Developing Communities of Practice around e-Learning and Project Management

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Abstract

In 2007-8 the Australian Catholic University (ACU National), undertook a project to develop new resources to provide training and support in eLearning for staff and students. The project was undertaken by a multidisciplinary team drawn from all six campuses and was led by an externally contracted Project Manager/eLearning specialist. This reflective case study reports on how the use of ACU's project management methodology and the selection of a matrix organisation for the project, resulted in the nurturing of existing communities of practice (CoPs) around both eLearning and project management at ACU. Key recommendations are that effective project management practice and a matrix project organisation can promote and nurture knowledge sharing amongst CoPs in a university setting.

Résumé

En 2007-8 la Australian Catholic University (ACU National), a réalisé un projet visant à développer de nouvelles ressources pour fournir de la formation et du support à l'apprentissage en ligne pour les enseignants et les étudiants. Le projet a été réalisé par une équipe multidisciplinaire choisie à même chacun des six campus et a été mené par un gestionnaire de projet/spécialiste en apprentissage en ligne embauché à l'externe. Cette étude de cas réflective rapporte comment l'utilisation de la méthodologie de gestion de projet d'ACU et le choix d'une organisation matricielle pour le projet, ont eu pour résultat d'alimenter les communautés de pratique (CdPs) existantes en lien avec l'apprentissage en ligne et la gestion de projet chez ACU. Les recommandations clé sont que les pratiques de gestion de projet efficaces et une organisation matricielle du projet peuvent promouvoir et alimenter le partage des connaissances parmi les CdPs dans un cadre universitaire.

Introduction

As eLearning becomes a standard teaching and learning medium in all university programs, not only 'distance' programs, the range of eLearning designs and models continues to grow. In some settings, eLearning

simply constitutes the use of a Learning Management System (LMS) to complement face-to-face teaching, perhaps only providing a repository of print and other media resources for students to access. In other situations eLearning means that teachers and students communicate only online and the virtual community is the only teaching and learning forum and teachers and students may never meet face-to-face (see, e.g., Bullen, 2006). However, the simple definition of eLearning provided by Garrison & Anderson (2003, p. xi) as "learning facilitated on-line through network technologies" adequately describes the essential element in every eLearning scenario.

All manifestations of eLearning in universities are designed and become established via initial projects. The range of projects that may be called 'eLearning projects' is enormous. Projects may involve, for example, introducing a new LMS, providing professional development for online facilitators, developing new eLearning software or implementing a new eLearning policy (see, e.g., Applebee & Veness, 2006; Bullen, 2006).

During 2007—2008 the Australian Catholic University (ACU) completed an eLearning project in response to its *Strategic Plan for Online Teaching and Learning* (ACU National, 2007a). The new plan included targeted outcomes related to support and training for students and development and support for staff. It was decided to develop online resources to contribute to achieving these targeted outcomes. The resources included a new open-access eLearning website for both staff and students and two tutorials developed within the LMS (one for staff and one for students) to help develop knowledge and skills in online teaching and learning at ACU. The development of these resources was undertaken as a formal project. An external project manager/eLearning specialist was engaged and the rest of the project team was drawn from ACU Faculty and general staff.

This reflective case study investigates whether the particular organization of the project and the management processes used, promoted effective knowledge management and nurtured existing communities of practice (CoPs) around eLearning and project management. The Project Manager and a member of the Steering Committee are the authors of this paper and each brings their particular focus to this case study.

Literature

Practitioners have long drawn on the research of Wenger to theorize the way that tacit knowledge is shared within organisations (see, e.g., Wenger, 1998; 2001; 2004; Wenger & Synder, 2000; Wenger, McDermott & Synder, 2002). In our reflective analysis we were interested in whether:

- the organizational structure of a project can inhibit or enhance broader knowledge sharing
- projects using a matrix organization better facilitate the dissemination of team members' new knowledge and skills learnt from the project
- the practitioners (project team members drawn from different faculty and administrative areas of the organization) share their new knowledge via situated learning back in their own communities of practice (CoPs).

