Behind the screen: Intergroup collaboration in developing university-based online learning resources

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Declaration

I certify that except where due acknowledgement has been made, the work is that of the author alone; the work has not been submitted previously, in whole or in part, to qualify for any other academic award; the content of the thesis is the result of work which has been carried out since the official commencement date of the approved research program; any editorial work, paid or unpaid, carried out by a third party is acknowledged; and, ethics procedures and guidelines have been followed.

Meaghan Botterill

November, 2013
Acknowledgements

A journey starts with a single step, but is not possible without the commitment, help and support of many people. Special thanks are therefore given to the following people:

- My family: Pete, Matt and Nicky for their acceptance that sometimes there were things more important than them.
- My parents: Lorraine and the late Ivo Wallis, for valuing education. Dad, you died before I finished this, but thanks for not letting me leave school at 16 to become a hairdresser.
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- The research participants: This research would not have been possible without them.
- To those people, friends, family and work colleagues, who have given me encouragement along the way and made me laugh.
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- And finally, a special thanks to Darrell and Pam. Darrell for your professional insights and Pam for walking my dogs. This was one less thing I had to do and not feel guilty about.
Dedication

To Pete, I could not have done this without you.
Like all sciences, sociology begins in wonder. The commotion might be registered in many different ways, but it is always the same paradoxical presence of something at once invisible yet tangible, taken for granted yet surprising, mundane but of baffling subtlety that triggers a passionate attempt to tame the wild beast of the social (Latour, 2005, p. 21).
A note to the participants

Qualitative research tells stories that delve into the lived experiences of real people and you are real people. Qualitative research does not generate generalisations based on the manipulation of data as statistics, it tells stories. This is my interpretation of your stories. I have tried to respect everyone's view of reality, as everyone has different lenses, interpretations and recollections of events.

Workplaces are valid sites for research, but qualitative research can be intrusive as it taps into the emotion contained therein. Workplaces are spaces where professional identities (and egos) are validated, where we develop and create friendships and in turn are affected by organisational politics and complexities. However, times change and stories once told may no longer reflect current realities or outlooks. People change, management changes and relationships change accordingly.

Workplaces are complex sites and this research has explored the lived experiences of real people working in a complex organisation. It is told without bias, but built from people's accounts of their realities of working in a university at a time. And so, if you ever read this, remember this was a snapshot of a reality at a time, and I thank you for participating in this research.
Summary

Over the past two decades, universities have faced unprecedented changes and challenges that have re-defined what they are as organisations. The transition to the knowledge economy—underpinned by ongoing advancements in Information and Communication Technologies, especially the Internet—has impacted greatly on the design and delivery of higher education, as evidenced through the rise of eLearning platforms and resources.

Universities are large and complex organisations that comprise many groups. Traditionally, these groups account for academic and professional staff. However, because of the changing nature of work in knowledge-intensive organisations, such as universities, there has been an increase in interdisciplinary project-based teams that span organisational boundaries, which has given rise to a new group, Third Space professionals. These staff work in unbounded and blended capacities with colleagues from other organisational groups. Thus, this research seeks to explore the ways intergroup relations between these groups affect collaboration in interdisciplinary project-based teams.

The main research question is: What helps, hinders and facilitates collaboration in university-based, cross-organisational, interdisciplinary teams in developing online learning resources?

To answer this question, a collective case study of three, officially funded, online resource development projects was undertaken. Data from 17 in-depth, semi-structured interviews—along with written post-interview reflections, document analysis, and unstructured non-participant observation—were explored and analysed. Each case was explored individually before comparisons were made through a cross-case analysis in order to answer the main research question.

The research design is underpinned by an organisational development theory, Embedded Intergroup Relations Theory (Alderfer, 1987) which comprises five
interdependent analytic lenses: group boundaries, power differences, affective patterns, cognitive formations (Discourses), and leadership behaviours. By acknowledging the complexity of relationships between and among groups embedded in their contexts—in this case a university—an organisational development theory offers a framework for exploring how intergroup relations affect collaboration in interdisciplinary project-based teams.

The study found that the permeability of group boundaries has a significant impact on the success (or not) of each project. More specifically, it found that the quality of the startup processes in each project either enhanced or exacerbated interdisciplinary collaboration in the teams. Projects became contested spaces when there was an inability to defer to other people’s horizontal expert authority, which was also affected by the amount of interdisciplinary overlap between different task group functions in the teams. Finally, the study found that interdisciplinary collaboration was affected by levels of complexity, especially organisational complexity, in the projects.

The findings of this study provide significant new knowledge into factors that affect intergroup collaboration in interdisciplinary teams, and promote organisational learning in relation to what helps, hinders and facilitates collaboration in interdisciplinary teams working in the third space project domain in developing online learning resources.
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<td>ACFE</td>
<td>Adult Community and Further Education</td>
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<td>ANT</td>
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<td>CoP</td>
<td>Community of Practice</td>
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<td>EFT</td>
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<td>EFTSL</td>
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<td>PMI</td>
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<td>PUM</td>
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<td>RCT</td>
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<td>RLO</td>
<td>Reusable Learning Objects</td>
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<td>RTO</td>
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<td>TAFE</td>
<td>Technical and Further Education</td>
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<td>VET</td>
<td>Vocational Education and Training</td>
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<td>USA</td>
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<td>VA</td>
<td>Vocational Award</td>
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<td>V-group</td>
<td>Vocational group</td>
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<td>W3C</td>
<td>World Wide Web Consortium</td>
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Chapter One

1.1 Introduction

This research focuses on the importance of group dynamic processes, behaviours and mindsets and how they affect collaboration and outcomes in interdisciplinary, project-based teams, working across traditional organisational boundaries.

Using a qualitative, collective case study of three online learning resource projects, it explores what happens ‘Behind the Screen’ to see what helps, hinders and facilitates collaboration and team effectiveness in relation to university-based, interdisciplinary, project-based teams working across traditional boundaries.

This study takes place at an Australian university hereafter known as Public University (PU). Each of these projects was funded by the university’s Learning and Teaching Grant (LTG) program, which seeks to foster innovation in learning and teaching in order to enhance student learning and engagement. These projects were developed in interdisciplinary project-based teams, that is, where ‘a group of people from different disciplines...consciously try to co-ordinate and integrate their expertise in the pursuit of a common goal’ (Botterill & de la Harpe, 2010, p. 79). The common goal in each project was the development online learning resource for students.
Within universities, advances in Information and Communication Technologies (ICT), the Internet\(^1\) and more recently Web 2.0, have impacted on both the design and delivery of education, particularly in relation to online learning or eLearning (Gértrudix Barrio, Carmen Gálvez de la Cuesta, Álvarez García, & Valle, 2007; Kirkwood & Price, 2005; Salmon, 2005). Many universities now have specialist groups, whether centrally or faculty based, that work with teaching\(^2\) staff to develop online learning resources. These groups consist of new disciplines or professions, that is, those that were not in existence 30 years ago, or have changed substantially, as a direct result of advances in technology and the Internet, such as web design, communication/graphic design, multimedia development, audio-video development and other such disciplines/professions. Within universities, online learning resource development projects are generally undertaken by project-based teams that comprise professional staff in these new professions, and teaching staff with traditional disciplinary expertise. As a team, they consciously try to co-ordinate and integrate their expertise to create online learning resources (Botterill & de la Harpe, 2010), and thus they can be thought of as interdisciplinary project-based teams.

Traditionally, interdisciplinary teams in Higher Education (HE) are thought of as teams that comprise academics from different disciplines who design curricula for interdisciplinary courses for the purposes of study. However, the use of interdisciplinary—and interdisciplinary teams—presented in this research follows the concept of interdisciplinarity put forward by Jeremy Smith and William Newell in relation to interdisciplinary approaches to web design. In this, they state that websites are complex systems and interdisciplinary theory should apply to ‘the creation, not just the study, of a complex system; in this case, to the creation of a Web site’ (2004, p. 112). According to Smith and Newell ‘creators construct a Web site most successfully by following an interdisciplinary process...[and that]...the complex nature of a Web site requires developers from different disciplines to acknowledge the various elements of the system and the various aspects of the pattern it produces’ (pp. 113, 115). This research moves beyond traditional concepts of academic interdisciplinary teams

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\(^1\) For the purposes of this research, the Internet is specifically defined as the common world wide web (www) that is accessed on devices, such as computers, phones or tablets, through a browser and an appropriate Internet connection.

\(^2\) Teaching staff here is used as a generic term to identify someone whose primary role is educating students—regardless of whether they are an academic teaching staff member or a vocational teaching staff member—at PU. However, when required, teaching staff will be formally identified as being either academic or vocational teaching staff.
working in universities, to explore the changing nature of work organisation in universities, particularly in relation to eLearning and online learning resource development. It thus adds insights into new approaches and understandings of interdisciplinary project-based teams in university contexts.

1.2 Behind the screen: group processes are the key

While this research was conducted in a university, it is not about student learning, nor is it about eLearning, although these are both contextual backdrops. This study is about what occurs Behind the Screen, in the background, as professional and teaching staff from different organisational groups, design and develop student online learning resources in interdisciplinary project-based teams. Thus, this research focuses on the group processes involved in creating these online student learning resources, not the end product.

Universities are recognised as complex knowledge-intensive organisations which comprise large numbers of organisational groups, and all individuals represent multiple groups in their interactions with others (Alderfer, 1987, 2011). This study uses an organisation development theory, Embedded Intergroup Relations Theory (EIRT) (Alderfer, 1987, 2011), as the central theoretical and analytical framework to better understand the ways in which intergroup relations helped, hindered and facilitated collaboration within the three projects.

Thus, the primary aim and main research question underpinning this study is:

What helps, hinders and facilitates collaboration in university-based, cross-organisational, interdisciplinary teams in developing online learning resources?
This chapter begins with an overview of the context and background information pertinent to the research. Next, the aims of the study and the research questions are presented, followed by an overview of the research design and the intentions and scope of the study. Following this, the research setting, Public University (PU), and its Learning and Teaching Grant (LTG) program are introduced, along with a detailed description of the educational media development service, Service X (SX) and their project management processes, as this service was used in all three projects. Understanding how SX works is an important backdrop to understanding what helped, hindered and facilitated collaboration in the project teams. The chapter concludes with the organisation of this thesis.

1.3 Context and rationale for the study

This section introduces four themes that underpin this research:

- The knowledge economy
- Doing it differently: eLearning
- The emergence of Third Space professional staff in universities
- Universities as intergroup domains.

Each section begins with a focus statement that relates the theme to the study. A brief outline of each theme is then presented. Each theme is explored more fully in Chapter 2, the Review of the Literature.

1.3.1 The knowledge economy

Focus statement

eLearning can assist to meet the growing demands of a modern, and increasingly global, university in the knowledge economy.
The knowledge economy, or new capitalism, is now an economic and social reality (Gee, 1999; Gee, Hull, & Lankshear, 1996; Lankshear, 1997; Renshaw, 2003; Usher, 2002). The knowledge economy in western countries has been driven by three forces:

- the globalisation of markets and products
- an explosion in information and knowledge so that efficient production relies more on information and know-how, than on manual work; and
- continuing advances in Information and Communication Technologies (ICT), including the Internet (Botterill & de la Harpe, 2010).

As a result of the transition to the knowledge economy, universities, including Australian universities, have undergone—and are still undergoing—extensive cultural change. These changes have included: the worldwide massification of education, increased local and global competition, the rise of managerialism in universities, decreased levels of government funding, increasing staff-student ratios and increasing diversity in student cohort demographics (Anderson, 2008; Bok, 2006; Fink, 2003; Hersh & Merrow, 2005; Marginson & Considine, 2000; Marginson & van der Wende, 2007; McInnis, 1998; Scott, 2003).

The most recent review of the HE sector in Australia, the Bradley Review (Bradley, Noonan, Nugent, & Scales, 2008), found that investment in the HE sector had declined in real terms over the past two decades. Also, in relation to other Organisation for Economic Co-operation and Development (OECD) countries, Australia’s ranking in terms of the proportion of people in the 25-34 aged group with an undergraduate degree has also fallen from 7th to 9th in the past decade. The review found that to meet the demands of the global knowledge economy, Australia must have a highly skilled workforce. Therefore, the review put forth a series of targets and recommendations, many of which relate to increasing flexibility in the HE sector for both institutions and students alike.
As a result of the Bradley Review, a new student-driven funding model was introduced in 2012 whereby funding is now attached to students. In addition, the review also put forward a series of targets which directly relate to undergraduate education. These are:

- To increase the proportion of Australians in the 25-34 age bracket with an undergraduate degree from the current level of 29% to 40% by 2020.

- To increase the proportion of undergraduate enrolments to 20% by 2020 for students from lower socio-economic status (SES) backgrounds, including indigenous people, people with disabilities, people from Non English Speaking Backgrounds (NESB), and from remote or regional areas.

The changes and targets introduced by the Bradley Review have direct consequences on Australian universities. Already affected by the aforementioned challenges, the projected increase in student numbers in relation to the Bradley review has potentially serious implications for infrastructure costs, such as new buildings, more staff, increased delivery and increased staff-student ratios. However, it also offers opportunities for increasing new forms of educational provision, such as online delivery, or eLearning.

### 1.3.2 Doing it differently: eLearning

**Focus statement**

*Over the past 20 years, advances in ICT, especially the Internet—which has enabled the reliable exchange of digital information across distances—have brought about growth in online learning, also called eLearning.*

In Australia, distance education is not a new phenomenon; it began with mail correspondence in Victoria in 1909, expanded into remote and outback areas through two-way radio communication in the 1950s and now all sectors and educational institutions provide varying degrees of 'distance education' through eLearning platforms and resources (Stacey & Visser, 2005).

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3 As a result of the 2013 Federal election, there was a change in government. The new government has indicated that it may revert funding back to the old model based upon student quotas.
Diana Laurillard (2006, p. 72) defines eLearning as ‘any of the new technologies or applications in the service of learning or learner support’. However, like most definitions of eLearning, this definition is very broad as it covers any software, hardware, digital resource or technology used to deliver and support education. For example, a Learning Management System (LMS) such as Blackboard, or portable devices such as iPods, mobile phones and tablets, as well as desktop computers and the Internet.

For the purposes of this research, a distinction is made between eLearning itself and eLearning resources. eLearning refers to the delivery of education through ICT, while eLearning resources, hereafter referred to as online learning resources, are resources that have been designed and developed—in this case in a university context—to support and/or enhance student learning. Thus, these online learning resources could therefore be stand-alone websites or multimedia resources housed in an LMS. It is assumed that these online learning resources are developed to support or extend student learning and they are delivered through the Internet and a web browser on appropriate devices.

eLearning has been a dynamic part of the educational landscape since the start of the 21st century (Sangrà, Vlachopoulos, & Cabrera, 2012). Universities have made large investments in infrastructure and technologies to support eLearning, for example in LMS, as a means of increasing their educational markets and marketability (Reeves, Herrington, & Oliver, 2004; Sjogren & Fay, 2002; Williams, 2002). In the initial rush for universities to be seen as delivering eLearning, paper-based resources, such as lecture notes, readings and courses, were simply translated into electronic text and placed in an appropriate LMS, (Petre, Carswell, Price, & Thomas, 2000; Reeves et al., 2004; Williams, 2002). However, the electronic text/document repository model of eLearning generally failed to transform or redesign learning experiences, including courses and resources. Moreover, it also failed to take advantage of the multimodal and interactive capabilities of the Internet through which ‘meaning and knowledge are built up through various modalities (images, texts, symbols, interactions, abstract design, sound, etc.) not just words’ (Gee, 2003, p. 111).
This electronic text approach simply replicated what Kemi Jona (2000) calls a ‘flawed model of how people learn’ and one that still reflects much learning and teaching in HE instruction.

The flawed model that underlies the educational system can be summarised most simply as follows: "Education equals the transmission of information." This model underlies the lecture-based classroom approach used in most university courses as well as the online translations of these courses (p. 1).

And some would argue not much has changed. Although awareness of the importance of student-centred learning and learner-centred pedagogies in HE has grown significantly over the past 15 years (see for example Barr & Tagg, 1995; Weimer, 2013), current research suggests that there has been little change in teaching practices utilising improved technologies (Kirkwood & Price, 2005; Price & Kirkwood, 2008; Price & Kirkwood, 2013; Reeves et al., 2004). Courses are still translated and traditional teaching activities are still just presented in different formats (Blin & Munro, 2008; Price, Richardson, & Jelfs, 2007; Roberts, 2003). Hence there has long been a recognition of the need for appropriate online learner-centred pedagogies and good educational design practices and principles that transform not just translate online learning resources and eLearning courses (Clark & Mayer, 2011; Garrison, 2011; Gee, 2003; Gulati, 2004; Vrasidas, 2000; Williams, 2002). This study explores three such cases.

Specifically, this qualitative case study explores three online learning resource development projects that all sought to create transformative online learning resources for students through Public University’s Learning and Teaching Grant program.
1.3.3 The emergence of *Third Space* professional staff in universities

**Focus statement**

*This study contributes to the emerging field of research in relation to Third Space professional staff and their contributions to student learning outcomes.*

There has been a growing divide between academic and professional staff in universities over the past 30 years. The impacts of the massification of education and the rise of managerialism in university management have created mistrust across the divide (Anderson, 2008; Dobson, 2000; Dobson & Conway, 2003; Szekeres, 2004, 2006). Professional staff often feel that their work is invisible, and they are only perceived as working in administration or management (Dobson, 2000; Dobson & Conway, 2003; Szekeres, 2004, 2006). However, new roles, identities and relationships have emerged as a consequence of the demands of working in knowledge-intensive organisations such as universities (Graham, 2010, 2012, 2013; Szekeres, 2011; Whitchurch, 2008, 2009, 2013).

Recent research by Celia Whitchurch (2008, 2013) (see section 2.3.1.2, *The rise of a new group: the Third Space professional*), suggests that there has been some blurring of the boundaries between academic and professional staff at senior levels, that is, at executive levels in universities. Professional staff are increasingly working in bounded, cross-boundary, unbounded and blended capacities, which has given rise to *third space* professionals.

In brief, *third space* professionals span organisational boundaries, and often work in interdisciplinary or multi-disciplinary project teams, on broadly based, long and/or short term projects (Whitchurch, 2013). Third space professionals increasingly have higher levels degrees, such as Masters or PhD’s and specific areas of specialisation.

The challenges of diversification, massification and eLearning in universities over the past decade, have seen substantial increases in professional support staff.

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4 Throughout this study, the term professional staff refers to university staff who are employed on the Higher Education Worker award. Previously they have been known as general staff, and they are regularly referred to as non-academic staff in the literature.
The growth in academic support posts in HE in recent years has been substantial. This is probably inevitable, reflecting the growing complexity of both research and teaching. Institutions have introduced educational developers, learning technologists and faculty and departmental administrators (Blackmore, Chambers, Huxley, & Thackwray, 2010, p. 109).

These staff often span organisational boundaries, undertake project-based work and increasingly work in the *third space*, supporting academics and students alike in 'para-academic' roles (Macfarlane, 2011), for example in Learning and Teaching Units, Learning Design Units, Academic Development Groups, Online Development Groups, Learning Support and Library Services.

Whitchurch’s research so far has focused on senior executive roles in universities. However, more recently, the *third space* professional framework has been applied to professional staff working in more junior roles, such as HEW 6-9 and in new learning spaces, both physical and virtual (Graham, 2010, 2012, 2013). According to Carroll Graham:

> With the significant increase in the use of a wide range of technology in higher education, including multimedia, social media and mobile computing (Wilen-Daugenti 2009), it is essential that the contribution of professional staff to its use in the context of student outcomes is better understood and acknowledged (2013, p. 63).

This study explores the development of three online learning resource projects in interdisciplinary project-based teams, all of which were funded by the university’s LTG program. These projects were collaborative, and on occasions contested, spaces in which staff from different organisational groups worked together to create the resources. Thus, this research contributes to understanding the positive contributions professional staff make to student learning outcomes.
1.3.4 Universities as intergroup domains

Focus statement.

_As eLearning continues to evolve and expand, staff representing different groups increasingly need to work collaboratively in interdisciplinary project-based teams, or partnerships, to produce online learning resources for students._

Groups are ubiquitous in all social systems. Universities, like all complex organisations, contain large numbers of groups and all individuals represent multiple groups in their interactions with others (Alderfer, 1987, 2011). In universities, the two dominant organisational groups are teaching and professional staff, and both contain many subgroups, including _third space_ professional staff who work in the new professions as previously mentioned.

This research uses an organisational development theory, Embedded Intergroup Relations Theory (EIRT) (Alderfer, 1987, 2011), as its central theoretical and analytical framework, to better understand the ways in which intergroup relations affect collaboration within three interdisciplinary project-based teams. According to Alderfer:

> In any transaction with others, each individual—whether intending to or not—represents multiple identity (i.e., gender, race, family, sexual orientation, ethnicity, etc.) and organization (i.e. program, work group, hierarchy, profession, etc.) groups. Which groups a person represents depends on which people representing which other specific groups are present and on the relationships among those groups (2011, p. 173).

EIRT explores relationships 'between and among groups' (Alderfer, 1987, p. 190, original emphasis) embedded in their contexts. It comprises five interdependent properties that are ‘characteristic of intergroup, relations regardless of the particular groups or the specific setting where the relationship occurs’ (1987, p. 203). These properties are: group boundaries, power differences, affective patterns, cognitive formations and leadership behavior (1987, pp. 203-204).

Successful interactions between groups embedded in organisational contexts are dependent on the permeability of group boundaries, and the relationships between groups in the macro or suprasystem above, can affect the relationships between groups in the subsystems below (Alderfer, 1987, 2011). In short, the relationships between and among groups at an organisational level, can be unconsciously replicated at a team or subgroup level, and affect the interpersonal relationships of group or team members.
Teams and teamwork are now ubiquitous in modern workplaces (Bolman & Deal, 1997; Cohen & Bailey, 1997; Fay, Borrill, Amir, Haward, & West, 2006; Hackman, 1987; Morgan, 2006; Mortensen, 2010; Mortensen & Hinds, 2002). EIRT has been successfully used as a lens to explore intergroup relations in other complex contexts such as in medical sciences, health care and in promoting diversity and race relations in organisations, details of which are found in section 2.4.5, Why EIRT? EIRT thus offers a set of lenses to explore the ways in which intergroup relations affects collaboration in interdisciplinary project-based teams.

This research is unique as no previous research has been found that explores intergroup collaboration in developing online learning resource in university contexts through the lens of EIRT. Thus, this study's primary contribution to knowledge is to promote organisational learning in relation to what helps, hinders and facilitates collaboration in interdisciplinary teams, working in the third space project domain, in developing online learning resources.

I have extensive experience in the design, delivery and implementation of eLearning resources and initiatives. I worked in eLearning design and resource development from 2000 till 2008, and since, I have been responsible for the ePortfolio implementation at RMIT. I currently work in eLearning strategy and innovation. I am an Australian, white, middle-aged female, who has extensive experience in education, having worked in all sectors, including schools, Adult Community and Further Education (ACFE), Technical and Further Education (TAFE) and Higher Education (HE).

My own experiences of working as a third space professional in eLearning development and implementation, have on numerous occasions forced me to ask myself a personal question: Why is it so easy to work with people from some groups and so difficult to work with others? Therefore, an organisational development theory that acknowledges the complexity of relationships between and among groups embedded in their contexts, in this case a university, offers a framework for exploring how intergroup relations affect collaboration in interdisciplinary project-based teams.
1.4 Aims of the study and research questions

This research explores three, interdisciplinary project-based teams in developing online learning resources through a collective case study at Public University (PU). While each project was a case in its own right, a collective case study approach, that is one in which the same topic is explored across a number of cases, was used as it allows greater insights, generalisations and comparisons to be made across the cases (Stake, 2000). This is important in understanding the factors that help, hinder and facilitate interdisciplinary collaboration in the development on online learning resources in a university as a workplace.

Traditionally, effective teamwork takes account of the interpersonal relationships that exist between team members (Ancona, 1990; Guzzo & Shea, 1992; van Knippenberg, 2003), but very little attention is paid to the intergroup relationships that are inherent in any (interdisciplinary) project-based team. This research therefore explores this collective case study from an intergroup perspective, as individuals are always representatives of multiple groups embedded in specific contexts.

This study's primary contribution to knowledge is to promote organisational learning in relation to main research question:

What helps, hinders and facilitates collaboration in university-based, cross-organisational interdisciplinary teams in developing online learning resources?

In order to do this, the research seeks to:

- explore the complexity of a university as a workplace from an intergroup perspective
- provide detailed description and analysis of the three, online resource development projects through the lens of Embedded Intergroup Relations Theory (EIRT)
- highlight the factors that helped, hindered and facilitated collaboration in the interdisciplinary project-based teams.

In order to achieve this, the research explores the experiences of three Learning and Teaching Grant (LTG) projects as a collective case study (Stake, 2000). It specifically
looks at how the following five intergroup properties affected collaboration within the projects:

- Group boundaries
- Power differences
- Affective patterns
- Cognitive formations
- Leadership behaviour.

This is a rich, qualitative study of three online resource development projects, so it is not a definitive study of interdisciplinary project-based teamwork in a university. However, as interdisciplinary project-based teams are becoming increasingly common in complex knowledge-intensive organisations, it may help to highlight some of the intergroup factors that affect successful collaboration within these types of teams in university contexts.

1.5 Research design

This research explores a collective case study comprising three instrumental cases, which were funded through Public University's LTG projects. An instrumental case study is an examination of a single case to explore or reconceptualise a topic or issue. However, the case itself is of secondary interest; it is only used as a means to explore the research topic. A collective case study explores the same research issue/topic across a number of cases. Robert Stake (2000) argues that collective cases allow for greater generalisations of results to be made. In this research, case selection was based on criterion sampling, in which a set of predetermined criteria was used to delimit case selection (Patton, 2002). Data from the cases were collected through 17 in-depth, semi-structured interviews, written post-interview reflections, document analysis and unstructured non-participant observation.

The research design is underpinned by Embedded Intergroup Relations Theory (EIRT) (Alderfer, 1987, 2011), which is used as both the central theoretical and analytical framework. The interview schedule (see Appendix 1) was aligned against the five
properties of EIRT, so a comparison could be made across the cases of the ways in which these dimensions affected collaboration in the projects. By using EIRT as both a theoretical and analytical framework, new insights may be gained into what helps, hinders and facilitates collaboration in interdisciplinary project-based teams within the context of a university as a workplace.

1.6 Intentions and scope of the study

This research aims to enhance organisational learning in relation to intergroup collaboration in the third space project domain. As previously stated, enquiry starts with the word why. My personal question, Why is it so easy to work with people from some groups and so difficult to work with others?, was and still is the foundation of this study. As a professional staff member with a Masters degree and a PhD candidate, I am a third space professional. I frequently cross organisational boundaries in supporting teaching staff across the university, and have experienced the divide between academic and professional staff.

This research seeks to make sense of this dynamic, and it has coincided with the emerging field of research into third space professionals. This has provided both a framework and discourses to explore this phenomenon in the context of a university as a workplace, and thus contribute to this growing area of research.

Therefore, this research has been a professional development process. What I have learnt along the way relates directly to the way I collaborate and interact with others as a third space professional in the messiness of a university as a workplace.

There are three main provisos to this study. The first is currency and timeliness. This research began in 2005. I am a part-time student, so it has taken nearly a decade to complete. Across this time I have had to maintain currency in respect to literature and emerging research, at the same time as I juggled family and work responsibilities. It has stretched my limits and it been a long journey.
The second proviso is that I am an education student, although I have an undergraduate major in sociology. The use of an organisational development theory as the central theoretical and analytical framework, while it seemed appropriate to use in relation to a university as a workplace, is outside my normal disciplinary areas of expertise. Again this has forced me to go beyond my normal limits to bring an interdisciplinary approach to this study, by finding ideas, concepts and literature that have enabled me to make sense of this research as it progressed.

