LEARNING IN A SOCIAL CONTEXT TO DEVELOP REFLECTIVE PRACTITIONERS

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Abstract

Organisations that use project managers to deliver strategy rely on their skills learnt through formalised education, exposure to professional organisations and on-the-job experiences. To deliver the required outcomes, the project manager draws on this knowledge to manage the project through various stages to completion. Taking time to embed knowledge learnt from delivering a project is often overlooked in the race to complete the project. An example of a social learning situation will be explored to provide a framework for project managers to become proficient performers through reflection-in-action. The learning situation is based on a post graduate project management subject at an Australian university where students are exposed to multi-faceted social contexts. The aim of this approach is for the students to develop problem solving skills that can be transferred to the workplace through reflective self-directed learning. Underpinning this example is a UK research study undertaken in 2006, referred to as the 'Re-thinking Project Management' study. This study identified the concerns of project management practitioners and how they need to develop from trained to reflective practitioners. To develop into reflective practitioners the impact of the social learning environment will be investigated using an actual educational setting and a review of the supporting literature. A description of the essentials of reflective practice will be explored through the work of Schön and earlier by Dewey. These essentials include a common language, systems to manage problems, sense-making theories and roles that describe tasks.

Keywords: Project management, knowledge exchange, experiential learning, reflective practice.

1 INTRODUCTION

To deliver a project for a client, a project manager will be required to adapt to change by finding, retrieving and processing explicit information and linking this to internal tacit 'knowing'. This often requires the project manager to reflect on the knowledge that is integral to managing the project. Understanding these factors and integrating them into the management of the project is of value to an organisation and can facilitate a reflective process to create an environment in which the organisation can deliver the agreed outcomes.

To ascertain how a project manager can develop from a trained technician to a reflective practitioner a review will be presented on how project managers use explicit, tacit and personal knowledge tools and techniques. These processes will be explored through an educational situation that embeds project management theory through the delivery of 'real' projects.

The need for a project manager to be able to develop knowledge was identified over a decade ago by Dr Peter Morris who concluded, after analysing 763 papers and book reviews, that ''there is a need, fundamentally, to refocus the discipline [of project management] and its research paradigm. We need to understand better, in particular, the linkages between project management and business performance, and project management's generic responsibilities and actions in the area(s) of technology and design, IT, supply chain management... and the way we deal with and build knowledge, learning and competency is key'' [1].

2 PROJECT MANAGEMENT

To establish a framework upon which to demonstrate how project managers can develop into reflective practitioners a definition of projects, project management and a seminal research study will be explored.

There are many definitions of a 'Project' in the literature, with the core criteria stating that a project is temporary, unique and delivers a change. The working draft of the International Organisation for

Standardisation (ISO) 21500 A Guide for Project Management [2] defines 'temporary' in terms of the project being finite, either by completing to the agreed objectives, terminating when the objectives cannot be achieved or the project is no longer needed. A project is 'unique' in that it will result in the creation of a product, capability or a result [3] and in some cases the 'change' can be beneficial [4].

The term 'Project Management' is referred to as the "application of knowledge, skills, tools, and techniques to project activities to meet the project requirements" [5] within a specified period of time. When describing the functions of project management [6] reference is included to an objective or purpose, a time-frame, budget and resources as well as performance requirements [7]. These functions are expanded to include the nine knowledge areas of scope, time, cost, quality, human resources, communications, risk, procurement and finally how to integrate these elements to manage the project [8]. A project is managed in most industries and disciplines according to a project life cycle. This cycle describes a period of time when a project is initiated, planned, executed, and closed [5]. The project is monitored and controlled throughout this project lifecycle to ensure that the project is delivering to the agreed plan.

2.1 Project Management Research

The Engineering and Physical Sciences Research Council (EPSRC) in the UK funded research into the concerns of project management practitioners in the areas of project complexity, social process, value creation, project conceptualisation, and practitioner development. In this 'Re-thinking Project Management' study, Winter et al [9] presented three key directions for the practice of project management. These covered the theories *'ABOUT', 'FOR'* and *'IN'* the practice of project management and were divided into what the current situation was at the time the research was undertaken and then made several key recommendations to enhance each of these three areas.