To consider these questions it is important to discuss the role of knowledge management and communities of practice in relation to project organization.

Knowledge Management and Communities of Practice

Wenger defines 'knowledge' as what our "communities have accumulated over time to understand the world and act effectively in it" and defines the act of managing knowledge as the ability to "care for, grow, steward and make more useful" (2004, p.1). Within organizations, practitioners, i.e., the people who use the knowledge in their activities, are, as Wenger comments, "in the best position to manage the knowledge" (Wenger, 2004, p. 2). In fact he argues that "unless you are able to involve practitioners actively in the process, your ability to truly manage knowledge assets is going to remain seriously limited" (Wenger, 2004, p. 1).

It is practitioners, connected through the systems, structures and processes established by the organization, who have the ability to work through these interconnected channels. The concept that knowledge resides in practice is also one supported by Lindkvist; "Vital knowledge resides in practice, in the system of activities and the tacit, communal background knowledge contained in the practice and narratives of the community" (2005, p. 1196) So how is this vital practice-based knowledge shared and transferred?

In recent years the term 'communities of practice' (CoP), originally coined by Lave and Wenger (1991) through a study of situated face-to-face learning, has become widely used to describe how knowledge can be transferred in organizational contexts (see Ardichvili, 2008; Lave & Wegner, 1991; Roberts, 2006; Wenger, 2004). The situated learning that occurs between "people, activities and the world, developing with time and in relation to other tangential and overlapping communities of practice" is a key tenet of the development of knowledge in dynamic communities (Lave & Wegner; 1991, p. 8).

Wenger defines CoPs as "groups of people who share a passion for something that they know how to do, and who interact regularly in order to learn how to do it better" (Wenger, 2004, p. 2). The characteristics of these communities include, for example, 'shared ways of engaging in doing things together; mutually defining identities; knowing what others know; what they can do and how they can contribute to an enterprise and a rapid flow of information and propagation of innovation' (Roberts, 2006, p. 625.)

In the relatively new world of e-learning at universities, best practice is constantly being set at new standards as the discipline develops and innovates. It is through sharing new knowledge and practices on the ground that this 'propagation of innovation' in any university community of practice can most effectively occur.

CoPs are not without critics (see Contu & Willmott, 2006; Roberts, 2006) who argue, for example, that more research is needed to investigate power, trust and predispositions of the communities and how they respond to change. However, it is generally accepted that CoPs are one way that organizational and individual knowledge can be shared.

The role of the practitioners is crucial to this process of knowledge sharing and transfer within CoPs. Practitioners have dual roles when they find themselves working for a time within both a project and their functional units and this enables them to 'carry' the tacit, situated learning and knowledge between the two spheres of their CoP. Following our key questions for this case study then, what can assist them to share their knowledge more easily? Does the organization of the project enhance or hinder the sharing of situated learning?

Project Organization

The form of project organization has a great impact on the outcome of any project. Literature generally refers to three kinds of organization as, for example, described by Meredith and Mantel (2006): (1) the *functional* organization, where projects are originated and are housed in functional areas and are managed within that area; (2) the *pure project* organization, where all work in the organization is defined around specific projects and team members work on one project at a time and report only to the project manager; (3) and the *matrix* organization, probably the most common, where team members work part-time on a project while remaining in their functional role. In matrix organizations, the team report to both their functional manager and to the project manager, obviously a source of conflict at times.

Matrix management in projects has a range of advantages and disadvantages. Gray and Larson (2003, pp. 67-8) include among the advantages: effective resource sharing, the strong singular focus of the

project manager, access to organization wide technologies and expertise, and a role for team members to return to after the project. However, they note the following disadvantages: tension between functional and project managers, conflict when resources are scarce, the stress of having two bosses for team members and prolonged decision making as several functional units are involved. All these strengths and weaknesses were apparent in our project and were addressed by the Project Manager and the team as they arose.