The third proviso is both a strength and a weakness of the study. This research has used a collective case study method comprising three instrumental case studies (Stake, 2000) conducted at one university. As mentioned, a collective case study explores the same research issue/topic across a number of cases. Stake argues that collective cases allow for greater generalisations of results to be made (2000).

However, this does not mean that there is universal application. It means that while it is not a definitive study, it may provide insights into similar situations in other institutions and improve our understandings of interdisciplinary collaboration in complex contexts.

1.7 The research setting

Public University (PU) is a large multi-campus university located in Australia. The name, PU, has been deliberately chosen to represent a typical university. The site is only relevant in that it is representative of many universities as workplaces, so there is potential applicability of the research to other universities and tertiary institutions. Like most universities, PU offers a range of courses at undergraduate, postgraduate and research degree levels, as well as some certificate courses that fall within the Vocational Education and Training (VET) sector.

In Australia, there are five dual sector universities that deliver both Technical and Further Education (TAFE) and Higher Education (HE) courses, but ‘many Australian universities appear to be dual sector because they offer some vocational education programs’ (Moodie, 2009, p. 60). These programs range from pathway programs for international students, English language programs delivered by wholly owned for-profit
subsidiaries, or in some cases, the universities themselves are Registered Training Organisations (RTOs) and thus can provide training to industry as well as incorporate vocational qualifications in HE courses (Moodie, 2009).

At PU, staff, excluding the executive, are employed across three awards: the Academic award, for academic staff; the Higher Education Worker (HEW) award for what is now termed professional staff, previously called general staff; and then there are vocationally-based staff, employed on appropriate vocational awards, which for the purposes of this research is called Vocational Award (VA).

### 1.7.1 The Learning and Teaching Grant program

PU has a Learning and Teaching Grant (LTG) program. The aim of this program, like many in other universities, is to promote and foster innovation in learning and teaching to enhance student learning outcomes. Each year, staff are invited to submit LTG project proposals across a range of priority areas. Proposals are firstly assessed at a faculty level, and those deemed suitable are sent to the central Learning and Teaching area to be assessed by a university-wide panel. Following assessment, applicants are notified as to whether their proposals have been successful or not. This is a very competitive process and projects have been funded for up to $300,000, with the average grant being approximately $35,000.

The LTG program has three conditions pertinent to this research. Firstly, although inter-organisational/interdisciplinary projects are encouraged, each project has to have an academic sponsor, that is, an active teaching staff member employed on an academic award on the project team. Secondly, if the applicants intend to use any university services, they are required to meet with the service and discuss the viability of their project. The service groups have to agree to support the project, as well as provide any budget costings for inclusion in the project proposal. Finally, projects need to work to organisational timelines. Each year, applications are invited for projects that commence in the following year, for example applications for projects undertaken in 2013, needed to be submitted and approved in 2012. All projects need to be finalised, including reports submitted and monies acquitted, by mid November of the development year.
The three cases presented in this research, used one of the university’s educational media development services, henceforth known as Service X, to produce their projects. The following section introduces Service X, its production processes and Service X’s LTG application processes.

1.7.2 Service X

This section provides a detailed description of Service X (SX) and its project management/production processes and this contextual information applies to all three cases. At the time of this research, SX was one of the university’s educational media development services offering:

- web and multimedia development
- graphic and interface design
- photography
- audio and video production.

SX works across both print and digital media production, and with the increasing use of rich digital media and online learning objects in tertiary education, their services are extensively used. On average, they complete over 200 projects a year developing resources such as stand-alone websites, animations, illustrations, interactive quizzes and enterprise proprietary applications.

SX is located approximately a five minute walk away from the central campus buildings. Web development and graphic design services share an open plan office, while photography and audio-video production are located in the same building but on different floors. All share a common kitchen space. There is a total of 10 Effective Full Time (EFT) production staff with team leaders in each production area.5

5 This figure excludes administration, other consultancy services in the area and management staff.
SX's work is divided into three types of projects:

- Type 1 – Courseware
- Type 2 – PU branding—print and web publishing
- Type 3 – one person project or task.

Type 1 projects, courseware projects, comprise learning objects and/or resources designed and produced specifically for students and teaching staff. These are not publicly available to people outside PU as they sit behind a login, for example in Blackboard, the LMS. Type 2 projects, however, are publicly available and need to use PU’s branding system. The PU branding system was new, and it established corporate style and visual identity branding guidelines for both print and digital media production. The branding system is managed and overseen by Public University Marketing (PUM) and its use is restricted to authorised groups in the university, of which SX is one. Once the branding guidelines were introduced, all new print and publicly available digital content, such as websites, had to comply.

Type 1 projects were exempt from the branding guidelines. However, while there were clear guidelines and demarcations between Type 1 and 2 projects, the distinctions between them were not always clear cut, as some Type 1 projects needed to be publicly available and exempt from the branding guidelines as they were (promotional) open student learning resources. Type 3 projects were less complex and only required one person to complete them, for example a stand-alone video or photographic shoot job.

### 1.7.3 The production process

SX is an established organisational service that provides multimedia design and production support. Over time, it has developed a standardised set of project management and workflow processes as outlined in Figure 1.1.
Figure 1.1: Service X’s production process
The four stages of SX’s project management and product development life cycle are: new project assessment (green), pre-production (blue), production (red) and post production (aqua). Blue diamonds denote where client sign off/authorisation is required.

In the new project assessment stage, staff members initiate a project by submitting a production request form. Once this form is received, SX appoints an appropriate team member as a provisional project coordinator to work with the potential client, and other relevant production staff, to produce a preliminary project scope with estimated timelines and budget (if required). If the project is assessed as viable by the initial team, it is then logged in the production database and an actual project coordinator is assigned.

The second stage is the startup or pre-production stage. In this, a detailed project brief/specification document and a production plan are developed with all relevant parties. The project brief/specification document is particularly important as it needs to establish project goals and objectives, delivery methods, resources, copyright considerations, deliverables, timelines and so on. An overall production plan is then developed taking into account client and production group obligations, project objectives, deliverables, milestones and timelines. Therefore, the documentation produced in the pre-production stage is very important as it needs to capture project requirements and deliverables and importantly put boundaries around the project. Failure to do this can allow project creep and/or project rework. The finalised production plan is then entered into the production database and following client approval, wireframes are produced. According to Ben, a web developer in SX, wireframes are:

...a map of the screens you will see and the functionality that will appear in them with as much of the design removed as humanly possible. And usually we do them as a sort of an interactive PDF so you could actually work your way through the functionality of the site before we do any design or building a design.

Once the wireframes are approved, the production stage begins. This is the major development stage and there are regular updates and meetings held between the production teams, the client(s) and individual production staff as required. Meetings can still be arranged on a needs basis for things that fall outside regular meeting schedules. If the production brief changes significantly during this process, the project needs to be re-scoped and a new production plan developed.
The final stage, the post production stage, covers final assembly and testing. Projects need to be properly tested before they go live, and especially before they are used with students. Once testing occurs, and any issues resolved, the project is deemed complete and any Reusable Learning Objects (RLO) are archived. RLO are an important part of SX's production strategies. Priority is given to projects that have RLO so they can be reused, and more importantly, they often become building blocks for future projects. Finally, there are follow-up/feedback meetings held to review the success (or not) of the project and evaluate any student feedback.

These processes apply across all projects, regardless of project type. Each project begins with a production request. The importance of these project management processes is that SX is a small production unit with 10 Effective Full Time (EFT) staff, and they regularly deliver in excess of 200 projects per year. Without well established project management processes, it would be hard to manage the workload or flow.

1.7.4 Service X and LTG projects

As mentioned, the LTG program supports innovation in learning and teaching. Each year, proposals are submitted and assessed, and if successful, the projects are funded to begin in the following year. In relation to LTG projects, applicants wanting to use SX to design, develop or build an online learning resource, system or application, are required to submit a production request form and subsequently meet with SX to discuss the viability of their potential projects. If a project is assessed as viable by the initial team and provisional coordinator, SX provides an estimate of their costs and potential timelines for inclusion in the LTG proposal. If the application is subsequently approved at the university level, the project leader contacts SX and the project formally begins.

The three case studies presented in this research were LTG projects and each used SX to design and develop the online learning resources. The use of a single service makes it easier to compare the three projects, as SX's processes applied to all three.
1.8 Organisation of the thesis

This chapter introduces the study. Chapter Two presents and explores themes in the literature related to the research question. Chapter Three presents the research design, including the epistemological stance, theoretical perspective and an overview of the methodology. It then presents a justification for the use of qualitative research and describes the methods used, the data analysis techniques and ethical considerations. Chapters Four, Five and Six contain accounts of the three case studies. Chapter Seven then provides a cross-case analysis of the preceding case studies and highlights key findings in relation to the ways intergroup relations helped, hindered and facilitated collaboration in the project teams in order to answer the main research question. Finally, Chapter Eight contains concluding statements relating to facilitating collaboration in interdisciplinary project-based teams in developing online learning resources and working in complex, knowledge-intensive organisations.
Chapter Two
Review of the Literature

2.1 Introduction

This chapter presents the journey travelled thus far to make sense of this research and place it in a context. In itself, this interdisciplinary study brings together literature, concepts and ideas from organisational behaviour, education, business and sociology. So starting with the core constructs that need to be explored in relation to this study, this chapter presents the following main themes:

- Universities in the knowledge economy: the changing nature of academe and academic institutions.
- Universities as organisations: understanding groups in context.
- Studying groups in organisations.
- Teams and teamwork: the rise of interdisciplinary project-based teams in complex, knowledge-intensive organisations.

This is a journey through the contexts, literature and themes I found along the way to explore and examine the main research question:

What helps, hinders and facilitates collaboration in university-based, cross-organisational interdisciplinary teams in developing online learning resources?
2.2 Universities in the knowledge economy: the changing nature of academe and academic institutions

Universities, as institutions of learning, have a 900 year old history dating back to the Middle Ages (Gilbert, 2000; Marginson & Considine, 2000). Across this time, they have undergone change in relation to the social, political and economic realities and imperatives of their historical contexts. For example, in the Middle Ages there were attempts to turn universities into instruments of unified monarchies, in the Industrial Revolution, they were involved in the rise of the professions and more recently they have aided technological advancements in modern warfare (Marginson & Considine, 2000) among other things. However, over the past two decades, universities have faced unprecedented changes and challenges that have redefined their nature as organisations.

Underpinning many of these changes has been the transition from the old capitalism of the industrial era, to the new capitalism of the knowledge economy (Gee et al., 1996). As previously stated, three forces have driven the knowledge economy in western political economies:

- the globalisation of markets and products
- an explosion in information and knowledge so that efficient production relies more on information and know-how, than on manual work; and
- continuing advances in Information and Communication Technologies (ICT), including the Internet (Botterill & de la Harpe, 2010).

In Australia, the transition to the knowledge economy has had some major effects on universities. For example, participation and enrolments in higher education (HE) have increased exponentially and resulted in the massification of HE. Changes in government policies and funding models have resulted in increased levels of managerialism in universities and created the Enterprise University. The nature of academic work itself has changed, as there is more value placed on applied knowledge, that is, knowledge produced in the context of application, rather than on theoretical knowledge that dates too quickly. And then there is ‘e’. eLearning is now legitimate and this has affected the design and delivery of education, as universities seek to educate more students and prepare them for work in the knowledge economy. Each of these is discussed below.
2.2.1 The massification of higher education

Since the end of World War II, there has been an explosion in the number of students in developed countries participating in education, which is commonly referred to as the massification of education. This is a direct result of the knowledge economy where work production relies on knowledge workers who have high levels of human capital. This section explores the massification of HE and the importance of knowledge workers.

In Australia, improved access to university/tertiary education has seen student enrolments rise from 30,630 in 1950, to 53,000 in 1960, then exponentially to 1,192,657 in 2010 with a further 2.4% increase to 1,221,000 in 2011 (Department of Education Training and Youth Affairs, 2001; Department of Industry Innovation Climate Change Science Research and Tertiary Education, 2011). Figure 2.1 represents the increase in effective full time student loads (EFTSL) from 1950 to 2010.6

![Figure 2.1: Higher Education student enrolments from 1950-2010](image)

HE, once the domain of the elite, is now an expectation and reality for many school leavers in developed countries. In Australia, the demand for HE started to grow in the 1960s to meet the needs of the baby boomers. Essentially, 'higher education was generally seen by government to be an important component of nation building. This was also a time when research grew in prominence in many university systems, fuelled

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6 Student enrolments prior to 1964 are for universities only. Colleges of Advanced Education (CAEs) are included from 1965, government Teacher's Colleges from 1973, non-government Teacher's Colleges from 1974, and state-funded basic nursing students—who would have previously been trained in hospitals—are progressively included between 1985-1993. International student enrolments are included from 1988.
by increases in government and industry funding for new knowledge’ (Coaldrake, 2000, p. 8).

HE is important in the knowledge economy. As stated, the knowledge economy relies on information and know-how, rather than on manual work and thus it requires a new type of worker – a knowledge worker. According to James (Jim) Gee, knowledge workers are empowered, can work productively in teams and are flexible. They have appropriate literacy and communication practices as well as technological, scientific and mathematical skills. Moreover, they are able to learn new skills and relearn and adapt old ones. They understand and contribute to the systems in which they work and therefore contribute to the overall quality and productivity of their workplaces, regardless of their position within it (Gee, 1993).

2.2.1.1 Human capital

Knowledge and learning are constructed as core attributes in defining human capital. The Organisation for Economic Co-operation and Development (OECD) states that ‘investment in human capital is now seen as central to the development of advanced economies and democratic societies’ (OECD, 2002, p. 118). At its narrowest, human capital is defined as ‘the knowledge, skills, competencies and attributes embodied in individuals that facilitate the creation of personal, social and economic well being’ (OECD 2001a, cited in OECD, 2002, p. 119). Until recently however, human capital was seen primarily in terms of an individual’s economic productivity, that is a person’s ability to gain (and maintain) employment based on her/his productive capabilities, characteristics and skills (OECD, 2002).

Current theories of human capital are broader in scope, and see job specific skills and capabilities as only part of the way individuals manage their personal, social, and economic capital (and potential). Results from an International Adult Literacy Survey (IALS) conducted in the mid 1990s across a number of countries, found that ‘about 40% of individual variations in earnings is explicable through IALS measures such as educational qualifications, literacy and work experience...[but]...the remaining 60% of variations in earnings...is unexplained by the available human capital measures’ (OECD,
Among the non-measured factors posited as integral to a person’s basic human capital, and thus higher earning potential, are self-management of learning and motivation (OECD, 2002). Self-management of learning is the ability to identify and act on macro and micro learning needs and employ strategies to achieve them (OECD, 2002). According to the OECD:

Educational attainment and readily measurable skills account for less than half of individual wage differences in OECD countries. Part of the remainder may be explained by a “wider” form of human capital, defined as the characteristics that allow a person to build, manage and deploy his or her skills. These include the ability and motivation to learn, effective job search skills, and personal characteristics that help one work well, as well as the capacity to blend a successful life with a good career (OECD, 2002, p. 118).

The Australian workforce has been progressively restructured since the 1960s as a result of advances in technologies and an increasing global economy. The transition to the new capitalism of the knowledge economy has increased the demand for knowledge workers with high levels of human capital. HE degrees and qualifications are constructed as ways of improving national productivity while also reducing the risk of (potential) unemployment. It is therefore not surprising that the massification of education has occurred at a time when global knowledge-based economies require knowledge workers.

### 2.2.2 Redefining universities: government reforms and the rise of the Enterprise University

Economic rationalist reforms of HE, introduced successively from the late 1980s onwards, have irrevocably changed the nature of universities as organisations. Medieval-based institutions have given way to the Enterprise University which is characterised by money, marketing and strong executive leadership. This section explores the rise of the Enterprise University in the knowledge economy.

In Australia, the Whitlam Labor government (1972-1975) introduced free university education by abolishing university fees in 1974. This opened up opportunities for many young people, and importantly women, to receive a university education. However,
while this was a utopian ideal and was premised on the prevalent social democratic ideologies of the time (Westerhuis, 2006), it was not sustainable in terms of later neoliberal, economic rationalist agendas and fiscal policies that characterised the subsequent economic and public sector reforms.

At heart, economic rationalism is concerned with reducing government spending, privatising state-based industries, promoting a free trade market and deregulating the labour market (Pusey, 1991). The application of economic rationalist agendas to HE, irrevocably changed the relationship between the Australian Commonwealth government and the HE sector. It brought universities under direct government control and thus created the managerial, or Enterprise, university (Marginson, 2002; Marginson & Considine, 2000; Meyers, 2012; Westerhuis, 2006).

The Honourable John Dawkins, under the Hawke Labor government in the late 1980s, introduced major reforms that heralded the modern era of the Australian tertiary education system. The Dawkins reforms, as they became known, introduced a 'Unified National System of Higher Education' that amalgamated a tiered system of technical colleges, Colleges of Advanced Education (CAE), teachers colleges, Institutes of Technology and universities, into a single national unified system (Dawkins, 1987, 1988). The rationale behind this was ostensibly to promote efficiencies of scale, promote access and equity and increase student enrolments.

Prior to these reforms, universities had been autonomous domains. They received approximately 90% of their funding from the government, but there was little government intervention. Universities set their own academic standards and entry requirements, conferred degrees and where not troubled by regulatory requirements, compliance standards and student numbers (Marginson & Considine, 2000; Meyers, 2012). However, under the Dawkins reforms, Australian university governance became more accountable to taxpayers and governments. Underpinning the changes were accusations and assumptions that universities were elitist, poorly managed through archaic committee structures, and they lacked corporate, strategic business management practices and performance measurements (Christopher, 2012; Clark, 1998; Marginson, 2002; Marginson & Considine, 2000; Meyers, 2012). Thus, the Dawkins reforms introduced:
• a new student-centred funding formula, primarily based on student enrolments
• the Higher Education Contribution Scheme (HECS), whereby students were required to contribute to the cost of their education
• corporate business management practices, performance measures and accountabilities in line with other public sector reforms.

According to Simon Marginson, (2002, p. 113) ‘[t]he changes set in train by the Dawkins reforms were profound, reshaping the political economy of the universities, university government relations, internal governance and political culture, and academic work’. These reforms effectively created two groups in universities; administrators and academics. Donald Meyers, a bitter critic of the reforms, summarises the reforms, the national unified system of universities and the relationship between the two groups as follows:

The National Unified System with its corporatised management structure and bums-on-seats funding model has thoroughly debauched the university mission. At the stroke of a pen, a university bureaucracy, directly answerable to government, took control of academic matters, while those responsible for delivering the academic product were thoroughly marginalised (2012, p. 11).

Subsequent reviews and reforms of the Australian higher education sector, such as the Higher Education Management Review (Hoare, Stanley, Kirkby, & Coaldrake, 1995), the West Review (1998), Our Universities: Backing Australia’s Future (Nelson, 2003), and more recently the Bradley Review (Bradley et al., 2008) have all furthered the economic rationalist, managerial and compliance agendas introduced by Dawkins. For example, the Australian Universities Quality Agency (AUQA) was introduced by Brendon Nelson (Nelson, 2003) and subsequently this has been replaced by the Tertiary Education Quality and Standards Agency (TEQSA) following the Bradley Review (Bradley et al., 2008).

Changes to university funding models under respective governments, have required universities to seek alternative revenue sources. Locally, universities increasingly relied on full fee-paying, international student revenue to account for funding cutbacks and shortfalls. For example, ‘[i]n 1999, fees from international students comprised 9.1 per cent of all university income. At RMIT in Melbourne, 22.7 per cent of all income was derived from international students and 26.7 per cent from fee-charging of all kinds, compared to 37.1 per cent in operating grants from federal taxation revenues’
Internationally, universities created offshore campuses and thus they became entrepreneurial businesses. HE is now the largest service export industry in Australia and the fourth largest export industry behind the resources of iron, coal and gold respectively. In 2012, total revenue from HE was 14.768 billion dollars (Olsen, 2012).

Since the Dawkins reforms, universities have become big businesses and this has redefined relationships between academic and professional staff. Power and budgetary decision making processes have been largely concentrated at senior executive levels and they are controlled by vice chancellors and a core group of senior executives (Lafferty & Fleming, 2000; Marginson, 2002; Marginson & Considine, 2000). Marginson and Michael Considine (2000) describe this new type of university as the Enterprise University, which according to them, is characterised by marketing, money and strong executive management. The choice of the word ‘Enterprise’ was deliberate as:

‘Enterprise’ captures both the economic and academic dimensions, and the manner in which research and scholarship survive but are now subjected to new systems of competition and demonstrable performance. ‘Enterprise’ is as much about generating institutional prestige as it is about income. In the Enterprise University, the economic and academic dimensions are both subordinated to something else. Money is the key objective, but it is also the means to a more fundamental mission: to advance the prestige and competitiveness of the university as an end in itself. At the same time, academic identities, in their variations, are subordinated to the mission, marketing and strategic development of the institution and its leaders (Marginson & Considine, 2000, p. 5).

The expansion of administrative/professional staff in universities is directly related to the business needs of the Enterprise University and this is further discussed (see section 2.3.1, Groups in universities). However, while universities have become successful in generating new income, much of this has largely been used to support new corporate management functions. According to Marginson:

The new private dollars are now largely absorbed by the new Enterprise University functions – marketing, communications, community relations, financial and asset management, executive salaries, alumni stroking, quality assurance, international offices, off-shore activities and the like – and in the cost of raising private revenue itself. Meanwhile the resources available for teaching and resources have plummeted, especially in those disciplines (the majority) unable to attract large numbers of fee paying-students (2002, p. 118).
The ability of universities to market themselves to prospective students, as well as be responsive to industry and business needs, is now paramount following the introduction in 2012 of a new demand-driven funding system for undergraduate education (Bradley et al., 2008). Funding is now attached to students, so in effect, universities are able to ‘decide how many places they will offer and in which disciplines. Universities will be able to make decisions about these matters based on student demand and the needs of employers’ (Department of Industry Innovation Climate Change Science Research and Tertiary Education, 2013, para 2). Early evidence suggests that the new funding model is working (Norton, 2013), but it has opened universities—and their courses—up to full scale market forces, as unprofitable courses (and institutions), that is those who are not able to attract sufficient numbers of students to be economically viable, could ultimately be rationalised. Or as Meyers observes:

The Bradley Review will accelerate this process by throwing Universities into a no-holds-barred competition for students by abolishing the enrollment quota system and replacing it with Student Entitlement Funding. This enables the student to take their government funded university place to any University that will take them. In other words, Universities are now free to cannibalise each other’s student body to promote their own growth (Kuru anyone?). While this is unlikely to enrich the University experience for students or do much to raise academic standards, it might inadvertently result in the extermination of some of the tin-pot institutions that emerged from the tertiary-sector amalgamations of the early 1980s (2012, p. 5).

The changes introduced across successive governments have resulted in intense competition between universities, as well as changed their academic and organisational structure and cultures. Furthermore, within the context of the knowledge economy, the nature and value placed on academic work has also changed, and this is explored in the following section.

2.2.3 The restructuring of academic work

In the knowledge economy, (academic) knowledge produced in the context of application is more highly valued than traditional theoretical knowledge, as it dates too quickly (Gibbons et al., 1994; Usher, 2002). This has implications on how knowledge is
produced in universities and on the nature of academic work itself. This section explores
the restructuring of academic work in universities.

Against the backdrop of the massification of education, changes to government funding
policies and the rise of the Enterprise University, there has been a shift in the value
placed on theoretical versus applied knowledge. The old paradigms of individuals and
their private minds that underpinned the old capitalism of the industrial era, have given
way to understandings of the importance of social and cultural interactions in the new
capitalism of the knowledge economy (Gee, 1999). Universities have long been described
as craft organisations, that ‘produce observable outcomes through unobservable work’
(Gregory, 1995, p. 172), and hence academics have been seen as ‘craft workers’, (Nixon,
2001, p. 80). Increased levels of accountability and transparency have placed the old
paradigms of academic individualism, autonomy and independence under extreme
pressure.

One of the fundamental changes in the construction of knowledge has been the
transition from Mode 1 to Mode 2 knowledge. In their seminal book, The New Production
of Knowledge: The Dynamics of Science and Research in Contemporary Societies, Gibbons
et al. (1994), trace the emergence of a new mode of knowledge production, Mode 2
knowledge. According to Gibbons et al. (1994), Mode 1 knowledge accounts for
conventional academic, investigator-initiated and discipline-based research. However,
the new Mode 2 knowledge is context-driven, problem-focused and transdisciplinary,
whereby transdisciplinary teams are brought together for short periods of time to work
on specific problems in the real world. Knowledge production is thus socially distributed
and not located solely in academic institutions such as universities, nor in individual
professionals or specialists acting alone.

Table 2.1 outlines the differences between traditional university cultures and those of
universities in the knowledge economy.
Table 2.1: Changing understandings of academics (Usher, 2002, p. 148)

<table>
<thead>
<tr>
<th>The traditional university</th>
<th>The university in the knowledge economy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research is the central endeavour and focus of academic life</td>
<td>Commercialisation of research is the central endeavour and focus of academic life</td>
</tr>
<tr>
<td>Quality maintained by peer review and professional autonomy</td>
<td>Quality maintained by social accountability</td>
</tr>
<tr>
<td>Knowledge pursued for its own sake</td>
<td>Knowledge pursued for its performativity</td>
</tr>
<tr>
<td>Task of the academic is the pursuit of cognitive truth</td>
<td>Task of the academic is the pursuit of knowledge in the service of innovation</td>
</tr>
<tr>
<td>Pursuit of knowledge best organised according to discipline</td>
<td>Pursuit of knowledge best organised in a trans-disciplinary way</td>
</tr>
<tr>
<td>Reputations established through professional activities such as publication, conference attendance and research grants</td>
<td>Reputations established through links with industry</td>
</tr>
<tr>
<td>Rewards come to those who specialise in their discipline</td>
<td>Rewards come to those who can best market their intellectual property</td>
</tr>
</tbody>
</table>

These changes in higher education contexts have direct consequences on research and academics alike. However, it raises fundamental questions about the nature of scholarship, the relationships between teaching and research, and the function of academic professionalism, including new ways of working in changing contexts (Nicholls, 2001). These new ways of working are based on transdisciplinary, project-based collaborative teams, not individual academics/researchers working in isolation. Project-based teamwork is fundamental in the knowledge economy, and also in the Enterprise University, as it is through these types of projects that institutional reputations, prestige and money are made.

Team-based work is also occurring in academic teaching work as teaching staff members work collaboratively in the design and development of university courses and programs. Increasingly these collaborations are interdisciplinary and involve professional and academic staff, such as librarians, educational designers and learning support advisers.
and similar types of professional staff. (This area is explored further in section 2.3.1.2, *The rise of a new group: the Third Space professional*).

Fundamental to this new mode of knowledge production, and thus to the changing nature of research and academic work, have been Information and Communication Technologies (ICT), especially the Internet. The Internet has changed the way we access and consume information and services—as well as communicate—across time, space and place, including in education. This is explored in the following section.

### 2.2.4 Education in the knowledge economy: the changing nature of education and the rise of eLearning

eLearning, that is learning mediated through technology, is now firmly established in the delivery of education. However, traditional electronic text transmission approaches, as previously discussed, (see section 1.3.2, *Doing it differently: eLearning*), still dominate much online delivery. While there have been moves towards more student-centred learning paradigms, there are some major challenges still to be overcome, not the least being teacher self-efficacy. This section explores the changing nature of education in the knowledge economy.