The study proposed five directions for project management, based on the research study. These are summarised below, [9].

Theory *ABOUT* practice: Issues in conceptualising projects and project management

1. The lifecycle model of projects & PM ⟹ theories of the complexity of projects & PM

Theory *FOR* practice: directions for new concepts and approaches to support practitioners

2. Projects as instrumental processes ⟹ projects as social processes
3. Product creation as the prime focus ⟹ value creation as the prime focus
4. Narrow conceptualisation of projects ⟹ broader conceptualisation of projects

Theory *IN* practice

5. Practitioners as trained technicians ⟹ practitioners as reflective practitioners

The 'Theory *IN* Practice' [10] direction sets the scene of how project management practitioners need to develop from trained to reflective practitioners. In this 'Re-thinking Project Management' study, Winter et al [9] presented project management practitioners as 'Reflective Technicians' who were capable of approaching complex projects reflectively while also pragmatically applying theory in practice. The measure of the success of projects was linked to a practitioners' ability to conceptualise projects from different perspectives, read situations, establish the problem, deal with ambiguity, relate to wider issues and be politically astute. This required the project manager to possess qualities of reflection and leadership.

2.2 The Project Manager

The project manager could be described as a 'Trained Technician' who is responsible for managing a project to meet a client's expectations. The description of the roles and characteristics vary, with one consistent criteria – a project manager is not responsible for managing existing operations. A project manager will "plan, schedule, motivate, and control" [11] a finite piece of work in an ever evolving environment. To achieve an appropriate outcome, a project manager must be able to apply project management practices and is required to have industry-specific knowledge and general business skills. Desirable attributes of a project manager to determine what, who and how a project will achieve the desired outcome may also include: leadership, foresight, flexibility, tenaciousness, persuasiveness and empathy [12].

3 SOCIAL LEARNING

The journey of the technically proficient project manager to the reflective intuitive project practitioner according to the 'Rethinking Project Management' study was further developed in the work done by Cicmil et al [13]. A progression from what Cicmil termed the 'Novice' practitioner to the 'Expert' requires the 'Novice' to progress from learning the rules to begin to undertake "participative critical reflection over the intuition" [14] of the self and the group. This provides a framework for the adaptive learning cycle that the 'Rethinking Project Management' study suggests is necessary for the development of a project manager.

The early work done by Dewey [15] was based on "the belief that all genuine education comes about through experience [but] does not mean that all experiences are genuinely or equally educative" [16]. The broad concept of learning through experience is that people learn in an ongoing cyclical way to form new ideas. The process that supports this experiential learning cycle, as stated by Kolb [17], and based on the early pioneering work of Lewin [18] and Dewey [15], follows several propositions [19]:

- Learning is best conceived as a process, rather than in terms of outcomes
- Learning is a continuous process grounded in experience
- The process of learning requires the resolution of conflicts between opposite modes of adaption to the world
- Learning is an holistic process of adaption to the world
- Learning involves transaction between the person and the environment
- Learning is the process of creating knowledge

Kolb's experiential learning cycle [17] moves from generalisation and abstract conceptualisation to active experimentation on to concrete experience, and then to observation and reflection. This cycle can be entered into at any point and has no definite conclusion.