This case study reviews ACU's eLearning project to discuss the potential for projects using matrix organization to nurture the development of CoPs via situated learning that occurs in the project. The use of effective PM methodology is also discussed as a tool to promote this knowledge management around both eLearning and project management.

Background of ACU eLearning Project

ACU (opened in 1991) is a public university open to students and staff of all beliefs. There are six campuses distributed across NSW, Victoria, Queensland and ACT, each operating on a decentralized central model. There are four faculties—Arts & Sciences, Education, Health Sciences and Theology & Philosophy. There are both face-to-face, online and distance education programs and students are located both in Australia and overseas. The Learning and Teaching Centre is the eLearning specialist unit at ACU.

The project could have been developed solely by the Learning and Teaching Centre (a *functional* approach). It could have been organized as a full-time project and either totally outsourced or undertaken by a dedicated ACU team (*pure project* approach). These alternative project structures may have arguably brought more up-to-date or specialist eLearning expertise into the university. However, ACU structured its eLearning project using a *matrix* organization, drawing team members (practitioners) from a range of functional areas (faculties and administrative units) , and employed effective PM methodology.

A partially 'virtual team' was established. A virtual team is defined as "geographically dispersed groups of individuals who have interdependent performance goals and whose work is facilitated by communication technology" (Ardichvili, 2008, p. 542). Although the majority of team members were geographically dispersed, had interdependent goals and their work was facilitated by communication technology (including teleconferences, videoconferences, emails, websites and Intranet repositories), some of the team members were able to meet face-to-face, so it could not legitimately be called a completely 'virtual' team.

eLearning Resources Created

As outlined in the Introduction, ACU's new eLearning resources were planned in response to the *Strategic Plan for Online Teaching and Learning* which recognized (p. 3) the need for ongoing support and training for students and staff development and support in eLearning. This project was perhaps not a typical 'eLearning project' in that we were not developing a specific eLearning program using new technology, but resources about eLearning using known and familiar technologies—website creation and ACU's Learning Management System, *Blackboard*.

The resources, an open-access website:

http://www.acu.edu.au/elearning

and two online tutorials (created in *Blackboard*) for staff and students, were chosen as the methods, along with other initiatives, of providing this information, training and support any time, any place. The end-users, ACU staff and students, teach or study in different locations and study modes. ACU refers to two main study modes: *web-enhanced* learning, which is generally face-to-face learning complemented by online learning; and *fully online,* where students study in distance mode and rarely, if ever, come to a campus. The resources included a series of 12 videos, where staff and students provided their own statements on what is important to them to ensure successful eLearning; together with a range of other media such as on screen video demonstrations and html and pdf instructions on practical and pedagogical aspects of eLearning.

The project was sponsored by the Pro-Vice-Chancellor (Academic Affairs) and a Scoping Committee, comprising both staff and students, devised the scoping documents (or Project Charter). The Steering Committee comprised the Pro-Vice-Chancellor (AA), the Director of the Learning and Teaching Centre, the Director of Flexible Teaching and Learning, the Director of Information Technology and the Director of Libraries. The contracted Project Manager/eLearning Specialist followed the ACU project management procedures to enable accomplishment of project objectives. The team functioned as a partially virtual team—all team meetings were held by videoconference or teleconference.

However, project management does not always sit easily in a university setting and ACU's particular context offered some specific challenges.

Project Management at ACU

Project management has grown out of organizational cultures very different to the academic milieu of universities i.e., the military and commercial organizations. In fact the collegial culture of universities can

find the rigor and controlled nature of project management quite abhorrent (Bullen, 2006). Bullen refers to Berquist's (1992) discussion of four dominant features of university culture—collegial, managerial, developmental and negotiated behaviour. But Bullen argues that although the managerial culture is growing, the collegial still dominates. The concept of 'academic freedom' is one that is keenly defended by universities. Bullen (2006, p. 173) warns:

> Academic freedom may seem like an issue far removed from the mundane considerations of project management but it is emerging as one of the key conflict-producing features of the collegial culture that is threatening the ability of universities to use a project management approach to e-learning development.