The knowledge economy is underpinned by ICT, in particular the Internet. This has changed the nature and scope of how we access information, products and services, along with how we communicate. These are now independent of time, space and place and can be instantaneous. In first world developed countries, Internet penetration, that is the number of Internet users as a percentage of the population, is estimated to be approximately 80%. In developing countries, this figure is less and it varies across countries, but Internet penetration has nevertheless increased rapidly over the past decade (Internet World Stats, 2013).

The transition from the old capitalism of the industrial era to the new capitalism of the knowledge economy has affected social, economic and cultural domains, including education. As the focus has changed from individuals in their private minds to greater understandings—and exploitation—of the importance of interactions and social practices (Gee, 1999), the epistemological assumptions of 'how it is we know what we
know’ have also changed. For example, there have been:

- Changes in epistemological paradigms that have seen a weakening of the single validity of positivist paradigms towards a greater embracing of constructionist epistemologies where knowledge is understood to be socially constructed within different contexts (Barr, 2003; Weimer, 2013).
- Changes from Mode 1 to Mode 2 knowledge production as previously mentioned (Gibbons et al., 1994). Mode 2 knowledge, that is applied knowledge produced in the context of application in transdisciplinary ways, is more valuable than theoretical knowledge, as theoretical knowledge dates too quickly (Gee, 1999; Usher, 2002).
- Changes in undergraduate pedagogy away from the traditional ‘Instruction Paradigm’ to a student-centred ‘Learning Paradigm’ (Barr & Tagg, 1995; Biggs, 1999; Shuell, 1990). This reflects the knowledge economy's requirements for knowledge workers with high levels of human capital.

The following section explores the shift towards student-centred learning paradigms.

2.2.4.1 Student-centred learning in the knowledge economy

The Instruction Paradigm has underpinned traditional university education (Barr & Tagg, 1995). This is based on an elitist university culture (Watts, 2004) in which universities ‘exists to provide instruction...conceived primarily as delivering 50-minute lectures’ (Barr & Tagg, 1995, p. 13, original emphasis). According to Robert Barr and John Tagg:

The Instruction Paradigm frames learning atomistically. In it, knowledge, by definition, consists of matter dispensed or delivered by an instructor. The chief agent in the process is the teacher who delivers knowledge; students are viewed as passive vessels, ingesting knowledge for recall on tests. Hence, any expert can teach. Partly because the teacher knows which chunks of knowledge are most important, the teacher controls the learning activities (1995, p. 21).

As a result of the emergence and acceptance of social constructionist epistemologies, there has been an acknowledgement that universities need to adopt what is called a
'Learning Paradigm' (Barr & Tagg, 1995). In this, the mission of the college becomes to 'produce learning with every student by whatever means works best' (Barr & Tagg, 1995, p. 13, original emphasis). Thus, there has been a shift towards student-centred learning, and a change in the nature of academic teaching.

Student-centred learning is based on social constructivist paradigms (Watts, 2004), where learners construct their own knowledge from their experiences within social contexts. These experiences are then constructed and incorporated into new and existing mental schemas and discourses (Barr & Tagg, 1995; Gee, 1993, 2001; Jensen, 2001). Fundamentally, this assumes that learners must actively engage in, construct and take responsibility for their learning (Barr & Tagg, 1995). However, for this to occur, there needs to be a change to learner-centred teaching (Weimer, 2013). In this, there needs to be a redistribution of the balance of power in teaching spaces and practices that both empower and motivate students to learn. The role of the 'teacher' also needs to change to that of facilitator, guide and mentor (Weimer, 2013). It has long been the hope of many involved in the design and delivery of eLearning, that well designed courses and learning resources can foster active, independent and student-centred learning (Petre et al., 2000; Reeves, Herrington, & Oliver, 2002; Williams, 2002).

The tertiary education sector has been slow to adapt and innovate in terms of eLearning design and delivery (Larsen & Vincent-Lancrin, 2006). eLearning was initially heralded as the golden triumvirate: it would create new market opportunities and expand access to education; improve educational quality; and reduce delivery costs (Larsen & Vincent-Lancrin, 2006; Sjogren & Fay, 2002). This was significant as universities had larger and more diverse student cohorts, increasing numbers of both local and international, full fee-paying students, increasing staff-student ratios and decreasing funding and hence resources (Watts, 2004). A recent study of educating the Net Generation, that is the generation who have grown up using the Internet, found:

> Emerging technologies afford a range of learning activities that can improve student learning processes, outcomes, and assessment practices...[but]...[i]nnovation with learning technologies typically requires the development of new learning and teaching and technology-based skills, which is effortful for both students and staff’ (Kennedy et al., 2009, pp. 5-6).

Decisions to engage in online teaching, or ‘go online’, are based on either internal or external drivers or motivators. Generally, internal—or intrinsic motivators—such as...
feelings of personal reward and satisfaction are more far powerful than external, or extrinsic motivators, such as financial incentives or expectations of punishment and reward (Deci & Ryan, 1985; VandenBos, 2007). In relation to online teaching, intrinsic motivations include personal satisfaction in trying new ways of teaching, opportunities to be innovative in the use of technology and to enhance course quality and/or student learning (Betts, 1998; Bonk, 2002; Maguire, 2005). Decisions to go online are also based on levels of teacher self-efficacy, that is, their persistence and belief that they are able to bring about desired change, learning and student engagement, even with resistant or unmotivated students (Tschannen-Moran & Woolfolk Hoy, 2001). Thus:

Adopting an innovation, particularly one which requires a degree of technical knowledge such as WBT [Web Based Teaching] requires persistence. New skills are needed to operate hardware and use software effectively as well as discovering how to teach at a distance. Rewards are often found only after some time, energy and will have been expended. The resolve to persist requires confidence that the continued effort will be rewarding, and a self-confidence that these new skills can be mastered (Anderson, 2012, p. 30).

Over the past 20 years, the use of eLearning has expanded, in part driven by improved technology and increased demand factors. The Internet has increased flexible access to education, and students want to be able to learn on any device, including mobile devices and tablets, whenever and wherever they want (Johnson et al., 2013). Over the past five years, Web 2.0, the read/write web, has facilitated collaborative knowledge creation and sharing, such as Wikipedia and YouTube, and given rise to a new phenomenon, Massive Open Online Courses (MOOCs). MOOCs have challenged traditional models of education delivery and have introduced unprecedented global competition (Johnson et al., 2013).

There are now opportunities for teaching staff to design and create authentic, student-centred learning experiences, which take advantage of the multimodal and collaborative capabilities of the Internet. However, there are still significant challenges to the uptake of eLearning. Research has identified time, expertise, access, resources and support (TEARS) as consistent barriers that inhibit the uptake of online teaching (Galusha, 1997; Leggett & Persichitte, 1998; Maguire, 2005). In addition to these barriers, the Technology Outlook for Australian Tertiary Education 2013-2018, the Horizon Report’s regional analysis (Johnson et al., 2013, pp. 19-20), identifies the following as the most significant challenges, rated first, second and fifth respectively, to face learning, teaching and

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7 The fourth challenge was the rise of MOOCs as discussed above.
research in Australia over the next five years:

- Faculty training still does not acknowledge the fact that digital media literacy continues to rise in importance as a key skill in every discipline and profession.
- Most academics aren’t using new and compelling technologies for learning and teaching, nor for organising their own research.
- Our organisations are not set up to promote innovation in teaching.

In relation to this last factor, the report states that organisational practices often impede experimentation and innovation in learning and teaching, as people are afraid of risk.

Current organisational promotion structures reward research instead of innovation and improvements in teaching and learning. The major consequences of student evaluations on teaching, as well as the direct impact on promotion and career options, translates to big risks associated with the failure of innovation and leaves little space for experimentation (p. 20).

As previously stated, in the rush to be get online, universities invested heavily in infrastructure and technologies to support eLearning, such as Learning Management Systems (LMS), but these were often perceived as clunky, hard to use and non-intuitive (Morgan, 2003; Roberts, 2008). For example, while the research presented in this thesis is not a critique of the institutional LMS at Public University, it must be noted that two of the case studies, Projects A and B, were initiated because the academics perceived the institution LMS, Blackboard, to be clunky. It did not provide the functionality they wanted to create collaborative and innovative learning experiences for their students.

Universities, as institutes of learning, need to provide staff with opportunities to engage in learning and extend their professional teaching practices. LTG programs provide these types of opportunities. As previously stated, this research explores three LTG projects that sought to build engaging online learning resources for students.

This concludes the section on universities in the knowledge economy. The following section explores universities as organisations and the rise of interdisciplinary project-based teams in knowledge-intensive organisations, such as universities.
2.3 Universities as organisations: understanding groups in context

This section explores universities as complex organisations that contain large numbers of groups embedded in their contexts. It defines groups, groups in organisations and discusses the relationship between the two dominant groups in universities; professional staff and academics.

It is widely acknowledged that universities are large and complex organisations (Baldridge, 1971; Bess & Dee, 2008; Birnbaum, 1988; Bolman & Deal, 1997; Gumport & Syndman, 2002; Hoare et al., 1995; Pusser, 2003). Like other organisations, universities comprise large numbers of groups embedded in their contexts (Alderfer, 1976a, 1977, 1987). Robert Birnbaum (1988), in his acclaimed book *How Colleges Work: The Cybernetics of Academic Organization and Leadership*, claims that in order to understand how universities work, they need to be seen from three perspectives: as organisations, as systems and as inventions (Birnbaum, 1988). According to Birnbaum:

> When we study them [universities] as organizations, we see groups of people filling roles and working together towards the achievement of common objectives within a formal social structure. When we view them as systems, particular roles and structures seem less important, and our concern is focused on the dynamics through which the whole and its parts interact...[And finally, when viewed as social systems,]...institutions of higher education in large measure are symbolic inventions that exist because we believe in them (1988, p. 1).

Thus, Birnbaum offers a framework for understanding and analysing universities in terms of groups, systems and inventions. The following sections explore groups in universities and universities as complex systems.

2.3.1 Groups in universities

Universities are complex organisations that contain many groups. The two dominant groups in universities are academic and professional staff and relationships between these groups have been problematic (Coaldlake, 2000; Duke, 2003; Marginson & Considine, 2000; McInnis, 1998; Meyers, 2012; Whitchurch, 2008). However, new roles
and relationships are emerging as a consequence of the demands of working in knowledge-intensive organisations. This section explores groups in universities, universities as complex systems, relationships between professional and academic staff and the rise of a new group, third space professionals.

Groups have long been the study of various disciplines, for example in sociology, psychology and business, in areas such as group dynamics, social psychology and organisational behaviour. Groups are fundamental to human existence and they are the building blocks of social systems (Alderfer, 1977; Forsyth, 2006; Steiner, 1976). There are many definitions of groups, such as a group is ‘two or more individuals who are connected to each other by social relationships’ (Forsyth, 2006, p. 3, original emphasis). However, these types of simplistic definitions fail to recognise that group membership is a factor of both internal and external recognition of group membership, that is, people recognise themselves, and in turn are recognised by others, as members of particular groups. Thus, here we follow Alderfer’s definition of a group as it takes account of both internal and external factors and relationships that define groups embedded in their contexts.

A human group is a collection of individuals (1) who have significantly interdependent relations with each other, (2) who perceive themselves as a group by reliably distinguishing members from nonmembers, (3) whose group identity is recognized by nonmembers, (4) who have differentiated roles in the group as a function of expectations of themselves, other group members, and nongroup members, and (5) who, as group members acting alone or in concert, have significantly interdependent relations with other groups (Alderfer, 1977, p. 230).

This definition of a group acknowledges that group members have interdependent relations with each other, group members can identify each other as group members, and they are also recognised as group members by non-group members. These concepts apply equally across nation states, as in being Australian and not Finnish; religious groups, as in being Christian-based and not Hindu; and across work groups, as in being a teacher and not a surgeon; or even being female and not male. In each of these scenarios, group membership is based on internal and external recognition of attributes, values, discourses and skills that allow people to be identified as members of particular groups, both within their respective groups and by members of other groups.

Organisations contain large numbers of groups and all individuals represent multiple groups in their interactions with others. Broadly speaking, Alderfer identifies (1987,
two types of groups in organisations: identity and organisational groups. As has been noted elsewhere (Botterill & de la Harpe, 2010), Alderfer (1987) defines identity groups as those into which people are born, for example, gender, race, family, ethnicity, and over which they have little control. Identity group members develop shared understandings and cognitions based on their common social, historical, political and economic experiences. This gives them commensurate ways of viewing the world, for example white, middle aged, middle class, urban, male baby boomers.

Organisational groups, on the other hand, are generally entered into voluntarily, such as through employment, and they comprise both task and hierarchical groups. Task group membership is a function of a person's primary work activities in the organisation, and task group members come to develop common organisational views. Hierarchical groups are based on position, authority, decision making autonomy and so forth, and determine who has access to privileges, status and power. Alderfer notes that there is a high degree of correlation between identity and organisational group memberships (Alderfer, 1987). For example, imagine a stereotypical corporate, company director. 25, female and Asian, would probably not be your first thought.

2.3.1.1 Professional and academic staff groups in universities

In universities, there is a dualism of control and structures that give rise to two basic organisational groups, administration (professional staff) and faculty (academic staff), both of which fulfil different functions and roles (Corson, 1960) cited in Birnbaum, 1988). The growth in professional staff groups, over the past few decades reflects the increasing complexity of universities as businesses. They have become larger and more diverse, as a result of the massification of education and the accompanying bureaucratic, regulatory and governance requirements as previously discussed (see section 2.2.2, Redefining universities: government reforms and the rise of the Enterprise University).

While universities have always contained faculty or academic groups, there has been a substantial rise in professional groups in universities over the past three decades, with professional staff now accounting for more than 50% of the Australian university workforce (Graham, 2013; Larkins, 2012). As already mentioned, the growth in professional staff groups has been in areas such as IT, marketing, compliance, quality,
research support and fund raising services (Larkins, 2012). These roles represent areas of specialisation, which are required to keep the Enterprise University functioning (and financial) behind the scenes.

However, these administrative roles are generally considered to be ancillary to the core academic business of learning and teaching. Academic workloads have increased over the past two decades, and academic staff have been required to do more administrative work as a result of external compliance and quality assurance requirements (Coaldrake, 2000; Larkins, 2012; McInnis, 1998). This has caused tensions as academics do not feel they receive enough administrative support, even though there have been large increases in professional staff and administrative roles in universities.

Academic and professional staff now represent two distinct organisational groups (with many subgroups) that have different hierarchies, structures and award systems, governance regimes and professional foci. This has therefore affected the relationships between professional and academic staff as:

> Administrators become identified in the faculty mind with red tape, constraints, and outside pressures that seek to alter the institution. They come to be seen by the faculty as ever more remote from the central academic concerns that define the institution. Faculty in turn come to be seen by the administration as self-interested, unconcerned with controlling costs, or unwilling to respond to legitimate requests for accountability (Birnbaum, 1988, p. 7).

And not much has changed. There is a recognised, and at times, a bitter divide between academic and professional staff in Australian universities, and universities more broadly (Coaldrake, 2000; Duke, 2003; Marginson & Considine, 2000; McInnis, 1998; Meyers, 2012; Whitchurch, 2008). This has created ‘fear and loathing’ (Dobson & Conway, 2003) between professional and academic staff, and a ‘them and us’ mentality (Dobson, 2000). This therefore underpins many of the relationships between the two groups in universities, and unlike their academic colleagues, professional staff often feel that their work is invisible, and they are only perceived as working in administration or management (Dobson, 2000; Dobson & Conway, 2003; Szekeres, 2004, 2006). However,

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8 Within academic or teaching groups, there is also the divide between vocational teaching groups and academic HE teaching groups. As previously mentioned, there are five dual sector universities in Australia, but many universities appear to be dual sector as they offer some vocational programs. These vocational/TAFE staff are generally employed under different conditions and award systems.
new roles, identities and relationships have emerged as a consequence of the demands of working in universities, and this is discussed in the following section.

2.3.1.2 The rise of a new group: the Third Space professional

The divide between professional and academic staff is recognised. Over the past two decades, there has been considerable research on the changing identities of academic staff in the new enterprise universities (see Barnett, 2005; Barnett & di Napoli, 2008; Becher & Trowler, 2001), but little has been undertaken in regards to the changing identities of professional staff (Whitchurch, 2008) in these new times.

In universities, staff identities have been traditionally premised on how they relate to three domains: knowledge domains, institutional domains and sector domains (Whitchurch, 2006). The knowledge domain equates with professional knowledge and technical skills associated with professional and/or disciplinary backgrounds. The institutional domain is based on academic and organisational agendas that give rise to specific cultures and missions. These provide frameworks for the institution’s learning and teaching activities, along with the backend systems, structures and supports required to facilitate academic agendas. Finally, the sector domain is where staff locate their primary work identity; academics tend to identify more closely with their disciplinary field and the recognition they receive from that through research output, while professional staff more readily identify with the institution in which they work (Coadrake & Stedman, 1999; McInnis, 1998; Whitchurch, 2008).

However, the changing nature of work in the knowledge economy has given rise to a new domain – the project domain (Whitchurch, 2006). This domain consists of hybrid or multi-professionals who work in cross-functional areas and seek to facilitate organisational learning and development, [in order] to generate an atmosphere in which academic colleagues feel more empowered to do things differently’ (Whitchurch, 2006, p. 168). According to Whitchurch, these four domains provide a framework for understanding changes in professional staff identities in university contexts (2006).

Recent research by Whitchurch explores the changing nature of the work of professional, senior executive staff in UK, Australian and US universities. It suggests that increasing
levels of complexity—and Mode 2 ways of working—have resulted in some blurring of the boundaries between academic and professional staff (Whitchurch, 2008, 2009, 2010, 2012, 2013). She identifies four professional staff identities:

- Bounded professionals who work within clear structural boundaries (such as function, job description)
- Cross-boundary professionals who actively use boundaries for strategic advantage and institutional capacity building
- Unbounded professionals who disregard boundaries to focus on broadly-based projects and institutional development
- Blended professionals who are dedicated appointments spanning professional and academic domains (Whitchurch, 2009, p. 408).

This blurring of the boundaries has given rise to a new group of professional staff, *third space* professionals. These professionals increasingly have academic qualifications at Master’s and PhD levels and specific areas of specialisation. *Third space* professionals span organisational boundaries, and often work in interdisciplinary or multi-disciplinary project teams, on broad based, long and/or short term projects (Whitchurch, 2013). Table 2.2, adapted from Whitchurch (2008, 2012), provides examples of institutional, *third space* broad-based projects. In these, professional and academic staff increasingly work in unbounded and blended capacities, with key internal and external stakeholder groups, to deliver project outcomes.

Whitchurch’s research so far has focused on senior executive roles in universities. However, as previously stated, the *third space* professional framework has more recently been applied to professional staff working in more junior roles, such as HEW 6-9, including in new learning spaces, both physical and virtual (Graham, 2010, 2012, 2013).

According to Carroll Graham:

> With the significant increase in the use of a wide range of technology in higher education, including multimedia, social media and mobile computing (Wilen-Daugenti 2009), it is essential that the contribution of professional staff to its use in the context of student outcomes is better understood and acknowledged (2013, p. 63).
Table 2.2: Examples of third space professional broad-based projects

<table>
<thead>
<tr>
<th>Project</th>
<th>University focus/activity</th>
</tr>
</thead>
</table>
| Student transition              | • Life and welfare  
                                | • Widening participation  
                                | • Employability and careers |
| Partnership project             | • Regional/community development  
                                | • Regeneration  
                                | • Business/technology incubation |
| Professional development        | • Academic practice  
                                | • Professional practice  
                                | • Project management  
                                | • Leadership/management development |
| Learning support                | • Program design/development  
                                | • Web-based learning  
                                | • Study skills/academic literacy |
| Community and business partnership | • Regional regeneration  
                                | • Business enterprise  
                                | • Incubation and spin out  
                                | • Knowledge transfer  
                                | • Employer engagement |

Graham’s own research (2010, 2012, 2013) has focused on the changing nature and identity of professional staff in learning spaces, both physical and virtual, and how these staff perceive they contribute to student (learning) outcomes. She contends that even positions that traditionally would have been thought of as bounded, such as IT support officers, are moving towards the third space, while positions such as educational designers, now occupy the third space. She concludes:

That the changes to professional identity…are concurrent with changes to the technology used in our institutions, is not coincidental. The use of technology to facilitate student learning requires staff with new skill sets and with higher levels of formal qualifications. As well as the technical skills to implement and support technology-enabled learning
environments, professional staff need to have a solid understanding of the values and mission of their institution, and of pedagogical imperatives, to maximise the effectiveness of their support for student learning (2013, p. 69).

The increasing use of project-based work in universities enhances opportunities for academic and professional staff to work collaboratively in interdisciplinary capacities in the *third space*. As previously discussed, this research explores three online learning resource development projects that utilised interdisciplinary project-based teams, all of which were funded by the university’s Learning and Teaching Grant (LTG) program. These projects were collaborative, and on occasions contested spaces, in which professional and teaching staff worked together in the *third space* to create online learning resources in order to contribute to student learning outcomes.

### 2.3.2 Universities as complex systems

Birnbaum’s second perspective is that universities are systems. Systems theories posit that there are open and closed systems (Bess & Dee, 2008; Birnbaum, 1988). Human groups are open systems, in that ‘they regularly exchange matter, information, and energy with other groups and the wider social system of which they are part’ (Alderfer, 1977, p. 230). Open system theories have their roots in biology, but have also been used by social scientists to explain interactions between living things and their larger environments, such as human systems, or groups, embedded within their contexts (Alderfer, 1977). Birnbaum states that ‘a system is an organized whole that has two or more interdependent parts (or subsystems) and is separated from its environment by a boundary’ and thus they contain inherent hierarchies as systems are made up of smaller systems (or subsystems) which in turn are embedded in larger systems (1988, p. 30).

Alderfer presents a similar definition. According to Alderfer, a system is ‘a set of units with interdependent relationships among them. All human systems are open systems with boundaries to regulate transactions between the system and its environment and to determine what is inside the system and outside the system’ (Alderfer, 1980, p. 269). Human systems can be large, such as governments or organisations, or small as in teams, but all systems are defined and demarcated by boundaries (1980).
James Bess and Jay Dee (2008) argue that systems theory provides useful insights into understanding the dynamics at play in universities. While they are not necessarily good for predicting micro-organisational issues or individual behaviours, they do allow:

[B]road generalisations to be made about the character of an organization or a worker and his or her activities. It avoids some of the problems of localized, disconnected attention to subproblems. By providing a broad-brush picture of what is happening and why, it directs our attention to essential elements that are stable and to those whose relationships to one another are changing (Bess & Dee, 2008, p. 93).

Thus, systems theories can provide useful insights into the dynamics that operate in universities as workplaces as groups of people interact to achieve organisational objectives.

### 2.3.2.1 System boundaries

All systems are defined and delineated by boundaries (Alderfer, 1980, 2011; Alderfer & Smith, 1982; Bess & Dee, 2008; Birnbaum, 1988). Boundaries determine what is allowed into a system, what is excluded from a system, and a system's overall state of health. Alderfer (1980) defines three states of boundary permeability: overbounded, underbounded and optimally bounded.

**Overbounded** is a state where system boundaries are too closed or tight and thus they 'show less boundary permeability than is optimal for the system's relationship to its environment' (1980, p. 269, original emphasis). The danger with overbounded systems is that they become too closed off or isolated from their environments, and this can make it difficult to accept external people, ideas or information, and this often leads to group-think (Janis, 1972) and elitism.

**Underbounded** is a state where system boundaries are too open or loose and thus they 'show more boundary permeability than is optimal for the system's relationship with its environment' (1980, p. 269, original emphasis). The danger with underbounded systems is that they become trapped in environmental turmoil or chaos, and they fail to keep a sense of their identity and unity. Thus they often suffer from conflicting role definitions.
and a lack of purpose thereby making it harder to achieve desired outcomes.

*Optimally bounded* is the state where system boundaries are neither too closed (overbounded) nor too open (underbounded) and thus systems thrive in relation to their environment and the vitality of the system is high.

The state of boundary permeability has a strong influence on other system properties and dynamics. Alderfer (1980) posits that there are 11 interdependent variables—or dimensions—that can be used to assess the state of system boundaries. These dimensions exhibit different characteristics in overbounded and underbounded systems and thus there are different problems associated with overbounded or underbounded systems. Table 2.3 presents the 11 dimensions along with their defining characteristics.

As systems, universities are underbounded by nature. They are characterised by multiple sources of authority, such as, faculty, administrators and students, power is diffuse, and as a system, it is loosely controlled (Baldridge, 1971; Bess & Dee, 2008; Birnbaum, 1988; Bolman & Deal, 1997; Buch, 1992; Strachan, Whitehouse, Peetz, Bailey, & Broadbent, 2008). While recent interventions by governments have tried to tighten boundaries around universities, for example by centralising executive management, making them more accountable to governments and tax payers and introducing compliance regimes, universities are still largely underbounded systems.

Alderfer (1980, 2011) claims there is an inverse relationship between the state of boundary permeability between a suprasystem and its subsystems, in that underbounded suprasystems often create overbounded subsystems, and vice versa. Historically in relation to universities, disciplinary boundaries have been very strong and fiercely contested (Becher, 1994; Becher & Trowler, 2001). However, while of late there appears to have been a softening of disciplinary boundaries and a move towards increased interdisciplinarity brought about by Mode 2 knowledge production in the knowledge economy (Trowler, Saunders, & Bamber, 2012; Whitchurch, 2008, 2013), many of the academic subsystems in universities are still overbounded, as are those of the administrative groups, whose systems and hierarchies are more bureaucratic than those of their academic colleagues.
Table 2.3: Properties of overbounded and underbounded systems (Alderfer, 1980, p. 278)

<table>
<thead>
<tr>
<th>Overbounded systems</th>
<th>Variable</th>
<th>Underbounded systems</th>
</tr>
</thead>
<tbody>
<tr>
<td>Goals clear; priority unequivocal</td>
<td>Goals</td>
<td>Goals unclear; priorities equivocal</td>
</tr>
<tr>
<td>Monolithic</td>
<td>Authority relations</td>
<td>Multiple and competing</td>
</tr>
<tr>
<td>Minimal short-term stress</td>
<td>Economic conditions</td>
<td>Impending economic crisis</td>
</tr>
<tr>
<td>Precise, detailed, restrictive</td>
<td>Role definitions</td>
<td>Imprecise, incomplete, overlapping</td>
</tr>
<tr>
<td>Difficulties with openness when people meet</td>
<td>Communication patterns</td>
<td>Difficulties in determining who can meet and should meet</td>
</tr>
<tr>
<td>Constrained, blocked</td>
<td>Human energy</td>
<td>Diffuse, exhausting</td>
</tr>
<tr>
<td>Positive inside; negative outside</td>
<td>Affect distribution</td>
<td>Negative inside; negative outside</td>
</tr>
<tr>
<td>Organizational groups dominate</td>
<td>Intergroup dynamics</td>
<td>Identity groups dominate</td>
</tr>
<tr>
<td>Dependency</td>
<td>Unconscious basic assumptions</td>
<td>Flight-fight</td>
</tr>
<tr>
<td>Long</td>
<td>Time span</td>
<td>Short</td>
</tr>
<tr>
<td>Single theory – ideology</td>
<td>Cognitive work</td>
<td>Multiple or no theory – ideology</td>
</tr>
</tbody>
</table>

2.3.2.2  Parallel processes: a fractal theory of relationships

Parallel processes are based on the psychoanalytic concepts of transference and counter-transference (Smith & Zane, 2004; Sullivan, 2002). They refer to an unconscious phenomenon whereby the dynamics found in any system will reflect those of the macro
or suprasystem above as well as the subsystems below (Alderfer, 1987). Thus, ‘a system can face reinforcing or conflictual pressures as the outside affects the inside, and the inside, in turn, affects the outside’ (Alderfer, 1987, p. 210).