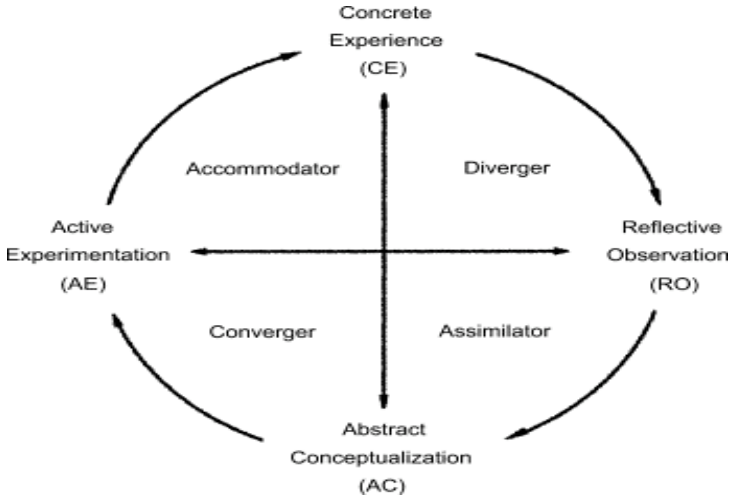

Figure 1: Kolb's Experiential Learning Cycle [17]

The development of this learning cycle was influenced by the work of Lewin, Dewey and Piaget. Lewin [20], focused on how social problems could be addressed using scientific enquiry. This approach was based on developing theory from practice and Lewin's work with organisations on planned interventions to create change is seen as the foundation of action research. Dewey was known as progressive in his approach to education and stated that "there is an intimate and necessary relation between the processes of actual experience and education" [21]. Piaget described how the nature of intelligence is shaped by the experiences of the individual in their environment [22].

Experience-based learning can provide a platform for project managers to facilitate the exchange of knowledge when delivering projects. The work done by Boud, Cohen and Walker [23] identified several assumptions on how people learn from experience. These assumptions include [24]:

- Experience is the foundation of, and the stimulus for, learning
- Learners actively construct their own experience
- Learning is a holistic process
- Learning is socially and culturally constructed
- Learning is influenced by the socio-emotional context in which it occurs

The value of a social learning environment, whether it is formal or informal, can provide opportunities for the project manager to experiment with different approaches to deliver an enhanced outcome for the client. The development of the project manager to become more reflective is the result of a myriad of combined experiences over time.

4 KNOWLEDGE EXCHANGE

Individual project managers may interact with each other to build their experience and knowledge base in an iterative way. They may also share and exchange their respective knowledge in a dynamic, social way. To exchange knowledge the project manager can use a range of tools and techniques that may increase the ability of successfully delivering a project. These tools and techniques can be grouped according to whether the knowledge is explicit, that is "expressed in formal and systematic language and shared in the form of data, scientific formulae, specifications, manuals" or tacit, that is "deeply rooted in action, procedures, routines, commitment, ideals, values and emotions" [25]. Explicit and tacit knowledge are described by Kasvi, Vartiainen and Hailikari as the 'Project Memory'. The Project Memory is the history of the project, and the means to realise the Project Memory is called the 'Project Memory System [26].

4.1 Explicit Knowledge

Explicit knowledge "has been documented or articulated into formal language in order to be more easily exchanged among individuals" [27]. The use of 'hard' and 'soft' documents assists in the exchange of knowledge so the project manager meets required organisational standards of document control. Organisations invest in "knowledge repositories such as intranets and data warehouses, building networks so that people can find each other, [and information] and implement[ing] technologies to facilitate collaboration" [28]. The success of these explicit systems requires a continuous effort to maintain and enhance these systems on an ongoing basis.

The formalised structure of sharing knowledge could be extended to the apprenticeship or internship model which is aimed at developing new skills on-the-job. The relationship between a manager and an 'intern' is dynamic and often evolves as the intern becomes more competent. This process of reflection-in-action can become elliptical, "using shorthand in word and gestures to convey ideas that to an outsider may seem complex or obscure" [29]. The process of coaching an intern involves telling and listening, demonstrating and imitating and ideally will proceed uninhibited in a supportive environment that prepares the 'Intern' to apply skills and knowledge to actual work situations.

This form of internship can begin in an educational facility where students have the opportunity to exchange knowledge explicitly with their student colleagues and their lecturers. These types of experiences can be linked to 'real world' projects, which are "educationally directed activities involving out-of-classroom action settings complemented by student and/or instructor directed reflection on the links between theory and practice" [30].