The project manager needs to be mindful of this potential 'cultural clash' and actively sell the project management methodologies to the team. Bullen notes (p. 172) "This means that deadlines, deliverables and expectations must be negotiated and that creativity must be used in getting faculty members to fulfill their responsibilities. Ultimately, there is little the project manager can do if the faculty member doesn't produce". ACU does not yet have a strong project management capability, but has an awareness of the strengths and limitations of that capability. An organization that has achieved project management maturity demonstrates maturity in "systems, structures, processes, policy, and training in all the key knowledge areas and critical success factors for projects" (Cooke & Tate, 2005, p. 242). Kerzner's (2001) Project Management Maturity Model defines five levels of maturity: 1. Common Language, 2. Common Processes, 3. Singular Methodology, 4. Benchmarking and 5. Continuous Improvement. ACU can be categorized as moving from Level 2, *Common Processes* to Level 3, *Singular Methodology,* which are defined as follows (Kerzner, 2006, pp. 890-891):

> **Level 2—Common Processes:** In this level the organization recognizes that common processes need to be defined and developed such that successes on one project can be repeated on other projects. Also included in this level is the recognition that project management principles can be applied to and support other methodologies employed by the company.

> **Level 3—Singular Methodology:** In this level, the organization recognizes the synergistic effect of combining all corporate methodologies into a singular methodology, the centre of which is project management. The synergistic effects also make process control easier with a single methodology than with multiple methodologies.

Pennypacker and Grant's (2003) description of the five-level *PM Solutions Project Management Maturity Model*, which has similarities to Kerzner's model, define organizations being at Level 2, Structured Processes and Standards, when:

> Many project management processes exist in the organization, but they are not considered an organizational standard. Documentation exists on these basic processes. Management supports the implementation of project management, but there is neither consistent understanding, involvement, nor organizational mandate to comply for all projects (p. 7).

This description accurately describes the situation at ACU at the beginning of the project in late 2007. The University was not yet at Pennypacker and Grant's Level 3, *Organizational Standards and Institutionalised Process*, since, at this level project management processes are described as institutionalised and automated. At ACU, a Project Management Policy had been approved in July 2007 and stated (p.1) "The University is committed to the adoption of project management tools to assist in the implementation of major strategies. This policy is designed to prescribe to the University community the essential elements in the management of major administrative projects" (ACU Nationa1, 2007b).

There were newly-documented project management processes and templates available in a Project Management Handbook on the university website. The Project Manager used the Project Management Handbook which included nine essential elements of the management of projects and these requirements were all addressed. The essential elements included aspects such as approvals, regular reporting, scheduling budgeting change and risk management, etc. Of particular note was the key requirement that:

> Project managers (are required) to have sufficient experience, skills and available time to manage the project." (ACU National, 2007b, p. 2)

As current and future projects successfully implement the Project Management Policy and the methodology becomes more embedded, the university will aim to learn from the experiences and move towards project management maturity where benchmarking and continuous improvement can develop.

ACU eLearning Project Organization

With the matrix organization of the project, team members were seconded on a part-time basis from a range of units including academic Online Advising staff (2 Senior Faculty Lecturers), the library (1), *Blackboard* technical support staff (2), IT infrastructure staff (2) and student support (1).

The acknowledged need for an external Project Manager/eLearning specialist recognised that although there was great expertise within the ACU community, some extra knowledge and skills were needed. Wenger argues that external expertise is needed at times because the "inherently self-managing nature of communities of practice does not mean that practitioners know everything, are skilled at the process of managing knowledge, or can do all this without help" (2004, p. 2).