Parallel process can occur among and between groups in organisations, and ‘group level parallel processes...are likely to have intrapersonal and interpersonal effects’ (Alderfer & Simon, 2002, p. 420). According to Alderfer (1987), parallel processes are generally experienced at an emotional level, such as feelings of futility after interacting with a group for a long period of time, could indicate that the group is struggling and that no matter how much energy is expended, nothing changes, so why bother.

Relationships between suprasystems and subsystems are relative to the focal entity, or group, as parallel processes also incorporate broader systemic, environmental and intergroup relationships. As groups and systems interact with each other, the views, values and orientations, including behaviours and cognitions, of the suprasystems can be unconsciously absorbed and replicated in the subsystems. For example, research is afforded more privilege than teaching in terms of broader political and socio-economic agendas and suprasystems, such as governments. This dynamic is reproduced in subsystems, such as in universities, and within universities this dynamic is once again replicated in subgroups, as research is afforded more status than (academic) teaching. Thus parallel processes can either reinforce harmonious or conflictual pressures in a system across time.

Alderfer’s notion of parallel processes aligns with Anthony Giddens’ Structuration Theory (1984). Structuration Theory seeks to show relational dynamics between macro and micro systems, highlighting the duality that exists between human agents and social structures. In this, pre-existing unique social structures, norms and/or laws govern all human action within each context, but these are in turn shaped by the actions themselves (Botterill & de la Harpe, 2010).

Thus, in relation to groups in organisational contexts, relationships between and among groups at an organisational level, can be unconsciously replicated at a team or subgroup level through parallel processes. This can therefore impact on interpersonal relationships between different team members, and this has particular significance for interdisciplinary teams, as by their nature, they comprise people from different organisational groups.
2.4 Studying groups in organisations

This section introduces four dominant theories that focus on the study of groups in context. It first introduces the theories then presents a rationale for the selection of Embedded Intergroup Relations Theory (EIRT) as the central theoretical and analytical framework used in this study.

There are many theories from many disciplines that explore groups, group dynamics and group relations, for example from the fields of sociology, social psychology and anthropology. In relation to the study of groups in context, much of this has focused on intergroup bias and ethnocentrism, that is, on the attitudes of ingroup members towards outgroup members, but they have generally focused on societal groups rather than on organisational groups (Lidskog, 2008; Richter, Scully, & West, 2005; van Knippenberg, 2003). Within organisations, the bulk of small group research and associated theories have generally focused on internal and interpersonal dynamics and relationships in teams (Ancona, 1990; Guzzo & Shea, 1992; van Knippenberg, 2003), but there has been less on the study of groups embedded in organisational contexts. The dominant theories that do address intergroup relations in organisational contexts are described below.

2.4.1 Realistic Contact Theory

Realistic Conflict Theory (RCT) (Campbell, 1965) posits that conflict and ethnocentrism, as a result of real or perceived conflicting goals and competition over scarce resources, underpins intergroup behaviours and interests. One of the classic examples of RCT was the Robbers Cave study (Sherif, 1966). In this three stage study, the researchers—posing as summer camp attendants—manipulated two real groups of white, middle class, pre-adolescent boys (n=22). The boys were secretly assigned to one of two groups before the camp. In stage one, the boys in both groups bonded, but did not know of the other group’s existence. In stage two, the groups met and competed in games for valued prizes (scarce resources). Quickly, the competitions caused conflict between the two groups, both of which had become overbounded, and this resulted in the emergence of strong ingroup and outgroup biases and prejudices. Aggressive language and behaviours were soon directed towards the boys in the other group (that is, each group’s outgroup) and
there was actual physical property damage. In the third stage, the cooling off stage, the boys were unified and conflict reduced through collaborative, whole of group, team-based activities.

This study highlights the effects of overbounded groups and issues that can arise in relation to ingroup and outgroup memberships. However, while this experiment was conducted on real (artificially manipulated) groups in natural settings, that is the summer camp, the groups themselves did not have historical relationships, there were no existing power differences and the groups were of equal size, ethnicity and status (Alderfer, 2011). This is not the case in naturally occurring groups embedded in organisational contexts.

2.4.2 Social Categorization/Social Identity Theories

Social Identity Theory (SIT) (Hogg & Abrams, 1988; Tajfel, 1978; Tajfel & Turner, 1986) and its derivative Social Categorization Theory (SCT) (Turner, Hogg, Oakes, Reicher, & Wetherell, 1987), are collectively known as the Social Identity Approach. These have been widely used in a range of intragroup and intergroup research. They are based on cognitive processes 'through which individuals form a self-concept and interact with others in a group' (Lichtenstein, Alexander, Jinnett, & Ullman, 1997, p. 416). The social identity approach places more emphasis on self esteem and role categorisation in salient groups, based on ingroup and outgroup memberships. These approaches were originally developed in controlled laboratory experiments, as opposed to naturally occurring groups in context. The underlying premise is that intergroup tensions can be either diminished or accentuated through cooperation or competition between groups. While this is a dominant theory, little of the current application of theory in organisational contexts has focused on intergroup relations, instead it has tended to focus on organisational identification and intragroup processes (Hogg & Abrams, 1988; Hogg, van Knippenberg, & Rast, 2012; Lichtenstein et al., 1997; van Knippenberg, 2003).
2.4.3 A Social Identity: Social Dilemma Perspective

A Social Identity – Social Dilemma Perspective (Kramer, 1991) builds on Realistic Contact Theory and SIT/SCT through the incorporation of a social dilemma dimension, that is the dilemma between self interest versus group interests, as groups battle for access to and use of limited/scarc resources in organisational contexts, such as budget (Aquino & Reed, 1998). This theory is an extension of ‘the prisoners’ dilemma’ (Aquino & Reed, 1998) in which silence (cooperating) or betrayal have different consequences. Applied to organisational contexts, this means that groups can gain benefits from cooperating, or face consequences for failing to do so. This approach moves beyond the often dialectical relationship of cooperation or conflict between ingroups and outgroups as seen in RCT and SIT/SCT. Thus, it recognises that there is interdependence between groups in organisational contexts, and that only serving group interests can be detrimental to the organisation as a whole (van Knippenberg, 2003).

2.4.4 Embedded Intergroup Relations Theory

The last theory is Embedded Intergroup Relations Theory (EIRT) (Alderfer, 1987, 2011). While this is not as widely known or used as SIT/SCT (van Knippenberg, 2003), EIRT is an open systems theory and used to explore how natural—or real—groups interact in context with a primary focus on groups in organisations (Alderfer, 1987, 2011). Within EIRT, intergroup relations refers to ‘activities between and among groups’ (Alderfer, 1987, p. 190, original emphasis) and it asserts that groups are never isolated, but are always embedded in social systems. EIRT posits that there are five interdependent properties that are ‘characteristic of intergroup relations regardless of the particular groups or the specific setting where the relationship occurs’ (1987, p. 203). According to Alderfer, these properties are:
1. *Group boundaries*: psychological and physical boundaries determine group membership\(^9\). The permeability of group boundaries, that is how open or closed the boundaries are to being crossed, regulates group transactions both internally and externally to the group.

2. *Power differences*: groups have different levels of access to, and use of, scarce resources. The variety of dimensions on which there are power differences is based on unequal levels of access to these resources and this influences the degree of boundary permeability among groups.

3. *Affective patterns*: the degree to which there are positive feelings associated with ingroup members and negative feelings projected onto outgroup members, varies with the degree of boundary permeability between and among the groups in their context. Affective patterns have a major influence on group membership and on intra and intergroup relations.

4. *Cognitive formations*: as a result of power differences and affective patterns, groups develop their own Discourses (see section 2.4.6, *Discourses as cognitive formations*). These reflect the views, values and orientations of group members and include conscious and unconscious perceptions, ideologies, thoughts and behaviours. Cognitive formations determine group memberships and boundaries, and underpin many intergroup relationships.

5. *Leadership behaviour*: the behaviour of group leaders, or designated group representatives as de facto leaders, can impact either positively or negatively on intergroup relations. Leadership behaviour encompasses boundary permeability, power differences, affective patterns and cognitive formations as people represent their groups in relation to other groups. How group leaders behave, reflects the total pattern of intergroup relations in any situation or context (1987, pp. 203-204).

As a theory, EIRT has been used to explore intergroup relations in complex contexts, examples of which are provided in the following section.

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\(^9\) Alderfer (2011, pp. 142, original emphasis) now posits that group boundaries take two forms: *concrete* and *subjective*. Concrete boundaries account for physical spaces, time-periods and written documents, and uniforms, while subjective boundaries are the symbolic equivalents of the concrete boundaries in individual minds. Alderfer claims that these converge over time. In relation to this research, concrete boundaries therefore equates with physical boundaries.
2.4.5 Why EIRT?

As I was formulating this study, my thoughts originally focused on issues of ownership, power relationships and discourses and how these could affect the development of online learning resources in interdisciplinary teams. My searches in relation to these keywords, combined with universities as organisations, did not yield any promising results. I met with a friend who is a librarian and she advised: "If you want to know anything about power relations and discourses, look at the medical field and doctors and nurses". The medical field is a complex and contested space in which there are multiple power and status issues. The public sector reforms that beset universities have also impacted on hospitals, in that there has been a rise in hospital administration, increased regulations and decreasing levels of funding. These changes have also challenged power differences between doctors and nurses and other health professionals, especially with the increasing use of interdisciplinary, allied health care teams in patient care and case management. It was from this field that I came across EIRT.

As mentioned, EIRT is an open systems theory that can be used to explore relationships between groups embedded in their contexts. In relation to the medical sciences and allied health care disciplines, EIRT has been used as a lens to explore interdisciplinary collaboration in:

- Intensive Care Units (Hawryluck, Espin, Garwood, Evans, & Lingard, 2002; Lingard, Espin, Evans, & Hawryluck, 2004; Lingard, Reznick, DeVito, & Espin, 2002)

- Interdisciplinary treatment teams in Veteran Affairs psychiatric hospitals (Lichtenstein et al., 1997) along with the impact of status and participation in cross-functional treatment teams in the same hospitals (Lichtenstein, Alexander, McCarthy, & Wells, 2004);

- Relationships within hospital top management executive teams and how nursing executives are viewed on these teams (Wells et al., 1999).
In addition to these, Alderfer’s model of overbounded and underbounded systems has also been used to explore complex relationships in hospital administration systems between nurses and management (Chiarella & McInnes, 2010).

Another area where EIRT has been used extensively is in the study of race relations and diversity in organisations (Hogg et al., 2012; van Knippenberg, 2003). Alderfer himself, a white male professor from Yale University, has researched extensively on race relations in organisations, due in part to him having an adopted black son (Alderfer, 1990, 1992, 1994; Alderfer, Alderfer, Bell, & Jones, 1992; Alderfer & Tucker, 1996; Alderfer, Tucker, Alderfer, & Tucker, 1988). EIRT has also been used to explore diversity and gender in organisational contexts (Extein, 2009; McRae & Short, 2010; Nkomo & Stewart, 2006; Ornstein, 2008; Reyes, 2007).

Unlike other intergroup theories, EIRT distinguishes between formal organisational groups and identity groups, and recognises that both are pertinent in embedded intergroup relations in organisational contexts (Alderfer, 1987, 2011; van Knippenberg, 2003). Groups are thus the focal point of interest as:

In any transaction with others, each individual—whether intending to or not—represents multiple identity (i.e., gender, race, family, sexual orientation, ethnicity, etc.) and organization (i.e., program, work group, hierarchy, profession, etc.) groups. Which groups a person represents depends upon which people representing which other specific groups are present and on the relationship among those groups (Alderfer, 2011, p. 173).

Finally, the theory recognises that researchers themselves affect intergroup relations in context, as the very act of studying groups in context affects those relations and dynamics accordingly. Thus it is equally applicable to researchers as to respondents (Alderfer, 1987, 2011; Alderfer & Smith, 1982; van Knippenberg, 2003). These dynamics are often experienced through parallel processes (Smith & Zane, 2004; Sullivan, 2002). Recognising this allows my observations and emotional responses to be valid data sources.

This research uses EIRT as the central theoretical and analytical framework. It was chosen as the lens to explore intergroup relations as it is primarily concerned with groups in their natural settings, that is embedded in their organisational contexts, as opposed to constructed laboratory or T-groups which were the methodological foundations of SIT/SCT (Alderfer, 2011). Because it is an open systems theory, it also
supports Bess and Dee’s contention that such theories provide useful insights in understanding the dynamics at play in universities.

This research uses EIRT to explore what helped, hindered and facilitated collaboration in three officially sanctioned, Learning and Teaching Grant (LTG) projects. These projects were developed by university-based, cross-organisational, interdisciplinary teams. Universities, as workplaces, are rich sites where there are complex organisational structures, hierarchies and relationships underpinned by group boundaries, power differences, affective patterns, cognitive formations (Discourses) and leadership behaviours. Thus, EIRT provides a set of interrelated lenses that can be used to explore groups embedded in their contexts, and each of these is a focus area in this research.

2.4.6 Discourses as cognitive formations

For the purposes of this research, cognitive formations are regarded as Discourses (with a capital D, see below). Discourse theory, as presented here, is situated in literacy theory. According to this, Discourses embody ways of knowing, thinking and doing that reflect people’s inherent views, values and orientations and mediate their relationships with others, as well as with existing social structures, such as class structures. According to Gee, (1993, p. 3) “Discourses” [...] are ways in which people coordinate and are coordinated by language, other people, objects, times, and places so as to take on particular socially recognizable identities’. Discourses are inextricably linked with our notions of self or identity, and they also play a major part in what we view as normal and natural, such as ideologies, and they are thoroughly value-laden (Gee, 2001).

People participate in multiple Discourses, reflecting their different group memberships within society; for example factory worker, student, fe/male, teacher, politician, student, mother, father, doctor, lawyer, business woman, Italian, Vietnamese, and so on. According to Gee, ‘[o]perating within a Discourse, we align ourselves with and get aligned by words, deeds, values, thoughts, beliefs, things, places, and times so as to recognize and get recognized as a person of a certain type. Discourses “speak” and “act” through people and things’ (1993, p. 3, original emphasis).
Gee differentiates between primary and secondary Discourses and these align with Alderfer’s identity and organisational group memberships as previously discussed. Primary discourses are acquired through identity group memberships, and secondary discourses are the basis of organisational group memberships. According to Gee:

Primary Discourses are Discourses to which people are apprenticed early in life during their primary socialization as members of particular families within their sociocultural settings. They are our first social identity, a base within which we acquire or resist later Discourses. Secondary Discourses are Discourses to which people are apprenticed as part of their socializations within various local, state, and national groups and institutions outside early home and peer-group socialization – for example, churches, gangs, schools, [and] offices (1992, pp. 108-109).

Discourses are not static. They evolve as society does, competing for dominance within social structures and they legitimise power differences between groups and hence underlying ideologies. Within Australia, the dominant Discourses would encompass the views, values and orientations of white, Anglo-Saxon, increasingly upper middle class, middle aged, (private school) educated, white-collar males, namely the majority of our politicians. Discourses socialise us, but in turn are made by us and underpin power differences operating at any particular point in time. Gee identifies five important characteristics of Discourses, which can be equally applied to group memberships and therefore intergroup relationships.

1. Discourses are inherently “ideological”. They crucially involve a set of values and viewpoints about the social and political relationships between people and the distribution of social goods...One must speak and act and at least appear to think and feel in terms of these values and viewpoints while being in the Discourse; otherwise one doesn't count as being in it.

2. Discourses are resistant to internal criticism and self-scrutiny since uttering viewpoints that seriously undermine them defines one as being outside them. The Discourse itself defines what counts as acceptable criticism.

3. Discourse-defined positions from which to speak and behave are not, however, just defined internal to a Discourse, but also as standpoints taken up by the Discourse in its relation to other, ultimately opposing, Discourses.

4. Any Discourse concerns itself with certain objects and puts forward certain concepts, viewpoints, and values at the expense of others. In doing so, it will marginalize viewpoints and values central to other Discourses.
5. Discourses are intimately related to the distribution of social power and hierarchical structure in society...Control over certain Discourses can lead to the acquisition of social goods (money, power, status) in a society...These Discourses empower those groups who have the fewest or most minor conflict with their other Discourses when they use them (1992, pp. 111-112).

Looking at these characteristics, there is a strong relationship between Discourses and group memberships that are delineated and mediated through group boundaries, power differences and affective patterns. Alderfer himself defines cognitive formations as follows:

As a function of power differences and affective patterns, groups tend to develop their own language (or elements of language, including social categories), condition their members’ perceptions of objective and subjective phenomena, and transmit sets of propositions – including theories and ideologies – to explain the nature of the experiences encountered by members and to influence relations with other groups (1987, pp. 203-204).

Comparing this definition with Gee’s above, it is easy to see that they are complementary. In addition, Gee’s distinctions between primary and secondary Discourses also align with Alderfer’s identity and organisational group memberships. Therefore, at an intrapersonal level, Discourses are the basis of group memberships and thus they mediate relations with other groups. They also have inherent power differences and position people as ingroup and outgroup members. Discourses are extremely powerful, and within universities, they form the basis of disciplinary power, practices and territories.

This concludes the section on studying groups in organisations. The next section explores the changing nature of work organisation in knowledge-intensive organisations and the increasing use of interdisciplinary teams in project-based work.
2.5 Teams and teamwork: the rise of interdisciplinary project-based teams in complex organisations

Working in teams has long been a characteristic of working life, but teamwork is fundamental in the knowledge economy. The traditional production models of the industrial era, namely Fordism and Taylorism, were based on hierarchical, pyramid-shaped, top-down management structures (Morgan, 2006). In these models, work processes were segmented into individual constituent parts, with employees often working alone and only engaged with one process or piece of equipment at a time (Gee, 1999; Gee et al., 1996). In the transition to the knowledge economy, hierarchical organisational structures have been replaced by flatter ones which provide more inclusive and holistic management approaches. In these structures, employees are considered to be team members and they need to be multi-skilled in work tasks and processes (Botterill, 1990; Gee, 1999; Gee et al., 1996; Morgan, 2006). Work organisation is frequently based on empowered teams.

Universities have also been forced to move towards more enterprise-orientated organisational structures that enable them to react faster, and with greater flexibility, to external environmental changes (Marginson & Considine, 2000; McNay, 1995). In knowledge-intensive organisations, including universities, project teams with devolved and distributed leadership are increasingly common (Heckscher & Martin-Rios, 2013; McNay, 1995; Mortensen, 2010; Mortensen & Hinds, 2002). Teams allow business to leverage tacit and implicit knowledge from workers in order to improve performance and productivity, so that they can respond more quickly to new market opportunities (and create profits) (Gee, 1999; Gee et al., 1996). And this is indeed the case in universities as they are now big businesses. They need to be able to respond quickly to new market opportunities in a global knowledge economy.
2.5.1 Teams and interdisciplinary teams defined

The study of teams, like groups, occurs in many disciplines and results in multiple perspectives and ways of defining them. The terms team and group tend to be used somewhat interchangeably in the literature, with teams used in business/management literature and groups used in academic literature (Cohen & Bailey, 1997; Richter et al., 2005). Alderfer defines teams as ‘an officially sanctioned collection of individuals who have been charged with completing a mission by an organization and who must depend upon each other for successful completion of that work’ (Alderfer, 1987, p. 221).

However, fundamentally he also feels that teams are particular types of groups, and thus the attributes of human groups, as already defined, also pertain to teams (1987) (see section 2.3.1, Groups in universities). Other definitions of teams that build on Alderfer’s original definition of groups (and teams) are:

- [A] team is a collection of individuals who are interdependent in their tasks, who share responsibility for outcomes, who see themselves and who are seen by others as an intact social entity embedded in one or more larger social systems (for example, business unit or corporation), and who manage their relationships across organizational boundaries (Cohen & Bailey, 1997, p. 241).


Multi, inter and trans are three common prefixes that are often used interchangeably to describe teams (Aboelela et al., 2007; McCallin, 2001). In general, multi represents many, inter represents jointly, and trans represents shared and across (Aboelela et al., 2007; McCallin, 2001). Interdisciplinary teams are acknowledged as a particular type of team. In these, team members typically represent different disciplines, discourses or Communities of Practice (CoP), assembled from different areas of an organisation, or even from different organisations (Botterill & de la Harpe, 2010). These teams consciously try to coordinate and integrate expertise from their respective disciplines (Farrell, Schmitt, & Heinemann, 2001; O’Donnell, DuRussell, & Derry, 1997) and share responsibility for a product, service or outcome (Frankforter & Christensen, 2005).

So in relation to this research, and within the context of a university as a workplace, an interdisciplinary team is defined as ‘a group of people from different disciplines who consciously try to co-ordinate and integrate their expertise in the pursuit of a common goal’ (Botterill & de la Harpe, 2010, p. 79).
Working successfully in these types of teams requires appropriate levels of collaboration and cooperation between team members. So, what facilitates collaboration in teams? This is explored in the following section.

### 2.5.2 Collaboration in interdisciplinary teams

Teams and teamwork are not the same things (McCallin, 2001). Teams are the what, while teamwork is the how. From a business perspective, interdisciplinary teams are recognised as a valuable management tool in that they can improve productivity, quality, cost management and product/service cycle times (Frankforter & Christensen, 2005). Furthermore, they are also associated with enhanced productivity, improved outcomes, levels of creativity and personal fulfilment.

For example: in social work, interdisciplinary collaboration is ‘an effective interpersonal process that facilitates the achievement of goals that cannot be reached when individual professions act on their own’ (Bronstein, 2003, p. 299). In design, creative teams increasingly extend across organisational and disciplinary boundaries, and this way of working facilitates superior design outcomes and innovative design solutions, while also reducing overall design and development costs (Sonnenwald, 1996). In short, teams are seen to promote innovation and creativity. ‘Interaction and collaboration with other individuals is critical to creativity. Creative activity grows out of the relationship between individuals and their work, and from the interactions between an individual and other human beings’ (Fischer, 2005, p. 128). However, while working in interdisciplinary teams is recognised as beneficial on a number of levels, working in such teams can be difficult, complex and fraught with issues (Hackman, 1990, 1998; McCallin, 2001; Robbins & Finley, 2000). So what does it take to work successfully in an interdisciplinary team?
Interdisciplinary teams, by their nature, comprise people who represent different disciplines. For these teams to function effectively, they need to be well-integrated. A team is well-integrated when:

...members understand and feel comfortable with their respective roles on the team, when they feel comfortable sharing their point of view with other team members and participate freely in team discussions and decision making, and when they feel positive about the team's overall goals and functioning (Lichtenstein et al., 1997, p. 415).

Collaboration is thus one of the factors that underpins well-integrated teams. Collaboration is the process by which 'people from different organizations (or units within one organization) produce something together through joint effort, resources, and decision making, and share ownership of the final product or service' (Linden, 2002, p. 7). Collaboration is thus a process that requires attention, commitment and work (Mattessich, Murray-Close, & Monsey, 2001). A well known, and still relevant, extensive review of research literature on what makes collaboration work between human service, government and not-for-profit agencies, identified 20 factors critical to successful collaboration across six categories (Mattessich et al., 2001). Table 2.4 presents these factors which have been contextualised, as necessary, for interdisciplinary teams.

As can be seen in Table 2.4, successful collaboration is a multi-dimensional process that requires a mix of appropriate people, skills and resources, and is based on: mutual trust, understanding and respect; appropriate team members with requisite skills; regular open formal and informal communication; appropriate resources; clearly defined roles and responsibilities; and shared goals and clearly defined outcomes.
Table 2.4: 20 factors critical to successful collaboration (Mattessich et al., 2001).

<table>
<thead>
<tr>
<th>Category</th>
<th>Factors</th>
<th>Identified in n studies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environment</td>
<td>• History of collaboration or cooperation in the community/group</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td>• The collaborative group is seen as a leader in the community</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>• Favourable political and social climate</td>
<td>6</td>
</tr>
<tr>
<td>Membership characteristics</td>
<td>• Group members display mutual respect, understanding and trust for each other</td>
<td>27</td>
</tr>
<tr>
<td></td>
<td>• Appropriate cross section of group members required</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>• Members see collaboration as in their self-interest</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>• Ability to compromise</td>
<td>6</td>
</tr>
<tr>
<td>Process/structure</td>
<td>• Members share a stake or ownership in both process and outcome</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>• Multiple layers of participation in decision making</td>
<td>17</td>
</tr>
<tr>
<td></td>
<td>• Flexibility</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>• Development of clear roles, responsibilities and policy guidelines</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>• Adaptability in the face of change</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>• Appropriate pace of development</td>
<td>7</td>
</tr>
<tr>
<td>Communication</td>
<td>• Open and frequent communication</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>• Established formal and informal communication links</td>
<td>10</td>
</tr>
<tr>
<td>Purpose</td>
<td>• Concrete and attainable goals and objectives</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>• Shared vision with clearly agreed mission, objectives and strategy</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>• Unique purpose of group goals, but still align with organisational vision and mission</td>
<td>4</td>
</tr>
<tr>
<td>Resources</td>
<td>• Sufficient funds, staff, materials and time</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>• Skilled leadership</td>
<td>13</td>
</tr>
</tbody>
</table>
However, as the nature of teams and teamwork has changed in the knowledge economy, so too have traditional concepts of collaboration. According to Mark Mortensen (2012), increases in organisational fluidity, linking and overlaps have changed the way people work and this can also affect collaboration.

First, organizations increasingly require collaborations to be fluid in their organization and composition, able to adapt to the rapid changes of the external environment. Second, collaborations increasingly overlap with one another, sharing resources – including people – as those resources become more limited due to increased competition. Third, collaborations must increasingly take into consideration the different contexts within which collaborators are embedded, including locations, time zones, cultures and languages, structures and organizations (2012, p. 3).

People now increasingly work across organisational and geographic boundaries, on multiple project teams at any one time and in some cases, only on specific parts of a project, so that team composition can change substantially over the duration of a project (Mortensen, 2012). Thus Mortensen argues that there needs to be a reconceptualisation of collaboration ‘which focuses not on the set of meaningfully interdependent people engaged in a collaboration, but more broadly on the act of recombinant collaboration – defined as a community’s mobilization of interdependent resources to complete tasks in support of its objectives’ (Mortensen, 2012, p. 12, original emphasis).

The factor credited most in Table 2.4 as enhancing collaboration is the need for group members to show mutual respect, understanding and trust for each other. However, in temporary teams, such as project-based work teams, people do not have long periods of time to develop these attributes, and instead they need to rely on ‘swift trust’ (Meyerson, Weick, & Kramer, 1996). There is also a tacit expectation that team members will have the requisite professional knowledge, skills and capabilities required to contribute to project outcomes.

In well-integrated, interdisciplinary project-based teams, people from different disciplines combine their professional expertise to pursue a common goal or objective. However, what authority, and whose authority, is accepted in these types of teams. The following section discusses authority relations in interdisciplinary teams.
2.5.3 Authority relations in interdisciplinary teams

Recent research on hierarchy in contemporary knowledge-based organisations has identified that authority relations exist on a number of formal and informal levels (Lundholm, Rennstam, & Alvesson, 2012). Formal authority relations exist through vertical organisational hierarchy, as depicted in organisational structures, charts and reporting lines. However, there are also more informal horizontal authority relations based on knowledge and expertise, thus leading to expert authority (Barley, 1996; Lundholm et al., 2012; Olsen, 2006; Ostroff, 1999).

Concepts of vertical hierarchy—based on traditional bureaucratic organisational structures—abound in management and organisational studies literature. However, in contemporary knowledge-based organisations, the dynamics of hierarchy are poorly understood.