The internship can also be considered a form of mentoring or coaching. At the most basic level, the mentoring relationship is about learning through the exchange of knowledge. The mentor is a role model, a coach, a sounding board and a counsellor, supporting the development of the mentee outside the normal manager-subordinate relationship. This structured form of knowledge sharing "designed to create effective mentoring relationships, guide the desired behaviour change of those involved, and evaluate the results for the mentoree's, mentors and the organisation" [31]. The intention is to provide the mentee with ideas, real-life experiences and support, whether in regard to a particular situation or challenge, project, or more long-term career goals and issues. Knowledge exchange is dynamic and the sum total of the benefit, like collaboration, may be far greater than one- way or individual learning. This form of 'mutual learning' may result in the mentee teaching the mentor.

4.2 Tacit Knowing

The second classification of knowledge to be reviewed is 'Tacit Knowing' where "knowledge is an activity which would be better described as a process of knowing." [32]. Polanyi described this process in terms of "the structural kinship of the two leading types of tacit knowing (the practical and the intellectual)" [33]. The transition "from [tacit knowing]) – to [the tacit knowledge] aspect of meaning shows again that articulate, propositional knowledge is rooted in tacit knowing." [34]. Tacit knowledge from past experiences can provide a level of understanding for project managers to be able to interpret and apply knowledge, which may help to build on previous successes and avoid repeating

mistakes [35]. As Polanyi stated “tacit knowing can, indeed, be identified with understanding, if understanding is taken to include the kind of practical comprehension which is achieved in the successful performance of a skill.” [36].

Exchanging knowledge may not strictly follow this process, but may be more intuitive which can lead the project manager to instinctively make decisions [37]. Maslow suggests that human needs are driven through experiences and are the result of a biological efficiency to meet a goal. One can “define any activity as not instinctive if any learning can be demonstrated or, contrariwise, to define an activity as instinctive if any hereditary influence at all can be demonstrated” [38].

Lave and Wenger developed a process called ‘legitimate peripheral participation’ which acknowledges the experienced worker who facilitates the learning of the new worker through a social process. The “activities, identities and artefacts, and communities of knowledge and practice” [39] provided a social way in which the individual gained skills. This social process occurs in communities of practice which contain “groups of people informally bound together by shared expertise and passion for joint enterprise” [40]. Swan, et al prescribes “deliberately creating communities with an appropriate mix of skills, expertise and personality and then providing plenty of opportunity for intense interaction and interrelating” [41]. A project team could be described as “an embryonic Community of Practice” [42].

The professional project management associations also facilitate formal and informal exchanges of knowledge through communities of practice, conferences, journals and mentoring programs. In this context, the knowledge exchange can be amplified through converting tacit knowing to explicit knowledge. This conversion process can follow the SECI model which starts with individuals “and expanding as it moves through communities of interaction” [43] through:

- Socialisation: conversion of new tacit knowledge through shared experiences, often in a shared environment where an apprentice can observe, interact and socialise often beyond the organisational boundaries.
- Externalisation: articulating tacit knowledge into explicit knowledge with others that will therefore create new knowledge.
- Combination: conversion of explicit knowledge to more detailed explicit knowledge through gathering data internally or externally and then shared within the organisation.
- Internalisation: taking the shared explicit knowledge and converting that into tacit knowledge by the individual.

Project managers can convert knowledge into action using what Mintzberg, Ahlstrand and Lampel [44] originally termed the ‘The Knowledge Spiral’ which was later explored by Nonaka et al to explain the SECI model in Figure 2 [43].