The matrix team experience was even more challenging due to the virtual nature of the project work, given that the team was geographically spread across six campuses and four states and had, in fact, never met face-to-face as a whole team (although, at times, parts of the team did). The original Scoping Committee did not consider other project organizations when planning the project. This may, in part, reflect the collegiate nature of universities. It may also reflect the particular organizational culture of the ACU, which values knowledge sharing and collaboration. Further to our key case study questions, we explored the potential benefits of the matrix structure and the related opportunities for nurturing communities of practice.

How the Project Nurtured CoPs

The implementation of a matrix organization was an essential structure to nurture the development of CoPs around eLearning and Project Management. The practitioners' team members were (and still are) working in different areas of the organization and the knowledge they gained in the project was shared and developed in the situated learning environments of their work contexts.

A Model of a Matrix Organizations and CoPs

The diagram following shows the process of knowledge sharing between the practitioners in the project team and the broader communities of practice at ACU.

From the centre of the diagram the Steering Committee represents the organizing body that approved, financed and oversaw the completion of the project. The Project Manager interacted with both the Steering Committee and practitioners throughout the project life cycle. The practitioners (project team members) are represented by the white names, dots and an inclusive circle. The project team and their activities are located in the ACU National university community (the external blue circle).

The arrows moving in both directions into and out of the university community indicate the flow of situated learning by the practitioners, who network and communicate primarily with their colleagues in their
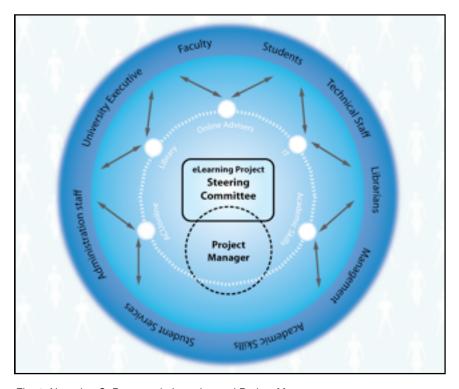
Fig. 1. Nurturing CoPs around eLearning and Project Management

own communities of practice (e.g., fellow Faculty members, IT infrastructure staff, Library staff, etc.). The external community served by ACU is represented by the pale figures on the blue background. The boundaries of the ACU community and the broader society are purposely 'porous' representing ACU's commitment to community engagement.

What follows are examples of how the practitioners (project team members) nurtured their CoPs by sharing their learning. These activities were initiated by the team members themselves or resulted from regular work communications. Thus, the nurturing of the CoPs was somewhat organic and self-sown as a result of the practitioners' involvement in the project. The CoPs were not imposed from outside.

The faculty (academy) who had roles as Faculty *Online Advisers* were able to share their knowledge of eLearning and project management with: (1) their counterparts in the other faculties by reporting at regular weekly videoconferences; and communicating via their dedicated *Blackboard* site, and (2) with all academic and professional staff on each campus by running face-to-face open information sessions and establishing a generic

eLearning email for questions from staff. This mixture of practices shows the variety of ways the Online Advisers shared their knowledge of new eLearning strategies (learnt about in the project) with other academic staff (situated learning). In addition, one of the academics presented a conference paper that partially addressed this project at a national education technology conference.

The primary *Library* representative: (1) reported back to her functional team on the project, (2) shared her enthusiasm with colleagues who later became involved in eLearning training, and (3) advertised the new eLearning resources on the dedicated Library website, thereby encouraging other librarians to read the new web pages.

The *Academic Skills* support representative learnt more about eLearning and therefore was better able to: (1) help students with eLearning problems and (2) share her new knowledge around the Academic Skills team (via knowledge in practice). Subsequent to this growth in knowledge of the Academic Skills team was a request for a face-to-face workshop to further explore the eLearning initiatives. The *IT* infrastructure staff often commented on how the project management methodology used in the project was very helpful. They subsequently reported utilizing Project Management techniques in other projects.