Hierarchy is produced in the meeting between two seemingly contradictory practices that we shall call verticalization (the doing of formal hierarchy/authority) and horizontalization (the undoing of formal hierarchy [through expertise]). Hierarchy is thus seen as a dynamic that incorporates contradictory organizing principles (Lundholm et al., 2012, p. 115).

As stated, Alderfer (1987) contends that organisational groups consist of both task and hierarchical groups. While hierarchical groups represent verticalization, task group membership in interdisciplinary teams is likely to produce horizontalization. However, power and status issues, for example through parallel processes, may still impede collaborative decision making (Lichtenstein et al., 2004).

The levels at which there is conflict between vertical hierarchal and horizontal expert authority in interdisciplinary project-based teams—or even between team members who have similar horizontal levels of expert authority in their respective disciplines—has the ability to affect collaboration in these types of teams. However, while expert authority is the basis of horizontalization, expert authority resides in people (and things) and thus they can become metaphorical ‘black boxes’. Black boxes are explored in the following section.
2.5.4 Actor Network Theory and black boxes

Research is a process of discovery. It is important to the story of this research that I mention here how Actor Network Theory (ANT) became an actant in this study. In the first case study, the academic participant mentioned a name, Latour, and so I serendipitously stumbled onto ANT. However, its value as a construct was reinforced when one of the academics in the second case study also mentioned it. I have since explored ANT, and feel it has some overlaps and parallels with my own theoretical perspectives, and thus it provides another lens through which to explore complex contexts and relationships as people interact in the messiness of a university as a workplace. Thus, it adds insights to this study which otherwise would not have been possible.

ANT evolved in the 1980s from the work of Michel Callon, Bruno Latour and John Law in the field of the sociology of science and technology, and it resonated with me as one of my undergraduate majors was in sociology. ANT is underpinned by the premise that ‘society, organizations, agents and machines are all *effects* generated in patterned networks of diverse (not simply human) materials’ (Law, 1992, p. 380, original emphasis). ANT posits that any network consists of both human and non-human actors, both of which are classified as actants to remove the primacy and focus from ‘human’. The basic premise of ANT is to follow the actants and their associated networks, as the more actants that are enrolled in a network, the easier it is to mobilise allies to support it; and thus the larger and more stable the network is (Callon & Latour, 1981).

According to Callon (1986, p. 6), networks are formed through a process of Translation, ‘during which the identity of actors, the possibility of interaction and the margins of manoeuvre are negotiated and delimited’. Translation occurs through a cycle of:

- **Problematization**: An actant or actants define a problem so that other actants buy into it
- **Interessement**: Devices through which actants detach and reattach to lock allies into place
- **Enrolment**: The successful outcome of problematization and interessement whereby allies are attached
• Mobilisation: Maintaining the network by persuading the actants that their interests are the same as the translator, that is the actant that began the process (Rhodes, 2009, p. 6).

Over time, networks compete for dominance, and once they are stable they come to be seen as facts, and as such they are known as black boxes. In ANT, black boxes represent ‘that which no longer needs to be reconsidered, those things whose contents have become a matter of indifference’ (Callon & Latour, 1981, p. 285). The more solid or stable a fact appears to be, for example an organisation, a piece of technology or propositional knowledge as truth, the less it is contested and what sits behind it becomes invisible (Callon & Latour, 1981; May & Powell, 2008).

However, black boxes, as established ‘facts’, are not static and can be opened, contested and redefined as other actants enrol, deploy and mobilise their networks of actants. For example, there is the current black box of climate change science (Besel, 2011). This has seen the deniers, sceptics and advocates of human-induced climate change all mobilise their networks of actants—including physical materials, research, laboratories, publications, charts, graphs, statistics and so on—to politicise the science and convince audiences of the validity of their research (Besel, 2011). This, in turn, opens another black box, that of multi-national (oil and coal based) industrial interests and the effects these have on the planet. A previous example of a successfully contested black box

\[\text{In a television interview on the ABC's 7.30 program on October 23, 2013, host Annabel Crabb spoke to former US Vice President, Al Gore, about the link between human-induced climate change and extreme fire events such as the recent bushfires in NSW. The video and interview transcript are available from } \text{http://www.abc.net.au/7.30/content/2013/s3875600.htm. See Appendix 2 for the full transcript.}\]

In response to a question from Annabel regarding Tony Abbot's view that bushfires are a natural part of the Australian landscape and they have nothing to do with human-induced climate change, Al Gore answered:

AL GORE: Well, it's not my place to get involved in your politics, but it reminds me of politicians here in the United States who got a lot of support from the tobacco companies and who argued to the public that there was absolutely no connection between smoking cigarettes and lung cancer. And for 40 years the tobacco companies were able to persuade pliant politicians within their grip to tell the public what they wanted them to tell them. And for 40 years the tragedy continued. And bushfires can occur naturally, and do, but the science shows clearly that when the temperature goes up and when the vegetation and soils dry out, then wildfires become more pervasive and more dangerous. That's not me saying it, that's what the scientific community says.

ANNABEL CRABB: I'm sorry, Mr Gore, are you suggesting that there's some sort of commercial conspiracy between polluters and politicians?
which is also mentioned in the transcript) was the successful challenge to the tobacco industry lobby that identified, and made public, the health risks associated with smoking. An emerging, but as yet unopened black box, is the power of the National Rifle Association in America and its opposition to bans on semi-automatic weapons, following the increasing numbers of gun-based massacres in the United States.

Black boxes can be ideas, objects, people or nation states. In relation to interdisciplinary project-based teams, people with expert authority can represent metaphorical black boxes in that they hold a body of expert knowledge and practices made up of networks of actants that can be tacitly or overtly mobilised in interdisciplinary team work, and thus they can enhance or stymie interdisciplinary collaboration. These networks include knowledge of policies, systems, technologies, Discourses and associated disciplinary skills and practices. For example, in relation to online resource development, the World Wide Web Consortium (W3C) is the preeminent international standards organisation for web development practices to ensure browser compatibility and site usability. The W3C’s Web Accessibility Initiative (WAI) publishes Web Content Accessibility Guidelines (WCAG) ‘with a goal of proving a single shared standard for web content accessibility that meets the needs of individuals, organizations, and governments internationally’ (W3C, 2013, para. 1). In online resource development, these accessibility actants—and their associated networks—are generally implicit in practice, and in accompanying institutional policies. However, while these are generally invisible and go uncontested, they are powerful arguments when deployed, and they can stymie any debate. Thus, when working in interdisciplinary project-based teams, there is interplay between people’s areas of professional knowledge and the network of actants they can mobilise, and these also have inherent power differences between them.

This discussion of how networks can be enlisted and mobilised has implications for effective team work and collaboration in interdisciplinary project-based teams. So what enhances effective teamwork and how can it be assessed? The following section explores assessing team effectiveness.

AL GORE: I don’t think it’s a commercial conspiracy, I think it’s a political fact of life. It certainly is in my country. In the United States, our democracy has been hacked. Special interests control decisions too frequently. You saw it in our recent fiscal and debt crisis, if that made the news over there. It’s pitiful, really. And the energy companies, coal companies and oil companies particularly, have prevented the Congress of the United States from doing anything meaningful so far to stop the climate crisis.
2.5.5 Assessing team effectiveness

While teams are now ubiquitous in modern organisations, assessing team effectiveness can be problematic. Team effectiveness is a measure of how well teams complete their desired outcomes, and this is generally assessed retrospectively, that is after a project has finished (Essens et al., 2005; Hackman, 1987). However, team effectiveness can be affected by team performance, that is what goes on inside a team to accomplish desired outcomes (Essens et al., 2005; Hackman, 1987).

There are many models that can be used to assess team effectiveness (see for example Cohen & Bailey, 1997; Driskell, Salas, & Hogan, 1987; Hackman, 1987; Klimoski & Jones, 1995; McGrath, 1964; Rasker, van Vliet, van den Broek, & Essens, 2001; Salas, Dickinson, Converse, & Tannenbaum, 1992). Most of these are underpinned by the Input-Process-Output (IPO) framework (McGrath, 1964). In this, teams utilise various individual, team and organisational resources (inputs), manage and maintain internal processes (such as social practices, task behaviours and performance strategies) to produce outcomes (outputs) (Guzzo & Dickson, 1996; Hackman, 1987; Kozlowski & Bell, 2001; McGrath, 1964; Mickan & Rodger, 2000). Therefore, assessing team effectiveness is multidimensional, and is a product of:

- The design of the group as a performing unit: the structure of the group task, the composition of the group, and group norms that regulate member behavior
- The organizational context of the group: the reward, education, and information systems that influence the group, and the material resources that are put at the group’s disposal
- Group synergy resulting from members’ interactions as they carry out the task (Hackman, 1987, p. 324, original emphasis).

Richard Hackman’s normative model of group effectiveness (1987) is an established model long used to assess team effectiveness. This model provides points of leverage that can be manipulated to influence team effectiveness. Underpinning the model is the premise that team effectiveness can be assessed against three ‘modest standards’ (p. 323):

1. The productive output of the work group should meet or exceed the performance standards of the people who receive and/or review the output.
2. The social processes used in carrying out the work [that is the integrity of the
group as a performing unit] should maintain or enhance the capability of members to work together on subsequent team tasks.

3. The group experience should, on balance, satisfy rather than frustrate the personal needs of group members (p. 323, original emphasis).

While the first standard is self-evident, Hackman argues that social processes and personal experiences are important criteria for assessing team effectiveness, but they are often overlooked (1987). In relation to social processes, he states that 'some groups operate in such a way that the integrity of the group as a performing unit is destroyed', for example, they burn out (p. 323). Moreover, in relation to personal experiences, Hackman posits that team members can become frustrated if they cannot do what they need to do, or if the overall assessment of the group experience is one of 'disgust or disillusionment' (p. 323). Thus, he argues that in these cases, the psychological and emotional costs of the team’s experiences are probably too high. Hackman summarises these ‘modest standards’ (p. 323) as follows:

All that is necessary is output judged acceptable by those who receive it, a team that winds up its work at least as healthy as when it started, and members who are at least as satisfied as they are frustrated by what has transpired (1987, p. 323).

Hackman posits that this model rests on one key proposition he calls the process criteria of effectiveness (Hackman, 1987, p. 324, original emphasis). According to this proposition, team effectiveness is a function of:

- The level of effort group members collectively expend carrying out the task work,
- The amount of knowledge and skill members bring to bear on the group task, and
- The appropriateness to the task of the performance strategies used by the group in its work (p. 323, original emphasis).

Hackman identifies performance strategies as the ways teams go about planning and organising work, for example brainstorming ideas, the division and allocation of tasks, and determining accountabilities. Together these six criteria provide a basic framework that can be used to assess team effectiveness. In this research, these criteria are used to assess overall team effectiveness in relation to project outcomes and group processes in the case studies.
2.5.6 Projects and project management

Project-based work is now common in many organisations, as is the increasing use of project-based teams to undertake specific projects that span organisational boundaries, such as third space projects in universities. Project-based teams are a particular type of team and are designed around time-based, short term, fluid activities (Prencipe & Tell, 2001) to produce one-time outputs, such as a new product or service. These teams ‘draw their members from different disciplines and functional units, so that specialized expertise can be applied to the project at hand’ (Cohen & Bailey, 1997, p. 242).

The Project Management Institute (PMI) in the USA defines a project as ‘a temporary endeavor undertaken to create a unique product, service or result’ in order to achieve a specific objective (2004, p. 5). In this, the term temporary indicates that projects have a defined beginning and end, and that the outputs or deliverables are unique, meaning that they are different from other products, services or business offerings (Project Management Institute, 2004). Projects can be large or small, last weeks or years and be undertaken by a single person or thousands. Projects are also distinguishable by the fact that they are separate from the normal ongoing operational, repetitive aspects of daily business life and practices, although their outcomes may indeed impact on these, such as developing a new product or service to expand business opportunities (Project Management Institute, 2004).

In keeping with the terminology used by the PMI, projects comprise a set of processes that have inherent activities that collectively make up a project’s life cycle. While each project is unique, there are typical project processes, or phases, that include:

- Initiating
- Planning
- Executing (Implementing)
- Monitoring and controlling
- Closing (Project Management Institute, 2004).

While these processes are clearly demarcated, projects themselves have varying levels of complexity that can impact on successful project outcomes. Complexity is explored in the following section.
2.5.6.1 Complexity

At a basic level, complexity is seen as ‘consisting of many varied and interrelated parts’ (Baccarini, 1996, p. 201). Project complexity is influenced by a combination of three factors: organisational complexity, process (or technical) complexity and product complexity (Adamsson, 2007; Baccarini, 1996; Lebcir, 2006). Each type of complexity can be explored in relation to two variables: differentiation and interdependence. Differentiation is the number of different components, that is, tasks, activities, sub-projects, sub-systems, specialists and so forth, required to develop the product, while interdependence is the inter-linkages or connections between the components (Adamsson, 2007; Baccarini, 1996; Lebcir, 2006).

2.5.6.1.1 Organisational complexity

Organisational complexity takes account of organisational factors, such as responsibilities for communication and reporting, decision making and allocation of duties/tasks (Adamsson, 2007; Baccarini, 1996; Lebcir, 2006). In terms of differentiation, there is both vertical and horizontal differentiation. Vertical differentiation accounts for different hierarchical structures or levels represented in the project team, while horizontal differentiation occurs across:

- the number of organisational groups or units involved, such as task group memberships
- the number of professional/occupational specialisations required to complete the work; and
- the use or specialist tools and techniques (Adamsson, 2007; Baccarini, 1996; Lebcir, 2006).

Thus vertical and horizontal differentiation equate with verticalization and horizontalization as previously discussed (see section 2.5.3, Authority relations in interdisciplinary teams). However, as groups are never isolated but embedded within their environments, organisational complexity is also affected by levels of parallel processes as previously mentioned (see section 2.3.2.2, Parallel processes: a fractal theory of relationships). To briefly recap, parallel processes refers to an unconscious
phenomenon whereby the dynamics found in any system will reflect those of the macro or suprasystem above as well as the subsystems below and incorporate broader systemic, environmental and intergroup relationships (Alderfer, 1987). Thus 'group level parallel processes...are likely to have intrapersonal and interpersonal effects' (Alderfer & Simon, 2002, p. 420).

In terms of organisational interdependencies, these are the different ways that the groups, components, activities, and tasks and so forth fit together. They can be:

- **Pooled**: where each element is a discrete component of the product, so it is not contingent on the completion of other elements
- **Sequential**: in that one element's output is required for another element’s input
- **Reciprocal**: the output of each element is the input of all the others, for example where client feedback causes work to return to the designers or developers, therefore creating changes to other elements which subsequently themselves return to be re-worked (Lebcir, 2006; Williams, 1999).

### 2.5.6.1.2 Process complexity

Process complexity is what is required to turn inputs into outputs, that is ‘the process used to execute a [new product] development and involves the utilisation of material, means, techniques, knowledge and skills’ (Lebcir, 2006, pp. 5-6). Once again, process interdependence occurs across tasks, teams, technologies and these can be pooled, sequential or reciprocal as outlined above (Adamsson, 2007; Baccarini, 1996; Lebcir, 2006).

However, process differentiation occurs across the amount of diversity and number of factors associated with the task, such as:

- the number of inputs and outputs
- specific actions, tasks and sub-tasks required to produce the product; and
- the number of specialisations, for example disciplines, involved (Adamsson, 2007; Baccarini, 1996; Lebcir, 2006).
Process differentiation is thus affected by the nature of the task at hand. Ivan Steiner (1972, 1976) developed a taxonomy of task types. According to this, there are two types of tasks; unitary and divisible tasks. Unitary tasks are those in which only one person can complete all phases in the task and mutual assistance is not required, such as sitting an examination, or reading a book. Divisible tasks, on the other hand, can be broken down into sub-tasks and handled in different ways. Steiner (1972, 1976) differentiates between five types of tasks that individuals, as members of groups or teams, may use to accomplish divisible tasks. These are:

- **Disjunctive tasks**: these tasks present either-or scenarios, in that the group must select someone’s contribution, usually the most competent person’s, as the group’s solution or output.
- **Compensatory tasks**: these tasks are dependent on the average of individual contributions, for example a team’s guess of the weight of something, such as a horse, based upon taking the average of each person’s estimate.
- **Conjunctive tasks**: in these tasks, the performance standards of the team are set by the least competent person, the ‘weakest link’, and other group members must adapt their performance to match, for example a group of mountain climbers can only climb as fast as the slowest person in the group.
- **Additive tasks**: in these tasks each team member does as much as they can working on the same task, for example shoveling snow, and the coordinated efforts of all, accomplish the task.
- **Discretionary tasks**: These tasks involve group members collaborating and combining their individual efforts in order to produce a final outcome. The outcome therefore reflects the quality of the group processes employed to complete the task.

In interdisciplinary project-based teams, people work on discretionary tasks and people’s efforts and areas of specialisation are combined to produce a final product or outcome. Thus, product complexity also affects product development and this is discussed next.
2.5.6.1.3 **Product complexity**

In general, the more complex the final deliverable or product is, the more complex the project is, especially in relation to differentiation and interdependencies. Product complexity therefore ranges along a continuum from extreme, through complicated, to simple (Hobday, 2000). Extreme complexity describes the range of components and materials, elaborate systems and subsystems, design choices, system architecture(s), and the depth and breadth of specialist skills and knowledge required. Products with extreme levels of complexity generate new knowledge (Hobday, 2000). Simple products, on the other hand, are where the architecture is relatively straightforward and there are relatively few, and often standardised, components. Simple products do little to generate new knowledge.

Thus, overall project complexity is influenced by organisational, process and product complexity. However, another contributing factor to project complexity is uncertainty, that is, uncertainty in relation to project goals and the methods that need to be employed to achieve those goals. Project uncertainty is discussed next.

2.5.6.2 **Project uncertainty**

Project uncertainty exists in relation to both project goals and the methods used to achieve them (Lebcir, 2006; Williams, 1999). As a way to account for project uncertainty, the Goals-Methods matrix (Turner & Cochrane, 1993), presented in Figure 2.2, distinguishes between four types of projects. The premise is that the more clearly defined a project’s goals and methods are, the greater its chance of success. The project types (Payne & Turner, 1999, pp. 56-57; Turner & Cochrane, 1993, pp. 93-94) are as follows:

*Type 1 projects:* In these, both the project goals and methods to be used to achieve those goals are well defined, such as in large engineering projects. These projects tend to use activity-based approaches to planning.

*Type 2 projects:* In these, the goals are well defined, but the methods to achieve them are not, such as in product development projects. In these types of projects, a formal Product Break-down Structure (PBS) is used to plan the project. The PBS is developed from the
known goals and lists things such as the materials, resources, components, tasks and sub-tasks, required to complete the project. Consequently, each component of the eventual product represents a milestone, and therefore these projects use a milestone approach to planning.

**Type 3 projects:** In these, the goals are not clearly defined, but the methods for achieving them are, such as in software development projects. The issue with Type 3 projects is that 'the goals are known to exist, but cannot be specified precisely until users begin to see what can be produced, often during the testing stage' and thus they can be exceedingly difficult (Turner & Cochrane, 1993, p. 94). These projects use a milestone approach to planning based around the completion of project life cycle phases (see section 2.5.6, *Projects and project management*).

**Type 4 projects:** In these, neither the goals nor methods for achieving them are clearly defined, such as in research projects. However, in order to progress these projects, a Type 2 or Type 3 approach to planning is used, either based on components such as the Product Breakdown Structure used in Type 2 projects, or life cycle processes as in Type 3 projects.

![Figure 2.2: Goals-and-methods matrix (Turner & Cochrane, 1993, p. 95).](image-url)
Establishing the goals and methods that need to be used to achieve those goals is therefore very important, which means that different project types require different startup processes.

### 2.5.6.3 Startup processes

Different project types require different startup techniques or processes to:

- achieve shared understandings of the project's purpose and objectives
- define the scope of work within time, cost considerations and functional (quality) requirements;
- formally confirm the project, the project team and the schedule of activities (Fangel, 1991).

Turner and Cochrane (1993) identify four different startup techniques that support the different project types. These are presented in Figure 2.3.

![Figure 2.3: Startup techniques (Turner & Cochrane, 1993, p. 97).](image-url)
In Type 1 projects, the goals and methods are clearly understood and there is generally a long history of project-based work with existing project-based expertise in the organisation. In Type 2 projects, while the purpose and objectives are clear, it is necessary to define the scope of work through brainstorming to ensure all aspects are covered. Then a multi-disciplinary project team can be formalised—with the required breadth of skills and knowledge—to define the methods to deliver the project (on time and within budget). In Type 3 projects, as the goals themselves are not clearly developed, it is necessary to negotiate across the project team, and with other stakeholders as required, to properly define the purpose and objectives of the project, so the final product delivers the required functionality or benefits. Finally, in Type 4 projects, parameters such as goals, purpose, objectives and methods, are developed through an iterative process that requires a mixture of creativity and inspiration (as in this study).

Type 1 projects are the only project type that have clear goals and methods. For Type 2, 3 and 4 projects, once the goals, purpose, objectives and methods have been clarified, they can then be implemented as Type 1 projects with activity driven approaches to planning within defined organisational structures.

Of relevance to this research is the Type 3 category. The three cases explored in this research all used one of the university’s educational media development services to develop online learning resources and these were funded by PU’s LTG program. The projects themselves had various levels of organisational, process (technical) and product complexity and there were degrees of uncertainty in relation to the project goals. In each case, the quality of the startup process affected the project outcomes.
2.5.7 Team boundary disagreement

The changing nature of teams and teamwork in organisations, such as in the use of project-based teams as opposed to traditional functional teams, has led to more fluid organisational work practices and collaborations that span organisational boundaries (Mortensen, 2012; Whitchurch, 2013). Recent research that explores team boundary disagreement exposes long-held assumptions that teams have clear boundaries and that there is unequivocal and unambiguous agreement about who are and who are not team members (Mortensen, 2004, 2008; Mortensen & Hinds, 2002).

Traditional definitions of teams, as previously defined (see section 2.5.1, Teams and interdisciplinary teams defined), are based on the premise that there is mutual recognition of who are team members at both team and organisational levels (Mortensen, 2004, 2008, 2010; Mortensen & Hinds, 2002). However, Mortensen contends that teams increasingly have ambiguous or ‘fuzzy boundaries’ (Mortensen, 2008; Mortensen & Hinds, 2002), which account for team boundary disagreement. Team boundary disagreement is ‘the extent to which members of a team disagree as to which individuals are, and which are not members of that team’ (Mortensen, 2004, p. 3).

Building on previous empirical research into team boundary disagreement in 24 geographically dispersed product development teams (Mortensen & Hinds, 2002) and 39 formally defined software development teams (Mortensen, 2008, 2010), Mortensen found that there was boundary disagreement across all teams, and that no team identified all team members. In these studies, the average level of agreement on team membership was approximately 75% and 72% respectively, with team members both omitted and added to the teams. Mortensen (2004, 2008, 2010; Mortensen & Hinds, 2002) hypothesises that there are a number of factors that create conditions for team boundary (dis)agreements and these could potentially affect team performance. These factors include:

- The geographic distribution of team members. More widely distributed teams are likely to display team boundary disagreement than ones collocated in the same area or building (Mortensen & Hinds, 2002).
- The ability of team members to develop shared mental models based on shared experiences helps transactive memory systems (Mortensen, 2010; Mortensen & Hinds, 2002). Transactive memory systems allow groups to develop and
maintain group-level memory systems covering ‘knowledge specialization, i.e., the differentiation of knowledge across members; knowledge credibility, i.e., trust in the knowledge held by other members; and knowledge coordination, i.e., who has what knowledge and how to access it’ (Mortensen, 2010, p. 13).

- The ability to develop a shared social identity through social categorisation processes as members of a team (Mortensen, 2004, 2008, 2010; Mortensen & Hinds, 2002). These account for ingroup and outgroup membership identification, as previously discussed (see section 2.4.2, Social categorisation/Social identity theory). Shared social identities enhance team membership.

- The extent to which team members work on multiple projects and thus have multiple team memberships. Increasingly in project-based teams, team members work on multiple projects at any one time. Thus the amount of time that team members have to work on any one project potentially affects other team members’ ability to categorise them as team members (Mattessich et al., 2001; Mortensen, 2008, 2010).

- The distinctiveness of task-relative skills. Differentiation across skill sets means that the more unique or important a team member’s specialisations are, the more likely they will be regarded as a member of the team (Mattessich et al., 2001; Mortensen, 2008, 2010).

- Communication. The level of task-relevant communication events, both formal and informal, that a person is included in, impacts either positively or negatively on their visibility within the team. Thus high levels of inclusion enhance visibility and team member identification, while low levels detract from it (Mattessich et al., 2001; Mortensen, 2008, 2010).

- Task interdependence. In project-based teamwork, the structure of the task itself creates interdependencies between team members in terms of producing project outcomes as previously discussed (see section 2.5.6.1, Complexity). Thus the greater the level of task interdependencies between team members, the greater the chance there is of being considered a member of the team (Mattessich et al., 2001; Mortensen, 2008, 2010).

The increasing fluidity of work practices and work organisation in project-based work would appear to affect how people define teams, and who they consider to be team members. This has the potential to affect collaboration in teams as already discussed
(see section 2.5.2, *Collaboration in interdisciplinary teams*). The traditional notion that teamwork is effective collaboration between fully identified, interdependent team members working towards a common goal, may no longer be applicable as people increasingly work in distributed teams, on multiple projects and may or may not be considered by others as team members. Thus better understandings of what might account for team boundary disagreement in cross-organisational, interdisciplinary project-based teams could help to improve collaboration across these types of teams in universities.

This concludes the section on teams and teamwork and the rise of interdisciplinary project-based teams in knowledge-intensive organisations. Teams are used so that people with specialist skills can combine their expertise to develop a product, solution or outcome. In universities, interdisciplinary project-based teams are used to develop online learning resources, and these teams and their processes are the focus of this research.

### 2.7 Concluding comments

This chapter provides an overview of the four major themes and literature pertinent to this study. It has explored universities in the knowledge economy, universities as organisations, the study of groups in organisations and teams and teamwork and the rise of interdisciplinary project-based teams. Universities are complex knowledge-intensive organisations in which group boundaries, power differences, affective patterns, Discourses (cognitive formations) and leadership behaviours are strong and evident.

Higher education is an expanding, global, multi-billion dollar business, and there is increasing demand for more flexible modes of delivery and innovative online learning resources that encourage active student-centred learning. Hence there has been a rise in interdisciplinary collaborations between teaching and professional staff to develop these resources. Moreover, it has been established that effective collaboration requires teams develop:
[R]espect for the cultural, epistemological and methodological differences between disciplines and subject areas. Collaborative ventures that are not grounded in principles of mutual recognition and respect are likely to be anything but collaborative. Indeed they are almost certain to reinforce existing hierarchies and ensure the continuing dominance of traditional paradigms [and power differences] (Nicholls, 2001, p. 87).

However, what we do not know, are the ways in which intergroup relations affect successful collaborations in interdisciplinary project-based teams, and the factors that help, hinder and facilitate this collaboration. This research is thus unique as no previous research has been found that explores universities as workplaces for professional and teaching staff working in the third space project domain in developing online learning resources through the lens of EIRT.
Chapter Three
Research design

3.1 Introduction

The primary aim of this research is to explore the ways in which intergroup relations help, hinder and facilitate collaboration in three cross-organisational interdisciplinary project-based teams in developing online learning resources. As previously stated, this research developed from my personal experiences of working as a third space professional to make sense of why it was so easy to work with people from some groups and so difficult to work with others.

