): 28pp.
- Cicmil, S., Williams, T., Thomas, J. and Hodgson, D. (2006). "Rethinking Project Management: Researching the actuality of projects." *International Journal of Project Management*. **24** (8): 675-686.
- Coghlan, D. (2001). "Insider Action Research Projects: Implications for Practicing Managers." *Management Learning*. **32** (1): 49-60.
- Coghlan, D. and Brannick, T. (2005). *Doing Action Research in Your Own Organization*. Second Edition. London Sage Footprint.
- Cohen, W. M. and Levinthal, D. (1990). "Absorptive Capacity: A New Perspective on Learning and Innovation." *Administrative Science Quarterly*. **35** (1): 128-152.

- Courtney, H., Kirkland, J. and Viguierie, P. (1997). "Strategy Under Uncertainty." *Harvard Business Review*. **75** (6): 67-81.
- Crawford, L., Morris, P., Thomas, J. and Winter, M. (2006). "Practitioner development: From trained technicians to reflective practitioners." *International Journal of Project Management*. **24** (8): 722-733.
- Daudelin, M. W. (1996). "Learning from Experience Through Reflection." *Organizational Dynamics*. **24** (3): 36-48.
- Davenport, T. H. and Prusak, L. (1998). *Working Knowledge: How Organizations Manage What They Know*. Boston, Mass Harvard Business School Press.
- Deming, W. E. (1982). *Out of the Crisis*. Melbourne, Australia. Cambridge University Press.
- DeSimone, R. L., Harris, D. M. and Werner, J. M. (2006). *Human resource development*. 4th ed. Southbank, Vic. Thomson / South-Western.
- Dreyfus, S. E. (2004). "The five-stage model of adult skill acquisition." *Bulletin of Science technology and society*. **24** (3): 177-181.
- Francis, V. and Lingard, H. (2004). A quantitative study of work-life experiences in the public and private sectors of the Australian construction industry, Final Report. Brisbane, Construction Industry Institute Australia: 142.
- Francis, V., Lingard, H. and Gibson, A. (2006). A qualitative study of work-life experiences in the public and private sectors of the Australian construction industry, Final Report. Brisbane, Construction Industry Institute Australia: 142.
- Green, S. (2006). The management of projects in the construction industry: context, discourse and self-identity. *Making Projects Critical*. Hodgson D. and S. Cicmil. Basingstoke, UK. Palgrave MacMillan: 332-251.
- Hodgson, D. and Cicmil, S. (2006). *Making Projects Critical*. Basingstoke, UK Palgrave MacMillan.
- Huber, G. P. (1991). "Organizational Learning: The Contributing Processes and the Literatures." *Organization Science*. **2** (1): 88.
- Ivory, C. J., Alderman, N., Ian, M. and Vaughan, R. (2006). Sense-making as a process within complex projects. *Making Projects Critical*. Cicmil D. H. S. Basingstoke, UK. Palgrave MacMillan: 316-334.
- Lado, A. A. and Wilson, M. C. (1994). "Human Resource Systems and Sustained Competitive Advantage: A Competency-Based Perspective." *Academy of Management Review*. **19** (4): 699-727.
- Lauriol, J. (2006). "Proposals for Designing and Controlling a Doctoral Research Project in Management Sciences " *The Electronic Journal of Business Research Methods*. **4** (1): 31-38.
- Lei, D., Slocum, J. W. and Pitts, R. A. (1999). "Designing Organizations for Competitive Advantage: The Power of Unlearning and Learning." *Organizational Dynamics*. **27** (3): 24.
- Lennie, J. (2006). "Increasing the rigour and trustworthiness of participatory evaluations: Learnings from the field." *Evaluation Journal of Australasia*. **6** (1): 27-35.
- Lenoard-Barton, D. and Sviokla, J. J. (1988). "Putting Expert Systems to Work." *Harvard Business Review*. March-April: 91-98.
- Leonard-Barton, D. (1995). *Wellsprings of Knowledge - Building and Sustaining the Sources of Innovation*. Boston, MA Harvard Business School Press.
- Lewin, K. (1945). "The Research Center for Group Dynamics at Massachusetts Institute of Technology." *Sociometry*. **8** (2): 126-136.
- Lewin, K. (1947). "Frontiers in Group Dynamics." *Human Relations*. **1** (1): 5-41.
- Lingard, H., Brown, K., Bradley, L., Bailey, C. and Townsend, K. (2007). "Improving employees' work-life balance in the construction industry: A project alliance case study." *American Society of Civil Engineers*. **forthcoming**.