Discussion

Did the Matrix Organization Nurture the CoPs?

As discussed, there is a range of ways to organize projects. Are there advantages of the matrix structure in terms of organizational learning? Did the matrix organization assist in getting people out of the organizational silos for which universities are renowned (Arami & Wild, 2006, p.144; Dubé, Bourhis, & Jacob, 2006, p. 70; Wenger, 2004, p. 4)?
The situated learning and knowledge sharing that occurred during and after the project between the team members and their various CoPs was observed as the new knowledge and skills became embedded in practice.

Other ways of organizing the project (i.e., functional or pure project) would not have facilitated this *continuous* two-way exchange between the project and the various CoPs from which the team members were drawn. Given that knowledge is embedded in practice, this continuous moving between project and usual functional work enabled timely sharing of new learning from the project. In other project organizations, this knowledge sharing would have to be facilitated in a more formal and one-way fashion, probably at the end of the project with the team reporting back to the wider CoP in some way.

Evidence Supporting the Matrix Organisation's Facilitation of Knowledge Sharing

The Senior Lecturers, who also had roles as Online Advisers, continued to teach online and support colleagues in online teaching while still working on the project. The new knowledge and skills acquired during the project were shared and developed in the teaching and mentoring work in the faculties. As one of the Online Advisers commented:

> Personally, as a team member, I learned a great deal, particularly about risk management in the context of a project this size. I gained a number of insights which I could apply to other projects with which I was and continue to be involved in within other groups external to ACU. I also enhanced the skills needed for taking part and communicating productively in meetings via videoconference format. (Schneider, A. Personal communication, 29 January 2009)

The Online Adviser comments on the approach to leadership taken by the Project Manager arguing that it contributed to a successful outcome and removing conflict between cultures:

> The PM was able to exert influence in a way which respected the contributions of the various members of the team. Her organization was flexible enough to allow for delays, and to respond to identified potential risks when they became realities. While meeting deadlines and targets was obviously important, the way the group arrived at the deadlines was also important to her. Her collaborative approach allowed for networking among project members and for mentoring of team members who experienced difficulties. She also enabled team members with particular expertise to assume leadership roles within the project. (Schneider, A. Personal communication, 29 January 2009)

The IT staff simultaneously worked on other IT projects and transferred from the eLearning project good project management practices which they found beneficial. The Academic Skills Advisers as a group no longer felt that eLearning support for students was outside their role as they became more familiar with eLearning via their team's involvement in the project. Their representative commented:

> As I joined the project team as the Academic Skills Unit representative after the initial forming of the group, I found the complete and concise documentation of the project (available on the project *Blackboard* site) to be invaluable to gaining a comprehensive overview of the project and its linking to the strategic goals for teaching and learning of the university. Also the documentation clearly situated the role of Academic Skills within the project and as an area of support delivery for students in the eLearning environment. I was able to report back to my Unit about the ongoing progress of the project after our monthly teleconference meetings and so help to create more awareness of the increasingly important role that

Blackboard, as the University's Learning Management System, would play in the ongoing teaching and learning experiences of staff and students.

At our national ACU Academic Skills Unit meeting in June 2008 part of the focus of the meeting was eLearning and the Academic Skills Advisers from all campuses were able to trial the new eLearning Student Tutorial. There were presentations from both the Director of Flexible Teaching and Learning and an online educational designer. The growth and development of an eLearning environment as the accepted means of engaging students in the tertiary education process has direct implications for delivery of support services for areas like the Academic Skills Unit. For Academic Skills, being part of a project like the eLearning Tutorials development helped to create networking opportunities for future joint projects, helped to progress the conversation within the Academic Skills Unit of the strategies for effective service delivery of support, and provided an opportunity to learn more about the use of Blackboard as a Learning Management system. (Majkut, A. Personal communication, 30 January 2009)