The focus on online learning resource development was deliberate. The transition to the knowledge economy, the ‘Rise of the Network Society’ (Castells, 2000), the massification of education, and globalisation have all had major impacts on the design and delivery of tertiary education leading to an increasing use of eLearning platforms and resources (Brenton, 2009; Herrington, Reeves, & Oliver, 2010; Marginson & van der Wende, 2007; Salmon, 2005). This trend has continued to accelerate since the advent of Web 2.0, the collaborative read-write web (Franklin & Harmelen, 2007). Similarly across this time, there have also been increasing tensions between academic and professional staff as a result of the rise of managerialism in universities (Anderson, 2008; Dobson, 2000; Dobson & Conway, 2003; Hoare et al, 1995; McInnis, 1998; Szekeres, 2004, 2006). This research therefore falls at the juxtaposition between these two phenomena in looking at the development of online learning resources in interdisciplinary teams comprising
academic and professional staff in the workplace.

This research examines people's experiences in developing online learning resources in interdisciplinary project-based teams. The subjective nature of this research required an approach that allowed project team members to recount their experiences of working on these projects, as well as explore the complexity of a university as an organisation and workplace. To do this, a qualitative approach was used, which according to Yin (2011, pp. 7-8) is best when; using non-numeric data, conducting in-depth studies that explore and represent the lived experiences of people in their real worlds, and when 'contributing insights into existing or emerging concepts that may help to explain human and social behavior (p. 8)'.

This research is underpinned by a social constructionist epistemology aligned with a critical theoretical perspective, as organisations are social and historical constructions in which there are multiple groups that have complex and often competing relationships. The central theoretical and analytical framework used in this research is Embedded Intergroup Relations Theory (EIRT). A qualitative collective case study method is used (Stake, 2000) to explore the experiences of professional, vocational and academic teaching staff across three project teams in developing online learning resources. Data are collected through semi-structured, in-depth interviews, written post-interview reflections, document analysis and unstructured, non-participant observation. However, it must be noted that this research does not present an objective or complete view of working in interdisciplinary teams in a university, nor of the relationships between professional, vocational and academic staff. Rather the aim is to highlight how processes involving intergroup relations may affect interdisciplinary team collaboration in order to provide a partial explanation of the phenomena.

This chapter outlines the underpinning epistemology, theoretical perspective, methodology (strategic approach) and methods used to collect and analyse the data. It then provides details of the sample, the interview schedule, the interview procedure, data analysis, research rigour and ethical considerations. The following section outlines the four elements of the research process.
3.2 The matryoshka principle: the four elements of the research process

A matryoshka—or Russian doll—is a series of painted wooden dolls nested one inside the other that can be separated into individual dolls, or contained as a single entity, and as such, the dolls have strong and interdependent relations with one another. This is also true of the four elements of the research process: epistemology, theoretical perspective, methodology and methods (Crotty, 1998).

According to Michael Crotty (1998, p. 3), the four elements in the research process are:

- **Methods**: data gathering techniques employed to collect and analyse data in relation to a research question
- **Methodology**: the overall plan of action/strategy underpinning the use of the selected methods
- **Theoretical perspective**: the philosophical position that provides a context for the research
- **Epistemology**: the theory of knowledge underpinning the research.

While these are often presented in reverse order, as in this chapter, Crotty (1998) states that in practice, we generally follow the above order in that we identify a research issue, problem or question first, then define the specific aims and objectives of the research. Based on these, we then select appropriate methods and methodologies before there is any explicit definition of underlying theoretical frameworks and epistemologies, even though these will have already implicitly shaped the nature of the enquiry.

The following sections outline the epistemological stance underpinning this study and its accompanying theoretical perspective. The methodology and methods are then presented.
3.3 Epistemological stance

Epistemologies are the theories of knowledge that embody how it is we know what we know and they are closely aligned to theoretical perspectives (Blaikie, 2007; Crotty, 1998). An epistemology provides a philosophical basis for determining the types of knowledge possible, that is, what can be known, and standards for ensuring that it is both appropriate and legitimate (Blaikie, 2007; Crotty, 1998). According to Norman Blaikie, epistemologies ‘offer answers to the question: “How can social reality be known?” They make claims about which scientific procedures produce reliable social scientific knowledge’ (Blaikie, 2007, p. 18) and thus are the basis of valid research.

Crotty identifies three main epistemological stances: objectivism, subjectivism and constructionism (1998). The first stance objectivism, sometimes referred to as empiricism (Blaikie, 2007), is closely aligned with positivist theoretical perspectives. In this stance ‘meaning, and therefore meaningful reality, exists as such apart from the operation of any consciousness’ (Crotty, p. 8) and hence objective truth can be discovered through appropriate value-free and theory-free research. The second stance is subjectivism, also referred to as rationalism (Blaikie, 2007) in which ‘meaning is imposed on the object by the subject’ (Crotty, p. 9) and thus the object itself does not contribute to the generation of meaning, as it is a totally subjective interpretation of the interaction between the subject and the object. Structuralist and post-structuralist theoretical perspectives align with subjectivism. The third stance, constructionism, posits that ‘there is no meaning without a mind. Meaning is not discovered, but constructed’ (p. 9). Interpretivist theoretical perspectives, such as phenomenology and hermeneutics, and critical perspectives align with constructionist epistemologies.

Therefore, in adopting or being aligned with an epistemological stance, there are ramifications for how we conduct and present our research, along with what constitutes valid knowledge and how we understand social reality.

This research is grounded in constructionism. From a constructionist viewpoint, ‘all knowledge, and therefore all meaningful reality as such, is contingent upon human practices, being constructed in and out of interaction between human beings and their world, and developed and transmitted within an essentially social context’ (Crotty, 1998, p. 42, original emphasis). It is premised on the proposition that meaning does not reside in objects, and that the observer within the context is active in creating its meaning (Blaikie, 2007).
3.3.1 Social constructionism

Crotty and Blaikie both identify social constructionism as a variant of constructionism. Social constructionism differs from constructionism (hereafter referred to as constructivism) as it focuses on the collective generation and construction of meaning and knowledge in cultural contexts, whereas constructivism concentrates on ‘the meaning-making activity of the individual mind’ (Crotty, 1998, p. 58). According to Crotty, ‘social constructionism emphasises the hold our culture has on us: it shapes the way in which we see things (even the way in which we feel things!) and gives us a quite definite view of the world’ (1998, p. 58). Thus social constructionism tends to foster a critical spirit of enquiry and often underpins critical theory as it recognises how our minds are shaped [and manacled] by culture (Crotty, 1998).

Social constructionism is the epistemological stance used in this research. EIRT fits well with this epistemological position as it acknowledges that groups are never isolated, but are embedded in social systems. As a result, individuals—as representatives of multiple groups—construct meaningful realities and identities underpinned by their group memberships—and their respective group boundaries—power differences, affective patterns and Discourses. Knowledge is thus created, mediated and acquired as a result of interactions as group members in social contexts.

3.4 Theoretical perspective

Theoretical perspectives, sometimes referred to as paradigms (for example, see Lincoln & Guba, 2000), are the philosophical stances from which we conduct our research and they provide ‘a context for the process and grounds its logic and criteria’ (Crotty, 1998, p. 7). Theoretical perspectives have inherent epistemological stances, that in turn must provide internal logic for the choice of methodologies and finally the methods and data analysis employed in the research. Objectivist theoretical perspectives such as positivism (and post positivism) are generally used in quantitative research. These hold that knowledge and meaning exist objectively in the world independent of human concerns, and wait to be discovered. Thus, the research goals aligned with objectivist theoretical perspectives are generally used to measure, test hypotheses, predict and
control, explain, generalise and identify cause and effect. Constructivist theoretical perspectives such as interpretivism and its derivatives such as symbolic interactionism, phenomenology and hermeneutics, see that knowledge and meaning are constructed by people as they seek to understand, interpret and illuminate. However, critical theoretical perspectives tend to align with social constructionism epistemologies, in which social practices and culture are seen to shape knowledge and meaning in context and the research goals are to improve, empower, liberate and raise consciousness (Crotty, 1998; Higgs, 2001; Lincoln & Guba, 2000; Yin, 2011).

This research employs a critical theoretical perspective in keeping with its social constructionism epistemological stance. Critical theory seeks to disrupt and challenge the status quo thereby empowering individuals and groups from implicit and explicit domination. As a social theory, it does not offer a set of predefined ways of researching the world, but instead provides a means for framing questions and devising strategies for exploring it (Kincheloe & McLaren, 2000). Of particular concern are 'issues of power and justice and the ways that the economy, matters of race, class, and gender, ideologies, discourses, education, religion and other social institutions, and cultural dynamics interact to construct a social system' (Kincheloe & McLaren, 2000, p. 281).

Discussions of power abound in critical theory. Power relations, as a by-product of power differences between groups, result in situations where individuals 'become caught in a set of binds that constrain the way they view the world and the nature of their interactions with others' (Smith, 1982, p. 98). According to Kenwyn Smith, these binds, or structural encasements, result in dynamic defensive, reactive and resisting behaviours based on three relative power positions: uppers, those with power; lowers, those without power; and middles, those who mediate between the uppers and the lowers. These relative power positions are exercised and experienced by groups when they interact, and result in a condition called dynamic conservatism. This seeks to maintain the relative status quo, so that:

The focus becomes one of making sure things don’t change or get worse in terms of respective power balance. The more powerful try to hold onto the advantage they’ve acquired while the less powerful try to avoid being put into more disadvantageous positions (Smith, 1982, p. 97).
The analysis of power and relative power relations between groups and individuals in social systems is central to critical theory. In understanding how power operates, it is possible to make the implicit explicit, and thus empower people to understand how power supports the status quo of privileged groups, while subjugating the interests of other groups.

Joe Kincheloe and Peter McLaren identify the following assumptions as central to critical theory:

- all thought is fundamentally mediated by power relations that are social and historically constituted;
- that facts are never isolated from the domain of values or removed from some form of ideological inscription;
- that language is central to the formation of subjectivity (conscious and unconscious awareness);
- that certain groups in any society are privileged over others and...the oppression that characterizes contemporary societies is forcefully reproduced when subordinates accept their social status as natural, necessary and inevitable;
- that mainstream research practices are generally, although most often unwittingly, implicated in the reproduction of systems of class, race, and gender oppression (2000, p. 291).

Critical theory is used in this research as a means of exploring inequalities resulting from how groups interact in context and their respective power differences. Critical theory aims to empower individuals and be transformative and has been a dominant theoretical perspective in educational research, particularly school-based research, such as Paulo Freire’s *Pedagogy of the Oppressed* in the latter half of the 20th century (see Crotty, 1998). Schools play both an implicit and explicit part in the production and re-production of particular types of knowledge and literacies, which legitimise inequalities in order to maintain the status quo (Gage, 1989; Gee, 1992; Ivancic & Moss, 1991; Labov, 1982; Street & Street, 1991; Tollefson, 1991). Equally, universities are complicit in producing and re-producing the existing status quo and its inherent power differences through regulating access to different professional discourses and cultures, which privilege some, such as law and medicine, while devaluing others, such as teaching and nursing. Thus universities act as upholders of the status quo—as well as gatekeepers—that limit individual and group access to status, power and economic rewards in society.
This therefore makes them legitimate sites for (critical) research (Bourdieu, 1991; Gee, 1992; Tollefson, 1991).

However, what of a university as a workplace? Universities are complex organisations, which as microcosms of broader social systems, can be seen to both contain and sustain the existing status quo in which some individuals and groups are privileged over others and issues of power abound. Power differences are extremely complex in universities and the dimensions on which there are relative power differences extend across all levels and functions of a university. Therefore, as critical theory is used to explore power relationships between and among groups embedded in social systems, this critical orientation is complementary to the theoretical framework, EIRT, used in this research.

3.5  Methodology

Methodology refers to ‘the strategy, plan of action, process or design lying behind the choice and use of particular methods and linking the choice and use of methods to the desired outcomes’ (Crotty, 1998, p. 3). This research uses Embedded Intergroup Relations Theory (EIRT) as its organising theoretical and analytical framework. As previously mentioned (see sections 2.3.1, Groups in universities and 2.3.2.1, System boundaries), universities are underbounded systems that contain both identity and organisational groups embedded in their contexts. At a basic level, intergroup relations refers to ‘activities between and among groups’ (Alderfer, 1987, p. 190, original emphasis), and embedded acknowledges that groups are never isolated, but they are embedded in social systems, in this case, a university.

As previously discussed (see section 2.4.4, Embedded Intergroup Relations Theory), EIRT is an open systems theory and comprises five interdependent properties that are ‘characteristic of intergroup relations, regardless of the particular groups or the specific setting where the relationship occurs’ (1987, p. 203). To recap, these properties are:
1. **Group boundaries**: psychological and physical boundaries determine group membership. The permeability of group boundaries, that is how open or closed the boundaries are to being crossed, regulates group transactions both internally and externally to the group.

2. **Power differences**: groups have different levels of access to, and use of, scarce resources. The variety of dimensions on which there are power differences is based on unequal levels of access to these resources and this influences the degree of boundary permeability among groups.

3. **Affective patterns**: the degree to which there are positive feelings associated with ingroup members and negative feelings projected onto outgroup members, varies with the degree of boundary permeability between and among the groups in their context. Affective patterns have a major influence on group membership and on intra and intergroup relations.

4. **Cognitive formations**: as a result of power differences and affective patterns, groups develop their own Discourses. These reflect the views, values and orientations of group members and include conscious and unconscious perceptions, ideologies, thoughts and behaviours. Cognitive formations determine group memberships and boundaries, and underpin many intergroup relationships.

5. **Leadership behaviour**: the behaviour of group leaders, or designated group representatives as de facto leaders, can impact either positively or negatively on intergroup relations. Leadership behaviour encompasses boundary permeability, power differences, affective patterns and cognitive formations as people represent their groups in relation to other groups. How group leaders behave, reflects the total pattern of intergroup relations in any situation or context (1987, pp. 203-204).

Universities as workplaces are complex knowledge-intensive organisations in which group boundaries, power differences, affective patterns, cognitive formations and leadership behaviours can affect individuals and their interpersonal relations in intergroup contexts. In this research, these five properties are important theoretical and analytical elements and have been used to structure the research design, including the questions in the interview schedule (see section 3.8, *Semi-structured, in-depth interviews* below and Appendix 1 for full interview schedule). Thus EIRT itself is the underlying methodology in that it is the central theoretical, conceptual and analytical framework.
used in this research.

The following section outlines the data-gathering methods used in this research. These align with the desired outcomes of the research, that is to explore the experiences of people who developed online learning resources in interdisciplinary project-based teams in a university as a workplace through the lens of EIRT.

3.6 Methods

Methods are the data gathering techniques used to collect and analyse data in relation to a research topic or question. There are a variety of methods that can be used to capture and analyse data, such as case studies, sampling, questionnaires, interviews, focus groups, statistical analysis and document analysis, and it is at this level that a distinction is made between qualitative and quantitative research (Burns, 2000; Crotty, 1998; Yin, 2011).

This research sought to explore the experiences of a small number of people in developing online learning resources in interdisciplinary project-based teams in the context of a university as a workplace. Thus it needed an approach that allowed the project team members to recount their experiences of the project, as well as explore the complexity of a university as a workplace. Therefore, data needed to be more reflective and subjective than could be obtained through traditional quantitative methods, such as numeric survey research and statistical analysis. It therefore employed a qualitative approach, which according to Yin (2011, pp. 7-8), is best used when conducting in-depth studies that:

- Study the meanings of people’s lives, under real-world conditions;
- Represent the views and perspectives of the people in the study;
- Cover contextual conditions within which people live [and work];
- Contribute insights into existing or emerging concepts that may help to explain human and social behavior; and
- Strive to use multiple sources of evidence rather than relying on a single source alone.
In keeping with the qualitative nature of this research, the methods selected were: a collective case study; semi-structured, in-depth interviews; written post-interview reflections; document analysis; and unstructured participant observation.

### 3.7 Case study method

As a method, case studies are popular in qualitative research. A case represents a bounded system (Burns, 2000; Stake, 2000) that is both a process and product of enquiry (Stake, 2000). Case studies are seen as the ‘preferred strategy when ‘how’, ‘who’, ‘why’, or ‘what’ questions are being asked, or when the investigator has little control over events, or when the focus is on contemporary phenomenon within a real life context’ (Burns, 2000, p. 460). They are also appropriate for the context of this research as according to Yin, they are ‘used in many situations to contribute to our knowledge of individual, group, organizational, social, political, and related phenomena’ (2009, p. 4).

Stake (2000) identifies three types of cases, two of which are relevant to this research; these are instrumental and collective case studies. An instrumental case study is an examination of a single case to explore or reconceptualise a topic or issue. However the case itself is of secondary interest; it is only used as a means to explore the research topic. A collective case study explores the same research issue/topic across a number of cases. Stake argues that collective cases allow for greater generalisations of results to be made (2000).

Case studies are used to investigate both the internal and external contexts that impact on cases (Burns, 2000). Cases involve story telling (Stake, 2000), that is telling the story of the case, and they try to present a holistic examination of the research issues or questions incorporating both emic and etic perspectives (Fetterman, 1998; Yin, 2011). In the ethnographic research tradition, an emic perspective ‘is the insider’s...perspective or reality’ (Fetterman, p. 20) while an etic perspective is the ‘external, social scientific perspective on reality’ (p. 23). Case studies allow the researcher ‘to collect information for the emic or insider’s perspective but also to make sense of all the data from an etic or external social scientific perspective’ (p. 11). Thus, in this research, the participants’ emic (personal) perspectives are explored in relation to the research while an etic
analysis of the external context is provided from both a critical theoretical perspective and unstructured observations.

This research uses a collective case study method to explore the experiences of three interdisciplinary project-based teams in developing online learning resources at Public University (PU). Each case is a Learning and Teaching Grant (LTG) project. While each project is a case in its own right, a collective case study enables greater insights, generalisations and comparisons across the cases to be made (Stake, 2000). This is considered to be important in understanding the factors that help, hinder and facilitate collaboration in interdisciplinary project-based teams in the creation of online learning resources in a university. Data from the cases were collected through semi-structured, in-depth interviews, written post-interview reflections, document analysis and unstructured participant observation.

3.8 Semi-structured, in-depth interviews

Semi-structured, in-depth interviews were used to elicit the perceptions and experiences of the participants who worked on the projects. In-depth interviewing itself is:

A conversation with a specific purpose—a conversation between the researcher and informant focusing on the informant's perception of self, life and experience, and expressed in his or her own words. It is the means by which the researcher can gain access to, and subsequently understand, the private interpretations of social reality that individuals hold. This is made public in the interview process (Minichiello, Aroni, Timewell, & Alexander, 1995, p. 61).

The interviews were semi-structured, that is while there was an interview schedule of questions around topics and themes, the wording and ordering of the questions were not necessarily fixed (Minichiello et al., 1995). An advantage of semi-structured interviews is the ability to prompt or probe deeper into responses if needed. The interview schedule consisted of mostly open-ended questions, in which the wording and order of the questions were predetermined, so that each participant received an equivalent experience (Patton, 2002). The advantage of this approach according to Michael Patton (2002), is that it increases comparisons across responses, ensures that there no gaps in
the collected data and finally assists in both data organisation and analysis.

These approaches were used as a means to gain thick (or rich) descriptions, including the participants' emic, or personal, perceptions of their experiences of working on the projects, in relation to both the research question and the theoretical framework. As interviews explore people's private and personal 'interpretations of social reality' (Minichiello et al., 1995, p. 61), they can be intrusive. Thus care was taken to set the purpose and context for the research in the beginning, and establish rapport and trust with the participants before funnelling questions from broad general questions to specific questions regarding the projects. The interviews were recorded with the permission of the participants and interviewing techniques such as probing, cross checking and active listening were used to delve into the participants' personal perceptions and experiences (Minichiello et al., 1995; Yin, 2011).

All research participants (n=17) were interviewed in a five week period, with the majority of interviews completed in a single academic week. Potential participants were originally emailed inviting them to participate in the research. The email included the Plain Language Statement (see Appendix 3), which provided an outline of the research, potential commitments, ethics/privacy information and contact details for both myself and my supervisor in case anyone wanted further information. Following participant consent to take part in this research, interview times were arranged. The interviews were semi-structured and generally lasted an hour to an hour and a half. In order to maximise the participants' sense of self, power and importance, all participants were interviewed in their spaces, such as offices or private meeting rooms in the participants' normal working environments.

All the identified team members in the three projects were invited to participate in this research. Only one person was omitted as she was on extended leave at the time of data collection. In all, a total of 17 interviews were conducted across the three projects.

The interviews began with a few formalities. All participants were given a hard copy of the Plain Language Statement and invited to read it again and ask any questions. They were also asked to sign the official Ethics consent form (see Appendix 4). Participants

11 All dates in this research have been omitted due to ethical considerations. The projects were all completed in a single academic year, as per the LTG timelines. The interviews were all conducted in the following academic year. See section 3.14, Ethical considerations, below.
were then informed that the interview would last approximately an hour, but may take up to an hour and a half. Permission was then sought and obtained to record the interviews for accurate transcription purposes. Participants were assured that every effort would be made to ensure their anonymity, as no names would be used and everyone would be given pseudonyms.

The interview schedule comprised three sets of questions: background questions; the main interview questions; and wrap up questions (see Appendix 1). Each interview started by providing participants with a broad overview of the research project and most interviews started with something similar to this statement:

The purpose of this research is to gain insights into the organisational factors, both positive and negative, affecting the design and development of online learning resources in interdisciplinary teams within the workplace. I'm constructing this university as a workplace, as I feel that research in universities is usually done externally and they don’t turn the lens back on themselves to have a look at themselves as a site, as a workplace, etcetera. I’m interested in your views from three perspectives: firstly as an individual, that is, your personal views; secondly, as a team member; and finally how you think things are viewed from an organisational perspective if appropriate. (Interviewer)

The background questions asked participants about their role and position at PU, how they came to be involved in the LTG project, what they thought PU’s directions and goals were for eLearning and the use of online learning resources in general. The rest of the interview was sequenced to take participants on a reflective journey through working on the project.

The main set of interview questions were based on the five properties of EIRT and comprised groups of questions covering:

- Group boundaries
- Power relationships
- Affective patterns
- Discourses (cognitive formations)
- Leadership behaviours.

For each variable, participants were asked a series of questions that invited them to reflect on how each of these properties was experienced (or not) within the project.
The group boundaries and role definition questions each had additional activities in that the participants were asked to fill in charts and graphs. As previously stated (see section 2.3.2.1, System boundaries), Alderfer (1980, pp. 269-270), identifies 11 distinct but highly interdependent dimensions that can be used to assess boundary permeability in groups or systems. The dimensions were contextualised (where necessary) to the projects, and were divided into two categories: project management dimensions and psychological dimensions as presented in Table 3.1.

Table 3.1: The adapted system boundaries dimensions based on Alderfer (1980)

<table>
<thead>
<tr>
<th>Project management dimensions</th>
<th>Psychological dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project goals (Goals)</td>
<td>Individual effort (Human energy)</td>
</tr>
<tr>
<td>Authority relations</td>
<td>Emotional climate (Affect patterns)</td>
</tr>
<tr>
<td>Budget (Economic conditions)</td>
<td>Mix of groups (Intergroup relations)</td>
</tr>
<tr>
<td>Role definitions</td>
<td>Underlying team feeling (Unconscious basic assumptions)</td>
</tr>
<tr>
<td>Communication patterns</td>
<td>Discipline/theoretical frameworks</td>
</tr>
<tr>
<td>Timelines (Time spans)</td>
<td></td>
</tr>
</tbody>
</table>

In order to develop an overall picture of the state of boundary permeability across the 11 dimensions in each project, participants were asked to mark on a double sided Likert scale how they rated each dimension in relation to the project. Each end of the scale had descriptive cues for what that would mean in the context of the dimension (see Appendix 5 for the full group boundary property sheet and Figure 3.1 for a dimension example). The participants were told that each end represented an extreme on the scale with the left hand edge being totally over controlled, (overbounded – extreme left hand side) and the right hand edge being totally chaotic (underbounded – extreme right hand side). The midpoint represented optimal boundary permeability, which is where things were just right or the happy medium as shown in Figure 3.1. While some participants initially found this confusing, they soon understood it as they were guided through a set of questions about each dimension, before they were asked to mark on the sheet how they assessed that dimension in relation to the project. For example, in relation to the project goals dimension, each participant was asked the following questions before they marked their response on the scale.
The aim of this was to obtain each team member’s perceptions of how each dimension affected the project. This therefore allowed comparisons to be made within each project, but also provided a way to see differences of opinion and explore the contributing factors. Participants also verbally explained why they assessed the dimensions as they did.

Additionally, as part of the role definitions dimension, participants were also asked to fill in a quadrant-based, team member identification sheet that contained six quadrant-based graphs, (see Appendix 6 for the full team member identification sheet and Figure 3.2 for a quadrant example). Participants were asked to identify who worked on the project, as well as to indicate how they rated each person’s relative level of importance in terms of their job role function and involvement in the project. This was used to assess team boundary disagreement as previously discussed (see section 2.5.7, *Team boundary disagreement*), and to see if there was consensus about the relative levels of importance and involvement each person had in the project.
Figure 3.2: Team member identification graph

The final questions were the wrap-up questions. The participants were asked to define an interdisciplinary team, and if they considered the LTG project team they worked with to be one. They were also asked what they thought is required for a team to successfully develop online learning resources.

Post-interview reflections were written after each interview. These reflections captured things such as themes, issues, general observations and emotional responses, and where appropriate, comparisons between team members’ responses to questions. These have been important to recall the context of the interview, and the actual interview, along with my gut responses and observations about the interviews. These have helped with coding and data analysis.

Transcripts were made of each interview. Initially I tried to do these myself, but decided to have them externally transcribed. They were transcribed by an online company at a cheap rate of 42 cents (USD) per audio minute. While this seemed a good idea at the time, the quality of the transcriptions ranged from fair to appalling. All interview transcripts were thus checked, often taking more time than it would have taken to do the transcripts myself in the first place. However, the benefit of this was I was fully immersed in the data and was thus able to identify a range of subtle factors, such as nuances, response pauses, areas of tension elicited by the questions, and these have proved to be useful in the data analysis.
3.9 Document analysis

Document analysis is an important method in qualitative research and is a valid source of evidence that complements other data collection methods (Bowen, 2009; Burns, 2000; Yin, 2011). Final LTG project reports were used to explore, corroborate, validate and triangulate the interview accounts. These were an important source of data as they existed before the research commenced and they are an organisational durable account of the LTG projects. However, ethical issues arose in relation to these reports (see section 3.14, Ethical considerations below), so they have not been cited as primary sources. However, they were useful in checking and substantiating participants’ interview data.

3.10 Unstructured participant observation

Unstructured participant observation was used as a way to make sense of the research site including the participants. Observation itself is the ‘systematic description of events, behaviors, and artefacts in the social setting chosen for the study’ (Marshall & Rossman, 1989, p. 79) and unstructured observation is the foundation of all research methods (Adler & Adler, 1994). Unstructured observation employs the five senses and includes emotional responses that can be used to assess system boundaries (Alderfer, 1976a, 1980). Unstructured observation is considered to be especially important in the early stages of entry into social systems as it enables researchers to observe people and their activities in natural settings, with minimal interference and disruption (Adler & Adler, 1994; Alderfer, 1976a, 1980; Angrosino & Mays de Perez, 2000). Observations help to shape the research and define research questions and/or hypotheses while ongoing observations are used to inform, revise or confirm the direction of the research in the social setting (Adler & Adler, 1994; Alderfer, 1976a, 1980, 2011).

Within the domain of observational methods, participant observation is the ‘process of learning through exposure to or involvement in the research setting’ (Schensul, Schensul, & LeCompte, 1999, p. 91) and therefore it provides researchers with opportunities to immerse themselves in social systems in their natural settings. Participant observation enables (external) researchers to identify and build
relationships with key people in the research setting and to develop sociocultural understandings including ‘patterns of etiquette, political organization and leadership, social competition and cooperation, socioeconomic status and hierarchies in practice, and other cultural patterns that are not easily addressed or about which discussions are forbidden’ (Schensul et al., 1999, p. 91).