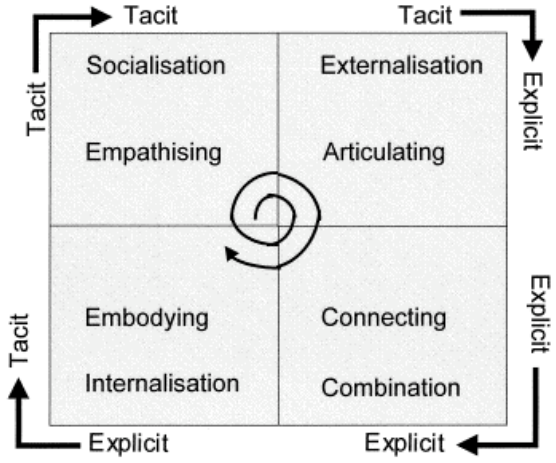

Figure 2: SECI Model

Storytelling is another vehicle to exchange “essential knowledge, including technical knowledge, [which] is often exchanged between people by stories, gossip, and by watching one another work. This is a process in which social interaction is often crucial” [45]. Relating stories of lessons learned which resulted in successful outcomes, or the opposite, provide an effective medium to exchange knowledge. “Storytelling is probably the oldest art form, and is just as effective today as any time in history. People think in terms of metaphors and learn through stories” [46]. Laufer and Hoffman undertook an ‘Excellence Through Stories’ project as “the study of success stories told by practitioners

is unique in its capabilities to generate and disseminate knowledge" [47]. Project managers working with the US Department of Defence (DOD) and the National Aeronautics and Space Administration (NASA) were invited to share their knowledge of a specific project with "meaningfulness, clarity, and interest" to "clarify thinking, capture the imagination, and excite and energise people" [48].

4.3 Personal Knowledge

Project managers collaborate in a social context and can further embed their knowledge through individual reflection. The exploration of how the self has interacted and reacted under certain circumstances can illuminate future pathways not previously considered. This process is often ignored in practice in the quest to deliver outcomes in the ever changing and busy environment of managing projects.

How an individual project manager gathers and then exchanges knowledge relies on explicit truths being passed from person to person without attaching bias, "for only the explicit, formulable core of knowledge can be exchanged, neutrally, from person to person" [49]. The journey from a state of not knowing to an altered state of knowing requires effort. This effort on the part of the 'knower' can imply that the person creating the knowledge has the power to move from one state to another. Martin states that "personal knowledge management is knowing what knowledge we have and how we can organize it, mobilize it and use it to accomplish our goals – and how we can continue to create knowledge" [50].

The 'Re-thinking Project Management' study drew on Donald Schön's [29] early observation that "research functions not as a distraction from practice but as a development of it" [51]. The key constants of a reflective practitioner according to Schön [39] are compared for continuity to the framework introduced by Dewey [52], in Table 2 below.

Table 2: The Essentials of Reflective Practice.

Dewey (1916)	**Schön (1987)**
A genuine situation of experience	The media, languages, and repertoires that practitioners use to describe reality and conduct experiments
A genuine problem in that situation	The appreciative systems they bring to problem setting, to the evaluation of inquiry, and to reflective conversation
Opportunity and occasion to test ideas by application, to make the meaning clear and discover for self their validity	The overarching theories by which they make sense of phenomena
Information and observation about the situation and suggested solutions for which the learner will be responsible	The role frames within which they set their tasks and through which they bound their institutional settings

An extension to the 'Re-thinking' study proposed that the level of expertise, competence and knowledge in project work and management was linked to the reflective capability of the practitioner. The 'Proficient Performer' was noted as possessing "reflective understanding and participation in power relations' and the 'Expert' or 'Virtuoso' exhibited "participative critical reflection over the intuition – the self and the group" [14].

'Professional Artistry' or "competency practitioners display in unique, uncertain, and conflicted situations of practice" [53] relies on the ability of project manager to recognise, judge and then deliver, which is also referred to as 'Reflection-in-Action'. Project managers can develop 'Reflection-in-Action if they are able to review an unexpected outcome after following a known course of action. The project manager may stop after the event and reflect or stop during the event and take corrective action, with the reflection being unconnected to the anticipated outcome. This structured approach to reflective practice can be undertaken using tools, such as reflective journals, voice recordings, emails to self or another appropriate ways that will assist the project manager develop problem solving skills that can adapt to change.