Limitations of the Matrix Model

Positive evidence such as these comments does not mean, however, that the matrix structure did not present considerable challenges for the team. Many of the team members had not met before, since they were drawn from different campuses and functional areas. They were aiming to work collaboratively on a new task which none of them had done before. And, since eLearning is still relatively new at ACU, the eLearning expertise in the team was also relatively new and, in some areas, patchy. The drivers for commitment to such a challenging project were the *creative culture* at ACU, recognised as a key driver in eLearning projects by Arami and Wild (2006, p. 145), and the opportunity for enhancing the reputation of team members at ACU by their involvement in an innovative project. Wenger acknowledges and supports the use of peer recognition as a driver and recommends "community-based feedback and acknowledgement mechanisms that celebrate community participation" (Wenger, 2004, p. 7). Ardichvili (2008, p. 544) also argues the importance of this driver: "…people tend to actively contribute to online communities when they perceive that this enhances their professional reputations, and when they feel a strong commitment to the community, being structurally embedded in the network of exchange." A range of acknowledgements and rewards were used in this project to ensure team members felt valued and recognised for their commitment to the project. They will be discussed in the next section.

Can Project Management Methodology Nurture the CoPs?

Every project is an opportunity to convince faculty of the benefits of the project management approach. If project management processes can facilitate knowledge sharing both within the team and between the team and the broader ACU community, then this is a tangible demonstrated benefit.

Of the Project Management Body of Knowledge's (PMI, 2004) nine project management knowledge areas, two were found to be most useful in ensuring knowledge was shared and, in turn, nurtured the CoPs. The following sections discuss the knowledge areas of communications and quality management.

Communication Management

A formal communication plan was devised, monitored and reviewed throughout the project. The ACU Project Communications Plan template was used. Table 1 itemizes the range of communications used and how it encouraged knowledge sharing in practice, thus nurturing CoPs.

Table 1: How communications strategy facilitated knowledge sharing

Communication Tool	How it Facilitated Knowledge Sharing and Nurturing CoPs around eLearning and Project Management
During Development Phase	
Project website for housing project documents and communications between team[1]	All team members were asked to review project plans and provide feedback; members became familiar with PM methodology and plans
Monthly team video conferences	All team members heard how other members were contributing to the project and gained knowledge of their expertise
Regular meetings between Project Manager and Steering Committee representative to report on project progress	The Steering Committee representative learnt more about project management issues
Monthly project report for Steering Committee	The Steering Committee could observe and appreciate rigorous project management reporting

Communication Tool	How it facilitated knowledge sharing and nurturing CoPs around eLearning and Project Management
During Development Phase	
Risk Log	Team members were able to observe explicit risk management as an integral part of project management.
During Implementation Phase	
Promotional activities, e.g., posters, bookmarks, screen savers, articles in ACU newsletter etc.	Whole of ACU community able to observe the importance of effective promotion in implementing new resources and rolling out project products.
At Project Closure	
Celebrations and recognition, e.g., formal launch, individual letters of thanks from PVC (AA) to all team members, small gifts	Project team members and Steering Committee able to observe the positive impact of celebrating project success.
Post Project Review report (all team members invited to contribute)	Project team members and Steering Committee able to observe the value of and review articulating lessons learnt.

1. The use of the website for communications was abandoned mid-project, since team members preferred email

Quality Management

A formal quality plan was devised, reviewed and revised throughout the project. The ACU Project Quality Plan template was used. Table 2 itemizes the range of quality assurance strategies used and how they encouraged knowledge sharing in practice, thus nurturing CoPs.