Traditionally, participant observation—as a method in ethnographic research—sought to discover objective, authoritative knowledge about other cultures and societies. However, it was soon recognised that this was not possible as conflicting versions of events and researcher subjective biases and personal attributes, such as gender, class and ethnicity, impact on data collection and analysis (Angrosino & Mays de Perez, 2000).

More recently, with observational research increasingly located in first world societies and conducted by members of those societies (Angrosino & Mays de Perez, 2000), there has been a growing awareness that there are degrees of insiderness in sociocultural contexts and thus membership roles in research settings (Adler & Adler, 1994; Angrosino & Mays de Perez, 2000). Patricia Adler and Peter Adler (1994) identify three types of membership roles: peripheral, active and complete. Peripheral roles are those in which the researcher believes s/he can develop a sufficient insider perspective through ongoing interactions with the group without participating in core group activities. Active membership is where the researcher becomes involved in core group activities, and may even assume responsibilities for advancing the group, but does not internalise the group’s values and goals. And finally, there is complete membership whereby the researcher is already an existing member of the group s/he chooses to study, or becomes a full member during the research.

It is increasingly common in qualitative research for researchers to be native or complete ‘insider’ members with pre-understandings of social groups or systems before they commence formal study (Alvesson, 2003; Anderson & Herr, 1999; Brannick & Coghlan, 2007; Coghlan, 2007; Labaree, 2002; Mercer, 2007). As previously mentioned, my own experiences of working in a university for approximately the past 15 years and in other education settings including secondary schools, TAFEs and Adult Community and Further Education centres before that, have given me complete insider status in relation to pre-understandings of universities as workplaces in terms of social groups and systems. My role was thus peripheral to this research as I was not involved professionally in any of the online learning resource development projects that are the
subject of this research. However, my unstructured observations allowed me to make sense of the research setting, the participants, the projects, and the interpersonal and intergroup dynamics at play. They thus helped to inform my understandings of the messiness of the workplace in a complex organisation.

3.11 Data analysis

The raw data for this research consisted of written interview transcripts, the charts and graphs the participants filled in, and other written artefacts, including the project reports and my post-interview reflections. Data have been analysed primarily through data coding techniques (Savenye & Robinson, 2004). Data coding ‘enable[s] the researcher to manage data by labelling, sorting, and retrieving it according to the codes’ (Savenye & Robinson, 2004, p. 1060). Overall, the data coding techniques employed in this research were deductive in that the overall categories were aligned with the theoretical framework, EIRT (Goetz & LeCompte, 1981). Data coding allows for a comparison of data to be made both within and across the project teams and it has a further benefit of allowing the frequency of instances to be counted (Savenye & Robinson, 2004).

Data coding is an iterative process. Coding can be done manually, for example using highlighters and sticky notes, or it can be assisted through computer-based applications (van Gog et al., 2008). In this research, I used NVivo 9 to deductively code the interview transcripts and other sources against the core properties and dimensions of EIRT. While these codes acted as an initial framework, I then needed to use some more inductive codes, that is codes developed subjectively by exploring the data (Goetz & LeCompte, 1981), as part of data reduction techniques. Data reduction is a process whereby researchers begin to ‘compare, aggregate, contrast, sort and order data’ as they begin to develop and test theories that emerge from the analysis (Savenye & Robinson, 2004, p. 1059). The combination of both deductive and inductive data reduction coding techniques, enabled both a top down and bottom up analysis of the data.
3.12 The sample

Qualitative research is generally based on relatively small samples that have been purposefully selected (Patton, 2002). In keeping with this, purposeful, non-probability sampling was used to select the instrumental cases that made up this collective case study. Patton defines purposeful sampling as the selection of ‘information-rich’ cases for study in depth...from which one can learn a great deal about issues of central importance to the purpose of the inquiry’ (2002, p. 230, original emphasis). Case selection was based on criterion sampling, that is, there was a set of predetermined criteria to delimit case selection (Patton, 2002). The criteria used to select the cases in this research were that they had to be LTG projects and required:

- a web-based, finished online learning resource as a product/outcome of project
- a university online development service as a partner in the project
- an interdisciplinary team with mix of teaching staff and professional web/graphics/multimedia staff.
- key staff to be employed at time of data collection.

Purposeful and criterion-based sampling account for what Burns calls non-probability sampling. In this, ‘there is no way of estimating the probability of being included; there is no guarantee that every element has had an equal chance of being included, or that the case is representative of some population; and therefore there is no validity in generalising the account’, as is the case in probability sampling (Burns, 2000, p. 465). Cases are selected because they allow the researcher to explore, discover, investigate and gain insights into a chosen phenomenon (Burns, 2000).

At PU in the year of data collection, there were 37 approved LTG projects from 137 submissions, from which six potential cases were identified from criterion sampling. Following further investigation, three cases were eliminated because two used an external consultant to develop content and thus no professional university group was involved. In the last case, two of the key project team members, the multimedia and the web developer had both left the university. This therefore left three cases.

It was thus coincidental that the three selected LTG projects all used the same educational media development service, Service X (SX). As previously mentioned (see section 1.7.2, Service X), SX was one of PU’s educational media development services and
they provide web and multimedia development, graphic and interface design, photography and audio and video production services across the university. It has a total of 10 EFT staff and on average complete more than 200 projects per year.

The three cases explored in this research all used SX to design, develop and build their online learning resources. While each case was an independent project, the use of a single service meant that there was consistency across processes and procedures thereby eliminating these as potential adverse independent variables. Thus, SX became a de facto control group thereby making it easier to explore, compare and contrast findings and outcomes across the three projects. In all, the sample consisted of 14 participants, however, some of the participants worked on multiple projects, thus there was a total of 17 semi-structured, in-depth interviews conducted. This number of interviews exceeds the requirements of theoretical saturation in purposeful samples, that is, the point at which no new themes can be gleaned in homogeneous groups, which has been estimated to be twelve interviews (Guest, Bunce, & Johnson, 2006). Table 3.2 provides a brief overview of the three cases and the participants, hereafter referred to as Project A, Project B and Project C.

<table>
<thead>
<tr>
<th>Service X</th>
<th>LTG clients</th>
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<tbody>
<tr>
<td>3</td>
<td>1</td>
<td>4</td>
<td>2</td>
<td>3</td>
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<tr>
<td>Female</td>
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</table>

### 3.13 Research rigour

For nearly 30 years, issues of validity, trustworthiness, reliability and replicability have plagued qualitative research (Lincoln & Guba, 1985; Merriam, 1995; Yin, 2011). Sharon Merriam (1995) contends that firstly it is important to understand the purpose of qualitative research and that 'notions of validity and reliability must be addressed from the perspective of the paradigm out of which the study has been conducted' (p. 52).
Traditional notions of validity, such as (numeric) measurement, repeatability and replication underpin quantitative research, but these are more problematic in qualitative research. Instead, validity in qualitative research should be a measure of trustworthiness (Lincoln & Guba, 1985; Merriam, 1995; Yin, 2011).

Criticisms of qualitative research are often based on sloppy procedures, poor analysis, researcher bias and a lack of rigour (Yin, 2009). Yin (2011, pp. 19-21) posits that there are three elements in building trustworthiness:

- **Transparency**: research procedures should be transparent so others can view and understand them. This also allows for potential replication of the study, although it is acknowledged ‘it is nearly impossible to replicate the original conditions under which the data were collected or to control all the variables that might possibly affect findings’ (Strauss & Corbin, 1998, p. 266).
- **Methodic-ness**: the methodical following of ordered research procedures. This brings a sense of completeness to the research.
- **Adherence to evidence**: Use of the participants’ actual language, as well as the context in which it has been expressed, as language presents people’s reality. Finally, conclusions should be based on reference to the data, that have been collected and analysed fairly.

In this research, trustworthiness has been built by providing sufficient details in this chapter of the research procedures and methods to allow for replication (Transparency). Secondly, there have been a variety of strategies employed to address methodic-ness. The use of a collective case study allows for greater generalisations to be made across the cases and strengthens results through pattern matching. Non-probability sampling was used to select the cases, reducing any researcher bias in case selection. Semi-structured, in-depth interviews that used the same interview schedule are the primary data source. However, these have also been supplemented by unobtrusive methods, such as unstructured participant observations and document analysis to triangulate and validate the data analysis. Unobtrusive methods are considered to complement more direct data collection methods based on researcher interventions such as interviews, as respondents may try to manage their answers to impress the interviewer and interviewers may not have the necessary skills to elicit information from participants, especially if the participants themselves are not willing to directly answer questions (Lee, 2000). Finally, thick descriptions of the cases adhere to the evidence using the
participants’ words and language. The participants’ language flows throughout the narratives of the cases contained in Chapters 4-6.

### 3.14 Ethical considerations

Ethical considerations have underpinned all aspects of this research. In keeping with Higher Degree by Research (HDR) policies and requirements, an ethics application was submitted to the Human Research Ethics Sub-Committee. It was approved and classified as Level 2, as it was considered to produce only minimal risk to the participants (see Appendix 7). All stated processes and requirements in terms of data gathering and storage have been adhered to and these were also outlined to the participants in the Plain Language Statement (see Appendix 3).

In agreeing to be part of this research, participants were assured that:

I [the HDR research student] will make sure that confidentiality is maintained at all times and no-one will be identifiable through the research, e.g. through the use of pseudonyms during the data collection and write-up...All efforts will be made to minimise any perceived vulnerability or confidentiality issues.

As previously explained, purposeful criterion sampling was used to select suitable projects from PU’s LTG program. Once the cases had been selected, permission was granted from the Deputy Vice Chancellor (Academic) and the Director of Learning and Teaching at PU to conduct the research. I was therefore given hard copies of the final LTG project reports, which were not publicly available at the time. However, some time later, I became aware that the project reports had since been made publicly available on the Internet, and the front page of each report listed the people and university service involved, therefore potentially allowing the participants to be identified. This led to changes in the research design to ensure participant anonymity and confidentiality.

In order to adhere to the conditions and safeguards approved by the Human Research Ethics Sub-Committee, and to ensure the anonymity and confidentiality of those people who kindly consented to participate in this research, I sought advice from the Ethics Sub-Committee. Based on this, and in consultation with my supervisors, the following
decisions were made:

- The university in which this research was conducted has been deidentified and a pseudonym, Public University, has been used throughout.
- The university’s learning and teaching development program has been deidentified and given a generic pseudonym of the Learning and Teaching Grant (LTG) program.
- All dates have been consciously and deliberately removed.
- Although I have copies of the final LTG project reports, these have not been cited or used as primary sources. Instead, the reports have been used to validate and/or contest the participants’ oral accounts of the projects. Thus, extreme care has been taken to find and use appropriate oral texts to highlight or make comment on any pertinent data in the final reports.

The people who agreed to participate in this research did so in good faith, with an understanding that their anonymity and confidentiality would be assured and maintained. Thus, the abovementioned safeguards have been used in order to guarantee this. However, while it has created some dilemmas along the way, it has not detracted from the study overall. The site of this research is a university, and in a sense, the actual site of this research is irrelevant as it is representative of many universities as workplaces. Thus, there is still potential applicability of the research to other universities and tertiary institutions.

### 3.15 Concluding comments

This chapter outlines the research design underpinning this study. It presents the study’s epistemological stance and theoretical perspective, methodology and a justification for the use of qualitative methods. The methods and data analysis techniques are described, including how they were used in the research. Case study selection processes are detailed, as well as the ethical considerations that have impacted on this research.
The following chapter starts the analysis and discussion sections of this thesis. Chapters Four, Five and Six explore the three case studies. Chapter Seven then presents a cross-case analysis and an assessment of team effectiveness. Finally, Chapter Eight presents the key findings and significance of the study, along with provisos and directions for further research.
Chapter 4
The first case study: Project A

The worst of it sounds like I’m gushing, but there have been so few experiences that I’ve had in this university where people actually have an opportunity to work with people from places outside our own kind of school, let alone productively, that is was really, really good.

Andrew, academic teaching staff member and LTG project leader
4.1 Background

Andrew, an academic teaching staff member at PU, approached Service X (SX) about the possibility of submitting an LTG application to design and build an online production and media distribution system. Andrew wanted his students to be able to publish and present their work for assessment, showcase it to potential employers and work collaboratively together, along with students in the same field of study in the UK. The concept for this project came about because Andrew found the enterprise LMS, Blackboard, ‘clunky’ (Andrew) and closed, so that there was no way that people external to PU could view student work or collaborate with it.

It was envisioned that this learning space would have student only areas that would allow students to use blogs to develop their ideas, post research material, discuss issues, comment on finished work as well as participate in peer review. It would also allow other teaching staff members in the course to give feedback and assess student work. He also wanted public areas where potential employers would be able to view biographic information on individual content authors, as well as search for content by genre and author. Andrew had tried to do this previously, and some students in the program had created websites to present their work and provide some biographic information to potential employers, but the websites generally lacked professional graphic design and database support. In approaching SX, Andrew hoped that an intuitive, yet sophisticated, online publishing and presentation system could be developed that would provide an innovative learning and teaching space for his students. Ultimately though, he wanted access to new ways of learning that took advantage of new technologies and digital media, and thus enhance his students’ employability in a global industry.

In keeping with the LTG’s mandatory consultation requirements, and SX’s project management and product development life cycle (see Figure 1.1), Andrew submitted a production request to discuss the viability of his potential project. Lauren was appointed as the provisional project coordinator, and as per SX’s new project assessment process, she and Ben, a web developer, met with Andrew to discuss his idea. It was determined that the project was plausible, so SX provided Andrew with an estimated budget (expressed in hours) and timelines, which were submitted as part of Andrew’s LTG project application. Lauren was appointed the SX project coordinator and the project was logged in the production database. The LTG application went through the formal faculty and university assessment processes and was approved. Andrew then notified SX
of the successful outcome, so the project progressed to the pre-production stage.

The pre-production stage began with Ben and Andrew meeting to develop the detailed project brief/specification document which established the project goals and objectives, deliverables, methods, timelines and milestones. Following this, SX developed a full production plan and this was forwarded to Andrew for approval. Once agreed, Ben developed the wireframes—a mock-up of the screens and functionality of the resource—which Andrew also needed to approve. Lauren then assigned the project team, which comprised Jack, the web developer who was to build the system, and herself as the interface/graphic designer. With the project team established and the production plan approved, the production stage began.

4.2 The project team

There were four team members in Project A: Andrew, the client, academic and LTG project instigator and leader; Lauren the interface/graphic designer and SX project coordinator; Ben, the initial web developer who worked with Andrew to complete the detailed project brief/specification documentation and the wireframes in the pre-production stage; and Jack, the web developer, appointed to build the system in the production stage. Figure 4.1 depicts the project team and further team member characteristics are provided in Table 4.1.
In terms of identity groups, all team members were Australian and there were three males and one female. In terms of organisational groups, there were both task and hierarchical groups in the team. The team consisted of two web developers Ben and Jack (task group membership), both of whom had been employed at PU for less than five years on a HEW award, although at different levels (hierarchical group membership). The other SX team member was Lauren, the interface/graphic designer who was also the designated project coordinator (task and hierarchical group membership). Lauren had previously worked at PU as a lecturer on an academic award before moving to SX and onto a HEW award. Andrew, therefore, was the only active, academic teaching staff member on the team (task group membership). He had been employed at PU for over 10 years and was on an academic award. In terms of physical locations, the three SX team members were collocated in an open plan office approximately a five minute walk away from the main campus buildings, where Andrew was located. However, according to Andrew ‘the meetings were always in their territory. They were the ones with the information’.
Table 4.1: Team member details in Project Team A

<table>
<thead>
<tr>
<th></th>
<th>Andrew</th>
<th>Lauren</th>
<th>Ben</th>
<th>Jack</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male/female</td>
<td>Male</td>
<td>Female</td>
<td>Male</td>
<td>Male</td>
</tr>
<tr>
<td>Role in team</td>
<td>LTG project leader &amp; client discipline expert – academic</td>
<td>Interface and graphic designer</td>
<td>Web developer</td>
<td>Web developer</td>
</tr>
<tr>
<td>Award</td>
<td>Academic</td>
<td>HEW</td>
<td>HEW</td>
<td>HEW</td>
</tr>
<tr>
<td>Age group</td>
<td>45-54</td>
<td>35-44</td>
<td>45-54</td>
<td>25-34</td>
</tr>
<tr>
<td>Years at PU</td>
<td>11-15</td>
<td>5-10</td>
<td>0-5</td>
<td>0-5</td>
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</tbody>
</table>

This was a straightforward project – to build an online learning and content management system. However, as each member of the project team had different identity and organisational group memberships (both task and hierarchical), everyone needed to successfully collaborate to produce the final resource. So how did intergroup relations affect successful collaboration in the project team, and what was the interplay between the five properties of EIRT in the development of this online learning resource?

This chapter continues with an analysis of the project based on the five properties of Embedded Intergroup Relations Theory (EIRT), namely group boundaries, power differences, affective patterns, cognitive formations and leadership behaviour. It begins with an analysis of the 11 dimensions of boundary permeability to assess the first property of EIRT, group boundaries. As previously mentioned in Table 3.1 (see section 3.8, Semi-structured, in-depth interviews), these have been divided into two categories, project management and psychological dimensions. Following this, the other properties are discussed, and the chapter concludes with a summary of the project.
4.3 Group boundaries

The first property of Alderfer’s Embedded Intergroup Relations Theory (EIRT) (1987, 2011) is group boundaries. As previously mentioned (see section 2.3.2.1, System boundaries), the permeability of group boundaries, both psychological and physical, underpins how well groups or systems interact in relation to their environments (Alderfer, 1980). If group boundaries are too tight or closed (overbounded), groups risk becoming isolated from their environment and this can make it difficult for them to successfully interact and collaborate with other groups. On the other hand, groups in which the boundaries are too loose or open (underbounded) can become trapped in environmental turmoil, or chaos. If this occurs, it is hard for them to unify and keep a sense of their identity, thereby making it harder to achieve desired outcomes. An optimal boundary state in which a group’s boundaries are neither too open nor too closed allows for groups to thrive in relation to their environments.

Figure 4.2 presents the compiled responses of each participant’s assessment of the 11 dimensions used to ascertain the state of system or group boundaries. Each team member is represented by an initialled, colour-coded line. At a glance, the team responses for the group boundaries property indicated that this was generally a very well-balanced project. In eight of the eleven dimensions, the majority of responses were clustered within the optimally bounded mid-point range. From the top these are authority relations (with one exception), role definitions (with one exception), communication patterns, timelines, individual effort, mix of groups, underlying team feeling and discipline/theoretical frameworks. The remaining three dimensions, project goals, budget and emotional climate, were all towards the controlled or overbounded extreme. In these, the three SX team members, Lauren, Ben and Jack, all marked these more towards the extreme edge of on the overbounded side, than did Andrew, whose responses were more towards the optimal boundary mid-point.
Figure 4.2: Compiled responses for the group boundary property in Project A
The following analysis is divided into two sections, covering the project management and psychological dimensions. This provides a way to explore the ways in which these sets of dimensions affected the project, and the impact they had on successful collaboration within the team.

4.3.1 The project management dimensions

As previously mentioned (see section 2.3.2.1, System boundaries), eleven dimensions can be used to assess the permeability of system boundaries and these were adapted and divided into two categories; project management and psychological dimensions. These were used to assess the state of boundary permeability within the project team in relation to the first property of EIRT, group boundaries. This section explores each team member’s responses to the six project management dimensions—project goals, authority relations, role definitions, communication patterns, budget and timelines—in order to gain insights into the effects these dimensions had on the project.

4.3.1.1 Project goals

In Project A, all team members, especially Lauren, Ben and Jack, indicated that the project goals were clearly towards the unequivocal, overbounded extreme, meaning that everyone had a very clear understanding of the project goals and what the project wanted to achieve and deliver. Ben worked closely with Andrew to scope the project and develop the project brief and found that:

*Andrew was very easy to get along with. He’d already trialled this project with students in a more low tech way and he was aware of the limitations of that. So he had a really clear idea of what he wanted when he came in and what he wanted was very reasonable, and we all had a very clear shared idea of what we’re trying to do.*

Andrew, in turn, highlighted the following in relation to clarifying the project goals and developing the project brief with SX:
What was good [about] working with that group, is that they were very experienced with project briefs. So that we spent a number of meetings clarifying those goals and reflecting on – and having some clearly set milestones within it.

The articulation of the project goals, guidelines, specifications and outcomes in the project brief was important for all team members as it enabled them to develop a shared understanding of the project. According to Lauren, the interface designer and SX project coordinator, the goals of the project were ‘actually, really visually understood...[which made it easier to]...talk about how you’re going to achieve something’. Finally, Jack, who was the designated web developer, stated that understanding the goals of the project:

...made the process fairly simple for me, because I knew where I was heading and so I wasn’t, I didn’t have to redo the project a number of times, which is the case in some projects. So yes, because the goals were clear, it did make it easier to achieve the end result.

However, even though the project goals were very clear, they were not inflexible. Ben highlighted how there is still an inherent level of flexibility required in complex projects. In relation to this project, all the SX team members indicated that the project goals were very clear, but they were not rigid. According to Ben:

We had some very clear guidelines, but there was some flexibility and we were sort of aware that, you know, it’s not that things will be missed – we were trying to do something quite complex. And to do something quite complex it is impossible that at the start that you’re going to really know everything, so if you set it in concrete, it’s going to be a problem. So we set some very clear guidelines. We had a very good idea of what we’re aiming towards, but certainly, there was some movement as we went along, as different issues appeared.

Thus, in summary, all Project A team members acknowledged the importance of having clearly defined project goals. These had a positive impact on what was a technically complex project, although it was acknowledged that there was still a level of inherent flexibility with them.
4.3.1.2 Authority relations

All team members identified Lauren as the designated project leader, as ‘she had such a long involvement with the project and she had the best understanding of what it involved’ (Jack). Three team members identified authority relations as being within the optimally bounded range, with only Ben from SX indicating that they were more towards the overbounded extreme, stating that ‘Lauren was the...[project leader]...and that was very clear from the start and so Lauren ran it’. Andrew, as the client and only academic on the team, identified authority relations as moving towards the underbounded side, but still within the optimal boundary range, stating that ‘there were multiple leaders because they were coming from different discipline areas’, but once he understood the demarcations between web and design, this was not problematic. However, Andrew commented:

...It was a bit like the double act generally for me, that I would be coming in to at least two but sometimes three people who worked very closely together in a complementary way...But then when I was brought in, I was essentially the client, but brought on board to make decisions within that...For example in the early stages with Ben and Lauren, that Ben was kind of the programming side, and Lauren was the design side.

And what was – what was kind of good about it was that they may, they would have had discussions beforehand, but positions if they were taken at the beginning of the discussion, were easily shifted...So, that people listened to each – and rather than feeling like the “customer” or client, I felt like The Person – because after all it was I who had made the submission and they’d written up the virtual design.

The willingness to listen to others and accept other people’s input was also highlighted by Jack who said:

I found it very effective because Lauren and Andrew were both willing to take suggestions and input, so it was a very inclusive and consultative leadership style so that worked for me.

Thus authority relations were clearly understood within the project team, and while there was a designated leader, everyone worked collaboratively together. Authority was therefore based on expertise, that is, horizontal authority and expert knowledge, rather than hierarchical authority.
4.3.1.3  Role definitions

The responses to the role definitions dimension were generally clustered around the optimal boundary midpoint, with one exception. Team members generally felt that their roles were clearly defined, they had clear responsibilities and they were all core team members at various stages of the project. Andrew, Ben and Lauren all fell within the optimal boundary range, and only Jack, the web developer, indicated that he thought role definitions were more towards the overbounded extreme. According to Ben:

*There was no overlap in people's responsibility in this project. It's not that they weren't inflexible, it was just the nature of the project. It was very clear...It was you are either building websites or you are making designs. There were no other elements to the project.*

However, Lauren made a distinction in relation to team roles being tightly constrained or overlapping.

*That's a really interesting – it's a really interesting question because in our projects, you want some of those roles to be overlapping and in others you want them to be very, very defined.*

*If you look at it from a task-oriented perspective, the tasks are always defined. So, I know what I have to give as a—what task that I have to undertake to physically give something to web development and vice versa. That will never overlap because I'm not going to tinker with the programming, and web development are not going to tinker with the type or the colouring.*

*[However,] as a designer, I can't be clear cut about my role as a designer: "I'm doing the design, here's the design, you implement it!". So, the overlapping bit has to be for me to understand web development, to understand interaction design, and for web development to have the appreciation of design and those kinds of things...But in terms of the way we collaborate physically, and meet and talk about projects, it's very overlapping.*

In this, Lauren highlighted a distinction between disciplinary defined, task-based activities and interdisciplinary praxis whereby web development and design need to have shared understandings of the affordances of each other's domains, because they both impact on product development. Jack also acknowledged the importance of this interdisciplinary overlap, especially in relation to web development and design, when he stated in relation to role definitions:
They were closer to the more tightly constrained end, although obviously as a web developer if there are some small design elements and design changes that need to be made, then I'm free to make those changes and show them to Lauren afterwards...[so]...there's always maybe 10% design in the web development job.

The demarcation of role definitions in terms of task-based requirements was evident in this project. Everyone knew what they had to do, by when and what was expected of them. Ben, Lauren and Andrew all clustered role definitions around the optimal boundary mid-point. Jack was the only person to mark role definitions closer to the overbounded extreme. However, Jack as the web developer, had a specific role on the team and his task was to build the system, but he did not see his role as being restrictive.

4.3.1.4 Communication patterns

The responses to the communications patterns dimension all fell within the optimal boundary permeability range. This indicates that there were no communication issues in this project and people received the information they needed, when they needed it. Communication was managed through both formal and informal mechanisms, including meetings, phone calls, casual discussions and email. Regular, formal face-to-face meetings were held with all team members about once per month based on key milestones as identified in the detailed project specification document (and as per Type 3 projects as previously mentioned in section 2.5.6.2, Project uncertainty), though more frequent meetings were required in the earlier stages of the project. Other formal meetings were also called on a needs basis as Lauren explained:

Ben and I may've got to a point in the project, or we might've made some kind of a breakthrough in terms of [having] resolved the interaction design, or some of the web development, [so it was] let's bring Andrew in now.

There were also emails and phone calls between SX and Andrew on specific matters as required. However, informal communication occurred regularly between the SX team members because they all worked in an open plan office, basically sat next to each other and shared coffee conversations in the communal kitchen (that has a great coffee machine) and around their desks. These informal conversations covered just-in-time
issues, problem solving, conceptual development and brainstorming.

The level of informal communication brought about by the physical proximity of the SX team members, and formal meetings with Andrew, helped all aspects of collaboration in this product. However, Andrew highlighted that, at the start of the project, he did find it a little difficult to determine who needed to meet and when, as he ‘was less clear about the actual functions, what was a programming issue and what was a design issue...and where they overlapped’. This diminished over the course of the project, in part because of the mix of the formal and informal communication patterns. Andrew highlighted the importance of the mix of these communication patterns:

> You know, I can just imagine how awful it would be if – if there was a communication breakdown. I mean, I can’t help feeling that it was so useful, having them in the same office. If they had been in different offices, it would have been such a slower process and really open to misinterpretation, partially because I wouldn’t have been aware of the appropriate terms to describe things that I wanted. And partially, because some of the ideas, there would be con... – there was always some conflict between ways to do it and what was achievable or what would work best. But being able to nut them out face-to-face was useful.

Thus, the communication patterns were good across the project. There was a positive mix of targeted communication—both formal and informal—in this project, which meant that all team members had access to the information they needed, when they needed it. This in turn assisted productivity and collaboration and reduced misinterpretation and conflict.