- Lloyd-Walker, B. M., Lingard, H. and Walker, D. H. T. (2008). Project Procurement and the Quest for Talent. *Procurement Systems - A Cross Industry Project Management Perspective*. London. Taylor & Francis: Chapter 10.
- Locke, K. D. (2001). *Grounded theory in management research*. London ; Thousand Oaks, CA. Sage Publications.
- Mainemelis, C., Boyatzis, R. E. and Kolb, D. A. (2002). "Learning styles and adaptive flexibility: Testing experiential learning theory." *Management Learning*. **33** (1): 5-33.
- Maqsood, T. (2006). The Role of Knowledge Management in Supporting Innovation and Learning in Construction. PhD, *School of Business Information Technology*. Melbourne, RMIT University.
- Maylor, H. (2006). "Special Issue on rethinking project management (EPSRC network 2004-2006)." *International Journal of Project Management*. **24** (8): 635-637.
- McKay, J. and Marshall, P. (2001). "The Dual Imperatives of Action Research." *Information Technology & People*. **14** (1): 46-59.
- Morris, P. W. G., Crawford, L., Hodgson, D., Shepherd, M. M. and Thomas, J. (2006). "Exploring the role of formal bodies of knowledge in defining a profession - The case of project management." *International Journal of Project Management*. **24** (8): 710-721.
- Nonaka, I. and Konno, N. (1998). "The Concept of 'Ba': Building a Foundation for Knowledge Creation." *California Management Review*. **40** (3): 40.
- Oxford (2001). *The New Oxford Dictionary of English*. Oxford, UK. Oxford University Press.
- Pfeffer, J. and Sutton, R. I. (2000). *The knowing-doing gap: How smart companies turn knowledge into action*. Boston, Mass. Harvard Business School Press.
- Raelin, J. A. (1997). "Action Learning and Action Science: Are they Different?" *Organizational Dynamics*. **26** (1): 21-34.
- Rogers, E. M. (1995). *Diffusion of Innovation*. 3rd. New York The Free Press.
- Rynes, S. L., Colbert, A. E. and Brown, K. G. (2002). "HR Professionals' beliefs about effective human resource practices: correspondence between research and practice." *Human Resource Management*. **41** (2): 149-174.
- Schön, D. A. (1983). *The Reflective Practitioner - How Professionals Think in Action*. Aldershot, UK. BasiAshgate ARENA.
- Sense, A. J. (2005). Cultivating Situational Learning Within Project Management Practice. PhD, *Macquarie Graduate School of Management*. Sydney, Macquarie University.
- Skyrme, D. J. (1999). *Knowledge Networking - Creating the Collaborative Enterprise*. Oxford Butterworth-Heinemann.
- Smith, C. (2007). *Making Sense of Project Realities : Theory, Practice and the Pursuit of Performance*. Aldershot, UK. Gower Publishing Ltd.
- Strauss, A. and Corbin, J. (1998). *Basics of Qualitative Reserach*. 2nd. Thousand Oaks, CA. SAGE Publications Inc.
- Szulanski, G. (1996). "Exploring internal stickiness: Impediments to the transfer of best practice within the firm." *Strategic Management Journal*. **17** (Winter special Issue): 27-43.
- Szulanski, G. (2003). *Sticky Knowledge Barriers to Knowing in the Firm*. Thousand Oaks, CA. Sage Publications.
- Szulanski, G. and Jensen, R. J. (2004). "Overcoming Stickiness: An Empirical Investigation of the Role of the Template in the Replication of Organizational Routines." *Managerial and Decision Economics*. **25** (6-7): 347-363.
- Van de Venn, A. H. (1989). "Nothing Is Quite So Practical as a Good Theory." *Academy of Management Review*. **14** (4): 486-489.
- Von Hippel, E. (1988). *The Sources of Innovation*. New York Oxford University Press.

- Wacker, J. G. (1998). "A Definition of Theory: Research Guidelines for Different Theory-building Research Methods in Operations Management." *Journal of Operations Management*. **16** (4): 361-385.
- Walker, D. H. T. (1999). "Quality - Using the World Wide Web for Developing Project Management Research Case Studies." *Facilities*. **17** (5/6): 195-200.
- Watson, R. J. (2007). A Cost Estimating Framework for Deployment of Integrated Software Application Development Projects. PhD. Washington, DC, The George Washington University.
- Weick, K. E. (1989). "Theory Construction as Disciplined Imagination." *Academy of Management Review*. **14** (4): 516-531.
- Weick, K. E. (1995). *Sensemaking in Organizations*. Thousand Oaks, CA Sage.
- Weick, K. E. (1996). "Prepare Your Organisation to Fight Fires." *Harvard Business Review*. **74** (3): 143-148.
- Weick, K. E. (2001). *Making Sense of the Organization*. Oxford Blackwell Publishers.
- Winter, M., Andersen, E. S., Elvin, R. and Levene, R. (2006a). "Focusing on business projects as an area for future research: An exploratory discussion of four different perspectives." *International Journal of Project Management*. **24** (8): 699-709.
- Winter, M. and Checkland, P. (2003). "Soft systems - a fresh perspective for project management." *Proceedings of the Institution of Civil Engineers: Civil Engineering*. **156** (4): 187-192.
- Zack, M. H. (1999). "Developing a Knowledge Strategy." *California Management Review*. **41** (3): 125-145.
- Zuber-Skerritt, O. (2002). "A Model for Designing Action Learning and Action Research Programs." *The Learning Organization*. **9** (4): 171-179.