> *"Active, persistent, and careful consideration of any belief or supposed form of knowledge in the light of the grounds that support it and the further conclusions to which it tends constitutes reflective thought [which] includes a conscious and voluntary effort to establish belief upon a firm basis of evidence and rationality". [54]*

5 APPLICATION

An example of social learning can be seen in a post graduate Masters of Project Management course in an Australian University. Students at the University of Technology, Sydney are asked to participate collaboratively and then reflect collectively and individually in an advanced subject. This form of cognitive apprenticeship "supports learning in a domain by enabling students to acquire, develop and use cognitive tools in authentic domain activity" [55]. It also allows students to learn within boundaries that are "firmly set by the task, culture and history of the community" [56].

Admittance to the advanced subject requires students to possess a foundational level of project management knowledge learnt in previous subjects so they can apply the theory to a practical situation. To ensure that knowledge delivery is structured and lessons are stimulating, students are immersed in a social learning environment. To provide a platform to apply various theories students are required to select a 'real' project that will meet the client's expectations in a 13 week semester. The project is delivered according to the client's brief and relies on the student's application of the material delivered in the lecture to the project. The submission and presentation of the work-place project are expected to take the form of a project plan and in some cases the project may also be implemented, depending on the client's requirements.

Students meet regularly with the lecturer to present written and verbal industry standard progress reports on the selected project and are required to keep a reflective journal to analyse their experiences as evidence of learning. Students are also expected to demonstrate their collaborative capability by providing feedback to their fellow students on their respective projects. The feedback is posted regularly to meet specified deadlines. This occurs in an online forum which is only available to the students and lecturer to ensure each student has the opportunity to provide and receive appropriate feedback. All these activities are assessed based on the students' level of contribution and interaction, as well as their ability to meet the required project milestones and marking criteria.

The experimental learning cycle that the students work through links the abstract project concept to this active 'experiment', providing a concrete experience and then an opportunity to reflect [17]. To transition through this cycle the student may undergo what Brace-Govan and Powell (adapted from Sweitzer and King [57], Wankel & DeFillippi [58]) define as 'The Five Stages of Internship', which include: 1. anticipation; 2. disillusion; 3. confrontation; 4. competence, and 5. culmination.

The role of the lecturer is to bring aspects of project management theory and practice to the students attention as part of the pedagogical process [59]. The use of 'real' projects that require structured reflection provide the students with the opportunity to convert knowledge using the SECI model [43]. To demonstrate the application of the SECI model, the students are provided with an opportunity to 'Socialise' their experiences through engaging with their fellow students in the online forums and with the client and lecturer during the progress updates. The preparation and presentation of the assignment meets both the 'Combination' and 'Externalisation' criteria respectively through gathering and articulating the project information. 'Internalisation' of the knowledge is undertaken through reflection which is structured in the online interaction and the reflective journal. The reflective process is formally assessed through these two activities, specifically the documented evidence of reflecting on the value of the feedback of fellow students and if these interactions were incorporated into the project, or not, and what the outcomes were.

Working on 'real' projects provides the students with a supportive and structured environment in which they have the opportunity to start building their reflective practice skills. This development can be seen in the following comments that have been selected from the student feedback surveys conducted in 2009, 2010 and 2011. The responses are to a question that asked what the students particularly liked about the subject:

'The constant reflection'; 'The importance of reflection!'; 'The opportunity to reflect on real-life experiences; 'Small groups created greater opportunities for participation and thought provoking discussion'; 'Sharing their individual knowledge and skills was great'.

6 CONCLUSION

The ability of project managers to enhance their understanding of the discipline of project management through reflection can deliver tangible benefits to their clients. For project managers to develop into reflective practitioners, they must become a 'student' and work within a supportive environment to develop skills and apply theory to real-life situations. With the support of a mentor, the

project manager has the opportunity to convert their tacit knowing to explicit knowledge and further develop this explicit knowledge to achieve enhanced outcomes for the client. The impact on future research agenda and teaching curriculum has the potential to change the practice of project management. What triggers these changes can be debated – the individual, the organisation, industry associations or the community. What we do know is that through active reflection, the practitioner will have the opportunity to evolve and in doing so will be able to demonstrate that project management can meet the challenges of a continually changing environment.

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