Table 2. How quality assurance strategy facilitated knowledge sharing

Quality Assurance Strategy	How it facilitated knowledge sharing and nurturing CoPs around eLearning and Project Management
During Development Phase	
Project processes explicitly addressed the KPIs of the Strategic Plan	This documentation alerted all to the need for for projects to be aligned to an organization's stated plans and goals.
Inclusion of end users (faculty and students) on scoping committee	Knowledge was brought into the project from end users from project initiation.
Extensive consultation with various groups around university (e.g., First Year Experience Coordinators, Disability Unit , etc.)	Broader ACU community observed the importance of stakeholder management in projects.
All resources complied with accessibility guidelines	All team members became familiar with accessibility guidelines for online resources which is useful knowledge in their own CoP
Testing of resources during development	Two-way knowledge sharing between team and end users
Editing of text of resources by Academic Skills Adviser with editing skills	Detailed knowledge of the content of the resources residing in Academic Skills Unit
During Implementation Phase	
Evaluation of resources by end users (staff and students)	Two-way knowledge sharing between team and end users.
External evaluation of resources by eLearning expert	Two-way knowledge sharing between ACU and broader community.
At Project Closure	
Project review meeting and post project review report	Project team members and Steering acknowledge that the lessons from each project contribute to learning of the CoP around project management at the university.

The specific strategies used in the communication and quality management in the project demonstrate how the project management processes provided the means for knowledge sharing and knowledge management within the areas of eLearning and Project Management.

Recommendations

This matrix organization was seen to have two key benefits—to acknowledge and harness the broad range of knowledge and skills of the team members with regard to eLearning at ACU, and secondly to offer the opportunity for learning more about eLearning and project management to these key people across the university. The matrix organization was an essential structure to nurture the development of CoPs around eLearning and Project Management but it is always important to consider minimizing any potential disadvantages of the matrix model.

There are five key recommendations that flow from this project.

1. Consider matrix organization of projects as a tool in knowledge sharing

Our reflections on this project suggest that it may be useful for others to consider the advantages of the matrix organizational structure when knowledge sharing and the nurturing of CoPs is a prime objective. Obviously not all projects have this objective, particularly when the project involves very new or innovative technologies, or where a great deal of external expertise is critical.

2. Acknowledge the goal of knowledge sharing at project initiation

It is recommended that if a matrix structure is chosen, even if only, in part, to capitalize on knowledge sharing, then it may be of value to acknowledge this aim explicitly in the project with all team members. Wenger argues that, "the role of community then is to make sure that project-specific learning does not remain either local or incidental" (Wenger, 2004, p. 5). The intention is that if projects are initiated with this secondary outcome in mind, i.e., nurturing knowledge sharing and CoPs, that even greater and more measurable benefits may arise from the project.

3. Buy in PM expertise when needed

This project reflected the value of hiring appropriate project management expertise when an organization has not reached PM maturity. In this way effective project management methodology can be demonstrated and, hopefully, the benefits observed, will encourage the use of PM methodology in future projects.

4. Be mindful of the potential clash of cultures when using project management methodologies in a university setting

By recognising the importance of academic freedom and collegial cultures in universities, a Project Manager can hopefully avoid some of the common pitfalls of trying to enforce PM methodologies in an academic setting.

5. Actively seek to minimise the disadvantages of projects organized with a matrix structure

Negotiate with the team members' functional managers at the project initiation stage to help manage competing priorities between the project and normal duties. Allocating set periods for working on the project (e.g., specific days) can help the team member manage expectations.

Conclusion

This reflective case study argues that a matrix organization for projects can facilitate knowledge sharing and the growth and development of communities of practice. An interesting factor in this case is that the participants would not have explicitly described themselves as being part of 'communities of practice' as such, and neither did they explicitly acknowledge, at the time, the knowledge sharing taking place. It is only with the benefit of reflection and analysis of the project that these secondary outcomes were recognized and captured as lessons learnt for future projects. The potential of projects structured using a matrix organization to facilitate knowledge sharing within and across communities of practice has been demonstrated in this case study. As well as achieving project goals on time and on budget, successful projects also have the potential to promote organizational learning. Our experience on this project demonstrates that a matrix structure does this by facilitating knowledge sharing and nurturing communities of practice.

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