### 4.3.1.5 Budget

Responses to the budget dimension indicated that the budget caused minimal stress. As stated, budget for SX is generally designated in hours, that is, the number of hours required to complete a project. The three SX team members all indicated that the budget was towards the overbounded extreme, meaning minimal stress, while Andrew, the academic and LTG project leader, placed the budget as optimal. The budget therefore did not create any stress as there were sufficient hours to complete the project.
However, Andrew made the following observation regarding project work and budgets in universities.

*I suppose that one of the good things about working within the university, is that although we’re all accountable to different cost centres, once you’ve kind of done the deal, there is a lot more flexibility in this environment than there would be in many other workplaces. There’s much more of an attitude to getting the best work done rather than this is what you’re paying for...Which makes it a little easier for us all.*

This observation was also supported by Lauren who stated:

*Often what happens is that if we know we’re going over, we go over. And we learn from that and the next project we scope, you scope quite differently...But going over hours [that is over budget] doesn’t equal, doesn’t equate to a project being killed or a project being, you know, lots of antagonism or anger going on. It’s not like in industry, “Yeah, going over budget? I need 10 more grand”, “Sorry I don’t have it”, “Okay, what are we going to compromise?”.*

Thus, while this flexibility may not be commercially viable, both Lauren and Andrew felt that it facilitates project-based work in university contexts.

### 4.3.1.6 Timelines

All responses to the timelines dimension were clustered around the optimally bounded midpoint. Timelines are closely related to budget, in that timelines are calculated on the estimated number of hours (budget), SX’s production schedules and the agreed project completion date. Individual responses to this dimension took account of the tasks that needed to be done and how much time was available to do them. Jack was the only person to indicate that the timelines were slightly short but this was not problematic.

*If the budget was in hour terms, we did go over budget, but that was not considered to be a problem, being that the reason that we went over budget was because we knew that it would have value in other projects so there was no issue there.*
4.3.1.7 Summary of the project management dimensions

The project management dimensions of the group boundary property placed clear boundaries around the project. Firstly, the formal startup processes used to scope the project and develop the detailed brief/specification documentation, made sure that there were very clear project goals. This in turn established appropriate authority relations and role definitions so that the team members knew what needed to be done, by whom and by when. Within these project management dimensions, 15 of the responses fell within the optimal boundary permeability range, while the remaining nine were towards the overbounded extreme, but these did not have a negative impact on the project\(^{12}\). Overall, these dimensions created a firm foundation for project.

4.3.2 The psychological dimensions

This section explores the participants' responses to the five psychological dimensions in order to gain insights into the effects these dimensions had on the project. The psychological related dimensions are: individual effort, emotional climate, mix of groups, underlying team feeling and discipline/theoretical frameworks. In these, all were clustered around the optimal boundary mid-point, except for emotional climate in which the SX team members were clustered more towards the overbounded extreme.

4.3.2.1 Individual effort

The responses to individual effort were all within the optimal boundary permeability range. All participants felt that everyone put effort into working on this project, that their efforts made a difference to the overall project, and that people's efforts were maximised and directed appropriately. This, in part, supports the finding that the project management dimensions established firm boundaries around the project. Everyone

\(^{12}\) Six project management dimensions were assessed by four team members making a total of 24 responses that were distributed across the overbounded to underbounded continuums.
knew what their role was and what they had to do and by when. As Jack stated:

Yes, there was a lot of effort. It was a large, and technically it was fairly difficult. It had a lot of different aspects, so a lot of effort was required, so it wasn’t a simple project like some of the ones we work on.

### 4.3.2.2 Emotional climate

The emotional climate of the team was assessed by the three SX members, Lauren, Ben and Jack, as being more towards the overbounded extreme than the academic, Andrew, did. However, Andrew still assessed it as being on the overbounded side, but within the optimal boundary permeability range. In relation to the emotional climate in the team Lauren, the SX project coordinator, responded:

I actually think, generally, it’s a very positive outlook because I think the group feels, and the individuals feel, quite strongly about what they do. And they believe that they’re providing the right support and the right consultation. They’re not just sitting there, flogging some fluffy designs, or doing the backend work or just building a website. You know, it’s not just those things.

This was reiterated by Andrew, who also felt that there was a positive emotional climate, stating ‘yeah, it was positive, yeah, people were enthusiastic’. In relation to this project, the firm project management processes helped to create a positive emotional climate within the team. These sentiments were further supported by Jack who stated:

I think it was positive because we, both Lauren and myself, and Andrew believed in the project and we thought we would make a good...we were confident we were making a useful resource.

### 4.3.2.3 Mix of groups

As previously mentioned, Alderfer (1987, 2011) distinguishes between identity groups and organisational groups, both task and hierarchical. In this project, all participants denoted the mix of groups as falling within the optimal boundary range, with two of the
participants marking the mid-point, while the other two responses were marginally towards the hierarchical groups or overbounded side. In relation to identity groups, there were three males and one female, all born in Australia, but there was some age distribution. Jack, the youngest person, was in the 25-34 age bracket, Lauren was in the 35-44 age bracket and Ben and Andrew were both in the 45-54 age bracket. In relation to generational groups however, there was one baby boomer and the other three team members self-identified as being from Generation X (albeit, one was on the cusp between Gen X and late baby boomers). Identity group affiliations did not impact on the project team in any way.

However, there was some hierarchy in relation to people’s organisational roles and award levels, but as Ben stated, ‘I think we’d be treating all of us as pretty much the same level’. Jack acknowledged that there was some hierarchy, ‘in that Lauren had the leadership role and she was driving the project...[but]...there was no negativity based on the mix of groups. Obviously there were some hierarchy, but I didn’t think that was negative, I think that was productive’.

In addition to the hierarchical groups, there were three different task groups represented in this project; graphic design (n=1), web development (n=2) and academic teaching staff (n=1), although Ben only worked on the pre-production stage to develop the detailed project specification documentation, and Jack did the web development work in the production stage. In relation to the mix of groups on the team and the way they interacted, Andrew stated that all were ‘very respectful with each other’.

4.3.2.4 Underlying team feeling

In this project, the underlying team feeling was generally optimally bounded, which was summarised by Lauren as ‘happy’. The project management dimensions supported the task-focused nature of the project, which meant that people knew what they had to do and by when. There was no stepping on other people’s toes; people had the information they needed to produce their defined outcomes and they had relative autonomy within the project so they were not reliant or dependent on a single person, or leader, to achieve outcomes. As Jack said, ‘it was very comfortable and I think we all had the same
goal in mind, so yeah it was comfortable’, this was further reiterated by Ben who also said that the project ‘was very comfortable’.

4.3.2.5 Theoretical frameworks

The final psychological dimension is discipline or theoretical frameworks (cognitive work). In keeping with the other psychological factors, this was also clustered around the optimally bounded mid-point, although Andrew was slightly more towards the multiple/no theories underbounded extreme than the SX team members. Previously, Andrew identified that there were multiple leaders coming from different disciplines in the team in terms of authority relations, so here he saw that there were different disciplines or theoretical frameworks involved but this did not affect the project as ‘we kind of talked about different approaches to it’ (Andrew). Additionally, all participants were asked if they felt that this project team represented an interdisciplinary team, to which all participants responded ‘yes’, with Jack explaining:

Yes, yes. Well graphic design and Web design have... overlaps, but I think they are definitely two different disciplines and of course, Bruce coming from an academic background, was a very different discipline as well.

Jack also felt that there was an appropriate mix and sharing of ideologies:

Well I think the client Andrew was happy to defer to our knowledge as far as web design went and I was happy to defer to Lauren’s knowledge as far as design went, so I suppose there were multiple frameworks in that we have one framework to develop reusable resources and the academic framework is more about the learning outcome, so I think there were multiple ideologies that went into the mix.

However, he also identified a weakness in terms of SX overall.

I think our team could generally benefit from having [an instructional/educational designer]. We definitely have technical skills in the web area and we definitely have skills in the design area, but as far as usability goes and the learning outcome goes [we don’t have that]. Usability is kind of assumed knowledge based on experience and sometimes that’s not necessarily adequate, and as far as the learning outcomes go, again we’re just, we can often just
be guessing about what might be best as far as teaching methods. I think we could really benefit from someone with, who had a background in those skills.

Lauren highlighted the importance of a collaborative balance between theoretical perspectives/frameworks:

There was lots of sharing and I think that’s the overlapping that happens...I think it is actually quite inspirational...You know, if we’re working on a project together, it’s really crazy for a designer and a developer. And I think this is where a lot of these relationships fall over and why designers and developers don’t work well together. It’s because they have really single-minded views about things, but it’s actually accepting someone else’s theory and the way they do something. And we provide very different theories and perspectives in our own ideologies about how we would approach a project.

So Ben can come up with something and I can throw something back and that changes his perspective. Or, the way he wants to build something will change the way I do the interaction design part of it. So, it actually – I think that’s actually the thing that makes our work so good and makes it better each time.

This reiterates Lauren’s previous comment about role definitions and the need for shared interdisciplinary overlaps. The ability to discuss, share and collaborate underpinned all aspects of this project. As she highlighted, there can be issues between designers and developers as they come from different theoretical perspectives, but having clearly defined project goals meant that everyone was working towards the same outcome, that was the development of an online production and media distribution system. The outcome itself was an interdisciplinary collaboration between the academic representing learning and teaching theoretical frameworks, along with graphic/interface design and web development, so it was therefore imperative that people were accepting of different theoretical perspectives in order to achieve a successful project outcome.

4.3.2.6 Summary of the psychological dimensions

The psychological dimensions of the group boundary property were all optimally bounded except for emotional climate which the SX team members indicated was more towards the overbounded extreme. In general, they all felt that the emotional climate
was extremely positive in the team. The balance of these psychological dimensions accounted for an overall positive team experience, where everyone felt valued and respected. All team members put effort into working on this project and they were able to collaborate in terms of skills, expertise and different theoretical frameworks. Overall, there was a good mix of task groups, and no identity or organisational group dominated.

The structured project management dimensions helped to place clear boundaries around the project, so that everyone knew what had to be done, by when and by whom. This allowed everyone to collaborate successfully and contribute their skills and expertise. This, in turn, created a positive overall team experience that was reflected in these psychological dimensions.

### 4.4 Power differences

The second property of EIRT is power differences. Alderfer (1987) states that power differences are determined by unequal access to, and use of, scarce resources, and power differences ‘influence the degree of boundary permeability among groups’ (p. 203). Within universities, there is unequal access to scarce resources across many dimensions, for example time, money (budget), status, hierarchy, remuneration and expertise, which result in power differences between different groups. Within Project A, power differences were manifest in the levels of influence team members had on the project, and this changed across the duration of the project.

In its broadest sense, power is often viewed in terms of domination, coercion and control (Lukes, 2005). All the male members of the team spoke of power in these terms. Andrew saw power as ‘the ways in which the one person in a group or body exercises control over another’; Ben saw it as ‘who has the ability to coerce people’ while for Jack ‘power is about control I guess, getting your own way, coming out on top when there’s competing needs’. However, according to Steven Lukes (2005, p. 12) ‘[p]ower is a capacity not the exercise of that capacity (it may never be, and never need to be, exercised)’. Only Lauren, the sole female on the team, saw power in these terms. For her, power was not about dominating; rather it was about confidence based on knowledge. According to Lauren:
[Power is] knowing that you can do something different and actually being able to do it...So, what I mean by that is I could have an idea of how I'd like to design something or build something or how something should work but I don't know how to do it [so therefore I am powerless as I can't do it]...So, power I guess is – it's about understanding something. You know, it's not about – it's not about dominating. My perception of power is not about dominating, it's about – I think it's about confidence.

Within the project team, all team members identified that the major power differences were generated by knowledge, or lack thereof, such as disciplinary knowledge and knowledge of systems, possibilities and programs. According to Ben:

Well, power in terms of the project team would be about who has the ability to coerce people on specific parts of a project, for example, in terms of the selection of Drupal as a CMS [Content Management System]. Obviously, the web developer has the ability to coerce the other users to use that, so they have a certain degree of power by saying we will do this in Drupal...So people who have the ability to influence.

In this extract, Ben identifies multiple dimensions of power as knowledge. Firstly, there is his professional knowledge, or expertise, regarding the choice of web development technologies, such as systems, databases and programs, that would be suitable to build the product, followed by his specific programming capabilities. Furthermore, there is an inherent assumption that his decisions would be based on, and located within, broader organisational and web development considerations, agendas and practices, including usability, accessibility and university policies. It is from this perspective then, that Ben used the term ‘coerce’, that is, to influence others based on his professional knowledge, practices and judgements in relation to 'specific parts of the project'.

All team members had clearly defined roles, authority relations and task responsibilities. Depending on whose role took primacy, the balance of power shifted. Andrew felt that in terms of general power within the team, it was ‘fairly equal...[and]...we would thrash it around’. However, he did highlight a paradoxical relationship in terms of power and status in relation to the role of ‘the technician’ which he described in terms of Actor Network Theory (ANT).

It is interesting what Latour says about the technician and the role of the technical within the socio-technical processes and how it’s generally regarded as lesser. “Um, that’s a technical question” meaning, you know, we don’t have to understand that, there’s some minion that will do that.
However, in relation to technical issues, he felt that his lack of knowledge placed him at a distinct disadvantage and the programmer wielded far more power:

_I certainly was at a disadvantage. There were things that I – sorts of files that I would like to have been able to use in the system, but the university policies, as related by the programmer, made that kind of non-negotiable really. So, there’s a degree to which the outside agency of the university was THE power. That was where the power was demonstrated, but where it was—the way it communicated—was through the programmer._

_And in the sense, I suppose that’s something that I’ve noticed in many situations, that area that we were talking about of the technical often being relegated as something secondary, well, it is also a way to wield power. And I think that in some situations...in some contexts, that occurred here. It kind of does stymie debate, so that things that you might want, it’s like "No, it’s not possible. It’s a technical issue". So, the black box moments worked for the technician as much as they work for somebody else who is perceived to be in the position of power._

As previously mentioned (see section 2.5.4, _Actor Network Theory and black boxes_), black boxes represent established networks of both human and non-human actants that are no longer challenged. Programmers wield considerable power through the mobilisation of their facts, networks and allied actants, such as web development skills, expert knowledge of appropriate software applications, programming languages and other professional practices including accessibility and usability. However, ‘technicians’ are often relegated to secondary positions within complex organisations, for example through parallel processes. However, the blanket statement ‘it’s a technical issue’ made this non-negotiable. As a black box moment, this demonstrated both the power of the programmer—and his allied networks—including the university more broadly. This left Andrew at a complete ‘disadvantage’ in relation to the technical.

Professional skills and knowledge were acknowledged as scarce resources. They produced unequal power differences within the team and allowed team members to influence each other. However, according to Jack, this was not a negative as people deferred to other people’s areas of expertise:

_I think that Lauren probably had the most power, because Andrew was happy to defer to us – to what we thought. While he did have quite a bit of power as the client, he did defer all of it to us, and Lauren had the clearest vision of what the project was, so she was able to use her influence the most. I didn’t find it in any way_
unproductive though, because it helped to have someone with vision and to use a little bit of power to enforce that vision, but not in a way that disrespected any of the other team members.

Power differences are said to be based on access to and use of scarce resources and the variety of dimensions on which there are differences, influence the degree of boundary permeability among groups (Alderfer, 1987). In Project A, horizontal expert authority was recognised as the scarcest resource, so those who had knowledge (expert authority) were able to influence others. Thus horizontal expert authority was more important within the team than vertical hierarchy. People were able to share their professional knowledge within the project team, and this power sharing was enhanced by the overall degree of optimal boundary permeability found in the group boundary property. This shows that power differences did not have any negative impacts on this project.

4.5 Affective patterns

The third property of EIRT is affective patterns. At a fundamental level, the permeability of group boundaries influences affective patterns, that is, the unconscious emotional responses that account for ingroup and outgroup memberships. Ingroup and outgroup memberships account for ethnocentric behaviours with positive feelings associated with people from the same group (ingroups) and negative feelings projected on to people from other groups (outgroups) and these are in part produced and reproduced through parallel processes (Alderfer, 1987, 2011).

By their nature, interdisciplinary project-based teams comprise people who span organisational boundaries, each of whom will have inherent psychological and physical group boundaries. Subconsciously people operate their own stereotypical archetypes of the groups they—and other team members—represent, exemplified by ideas such as we can do no wrong, all accountants are boring or the IT department can’t run anything. These are based in part on the existing relationships between and among the groups embedded in their contexts, including broader socio-cultural contexts.

In order to explore affective patterns within the team—and as part of the role definitions dimension of the group boundaries—each participant was asked to fill in a quadrant
chart identifying team members, and the relative levels of importance each person’s role, along with their involvement in the project (see Figure 4.3). At a basic level, this was to assess team boundary disagreement (Mortensen, 2008), that is, who was considered to be part of the team and who was not included in the team as previously discussed (see section 2.5.7, Team boundary disagreement). The participants were also asked some specific questions about collaboration with ingroup and outgroup members, and about levels of tolerance shown towards other team members.

Figure 4.3 presents the combined responses for each team member. No person identified the official project team, so there is evidence of team boundary disagreement. All three SX members failed to identify the client, Andrew, as a team member although all spoke frequently about Andrew’s involvement in the project. Andrew was an outgroup member on this project. He was the client, came from another organisational area, was an academic, represented another discipline area and was not collocated with the SX team (group boundaries – physical).

Andrew, on the other hand, identified both Jack and Lauren as team members, but did not identify Ben. Ben worked closely with Andrew in the pre-production stages to create the detailed project specification document, but later Jack was assigned to build the project, thus Ben’s involvement as an active member of the project team ceased. Lauren identified Jack and Ben as team members, but added Fran, as did Jack. Fran was another web developer in SX who was collocated with Ben, Jack and Lauren. According to Mortensen (2002), it is equally as likely that team members will be added in team boundary disagreements, especially if groups have shared mental models and transactive memories based on previous shared experiences, as was the case with Fran.
Figure 4.3: Team member identification and project involvement in Project A

In this project, Andrew and Lauren were the only two people who were involved across the entire project. However, Lauren was the only person in the team whose team role function and involvement in the project were rated as high/high by all team members. Each SX team member identified the other SX team members as working on the project, although there was no overall consensus regarding levels of team role function and project involvement. Ben assessed Jack and Lauren’s team role functions (web developer and interface designer/SX project coordinator respectively) and their involvement on the project, as high/high, while he identified that his involvement in the project was
important in the pre-production stage, but that his team role function as a web
developer was relatively low overall in the project. Lauren, however, rated Ben’s team role function and involvement in the project as high/high, but in relation to Jack, she rated his team role function as web developer as high, but felt that his involvement in the project was not as high as he was only involved in the production stage. As for Andrew, Andrew rated Lauren and Jack’s team role functions and involvement in the project as high/high, on the basis that to him, this was where the work was actually done, although he did state:

‘Initially...[I worked]...with two people and then Ben went to the background and Jack came in as the actual person who was going to do the little building of the site, so I was essentially dealing with Lauren and Jack.

The use of the word ‘little’ in the above extract is interesting. As has previously been stated, this was a quite a technically complex project. Little is quite dismissive of the technical expertise required to build the system. However, it is in keeping with the comments Andrew previously made regarding ANT, and that the technical is often relegated to a secondary position, which would appear to be the case here.

As indicated, team members changed in the production stage. Ben exited the team and Jack joined it. Thus there was no-one from the same disciplinary background who would be considered ingroup members working on the team at the same time, although Lauren, Jack and Ben were all part of the same service group and had strong existing relationships, so they were organisational ingroup members. Lauren, Jack and Andrew all stated that they had no problems collaborating with people from different discipline or organisational backgrounds (that is outgroup members). However, while Ben had no trouble collaborating with people from other discipline backgrounds on this project, he did make the following observation:

I guess the example in this project, it’s more the client, isn’t it. It’s Andrew, because Andrew comes from a very different area. It is...[discipline field omitted]...so there was an affiliation with what we do anyway, so it wasn’t hard. I mean we would certainly often enough have said something that Andrew would have had no idea of what we were saying, and that’s obviously the biggest hurdle in what we do. There’s communication gaps where we’re talking about things and we have no other way of talking about them and they’ll be talking about the things which is in their own discipline’s jargon and somewhere we have to find a common language that we can share.
Now Andrew was really good, in that he basically accepted that I know nothing and therefore I’m willing to learn from you, and that made the project very easy, whereas some people know they know nothing, but like to try and pretend they do, and that really gets in the way of the process.

Each discipline is shaped by Discourses that account for views, values and orientations and ways of knowing and doing that determine ingroup, and therefore outgroup, memberships.

In this extract, Ben highlights the importance of the ability to ‘find a common language’ that can be shared, but also highlights the importance of understanding your limitations and the ability to learn from others. These are important considerations in interdisciplinary collaborations.

### 4.6 Discourses (cognitive formations)

The fourth property of EIRT is cognitive formations or Discourses. As previously stated (see section 2.4.6, Discourses as cognitive formations), Alderfer’s definition of cognitive formations aligns closely with Gee’s notions of Discourses, and thus Discourse theory is used here to explore and understand cognitive formations. Discourses embody affective patterns as they underpin ingroup and outgroup memberships, for example between academic and professional disciplines. As previously stated, Discourses embody ways of knowing, thinking and doing that reflect people’s inherent views, values and orientations and they mediate relationships with other groups, including social structures, such as class structures. In this project, the team members represented different identity and organisational groups, both task and hierarchical, and thus there was a range of primary and secondary Discourses found within the team. Academic disciplines as Discourses, are also underpinned by different theoretical frameworks and assumptions, and in respect to interdisciplinary collaboration, there needs to be good (psychological) boundary permeability in order to enable people to share and combine their Discourses to produce outcomes that are pleasing to all.

Theoretical frameworks were assessed as a dimension of the group boundary property. All team members marked theoretical frameworks within the optimal boundary mid-
point range. Additionally, the participants were asked how they felt their disciplines were viewed and valued within the team, as well as more broadly within the university. This section now explores the perceptions of the perceived value of each team member’s disciplines and professional backgrounds within the team and the university more broadly.

All team members felt that their discipline/professional backgrounds were highly valued in the team, but this was not always the case within the broader university context. According to Jack, the youngest and most junior member of the team:

*I definitely always felt that it was valued. If there was something of a technical nature, Lauren and Andrew were both happy to take my advice, and I think they both had confidence I knew what I was doing.*

However, it was within the broader context of the university that SX felt that their areas of expertise were undervalued. Once again as summarised by Jack:

*I don’t think the skills of people here are always valued as much. I think the graphic designers, they cop a bit because people don’t value their skills enough. This is from people outside our group. Internally, in our group, I think everyone has, knows what everyone’s roles are and they respect everyone, but that’s not always the case that people from outside the group give the right amount of respect. [In relation to web development within the group] people see the complexity of the stuff that especially Ben and myself do, for example the 3-D stuff that Ben is doing now...it is really impressive. So I think that people do respect that if they want anything that can be done with technology, that Ben and I usually have the skills to do that, so I think we get respect that way...[But within the university]...it’s probably like graphic design, it’s probably undervalued. People don’t notice the difference between—sometimes don’t notice the difference between—a website that someone could whip up in 20 minutes in FrontPage and a professionally designed website meeting all accessibility, usability and web standards requirements. It’s not always clear to people from a non-technical background.*

Lauren raised a similar point in relation to respect and collaboration. She stated that beyond the group:

*Then it becomes tricky. It becomes mixed. And it’s always mixed. Andrew sees it [that is, her discipline graphic design] very highly*
and he views it with a great deal of respect. So, he views it as a collaboration. Not as a 'Please make this look nice'.

Embedded within this statement is a nuanced distinction between collaboration and dismissiveness. Lauren sees collaboration in terms of mutual respect for other people's abilities, which in turn means that everyone is contributing their expertise and thus they should deliver a product that is more than the sum of its parts. However, 'Please make this look nice' is dismissive in terms of professional expertise—it’s the difference between a professional photographer who can capture the essence of an image through technique, expertise, placement, light, exposure and other such things, and the ubiquitous holiday snap that simply records an image (often badly).

Andrew, on the other hand, was the only non-SX team member. He felt that his discipline and professional background were valued within the team, but he qualified this by saying:

Well, it’s fortunate that I did have some [technical experience]. Even though I, I kind of didn’t have—I certainly had no practical experience with the kind of design and programming [as they did]...I have had experience in an allied area of production. It was certainly an advantage to the extent that I think I would be more respected because I knew something of their world.

I know that I...[use myself]...as a device to find out information that I need. I’ll come across as if I am totally naive. And whilst, at worst, that means that people run all over you...on the other side, they’ll forgive you for any stupid questions that you ask...Even when I do understand some of it, and then over the course of the project, it becomes clear that you do know a little bit more than you are letting out.

In respect to the broader university, however, he felt that he was valued albeit for the wrong reasons. Andrew had previously worked in the media and felt that his previous work was given more status than his current academic/teaching work. This is part of a parallel process which reflects the status given to the media in today’s society as opposed to education:

Like in most places, if you’ve been involved in the media in any way, people recognise your name, then there’s at a surface level a degree of respect. But that actually can be less than useful. So that in fact the other things [you do] and the management responsibilities you have and the involvement in other institutions and boards and things like that, that gets downplayed.
Respect then is a common thread through these comments, particularly in relation to professional expertise. It was evident that all team members respected the disciplines, and thus Discourses, each member brought to the team, but in general they did not feel that this professional respect extended into the broader university context.

4.7 Leadership behaviour

Leadership behaviour is often thought of as a personal attribute. However, in intergroup contexts, such as interdisciplinary teams, ‘the behavior of group leaders and of members representing a group reflects the boundary permeability, power differences, affective patterns, and cognitive formations of their groups in relation to other groups’ (Alderfer, 1987, p. 204). Thus individuals in intergroup contexts become de facto leaders of their respective groups and they are therefore affected by the relationships that exist between those groups embedded in their contexts.

Within this project, boundary permeability was generally judged to be optimal and there were no negative impacts in terms of power differences, affective patterns or cognitive formations/Discourses. Power differences were based on disciplinary knowledge (cognitive formations/Discourses) and horizontal expert authority and each team member felt that their contributions were valued and respected. Each team member felt that leadership was distributed evenly across the team in respect to people’s disciplines and tasks. According to Ben:

Leadership is interesting in the project team because each of the members of the team were leaders in their own respect. You know, Andrew came to the project with a very clear vision of what he was trying to achieve, so he was very much, he took a leadership role just by making a submission for the project to occur. You know web development took a leadership role by identifying the ideal technologies for the project and being able to make sure everyone was comfortable with that; the designer took a leadership role in terms of how the project should be presented so that people will be able to use it with ease and comfort. So each of us took a role, a leadership role, in quite a different way.
Leadership behaviours were thus based on tasks and professional expertise and people took leadership positions at different times so that leadership was ‘a natural thing’ (Lauren) and the team ‘became a much more autonomous level working group’ (Andrew). Leadership, in general, was based on respect for horizontal expert authority.

Interviewer: Within the team, did you ever need to take a leadership position to represent your discipline area, practices, theoretical frameworks etc.?

Jack: I think generally in meetings, especially with the client, when it came to questions of a technical nature on the project, I think I displayed leadership then by providing direction in those areas.

Interviewer: Was it ever challenged by anyone?

Jack: No it wasn’t, because I think both Lauren and Andrew respect my abilities and knowledge in that area.

Moreover, Lauren identified a further attribute of leadership, one that she felt was most important, ownership. According to Lauren:

You know, you can take ownership over what you do, which is in some respect leadership in moving it along...It’s about being responsible for doing a really good job and understanding what you need to do in order to give it to web development. Because if you don’t do it right, the responsibility comes back to you and the project falls over...So, yes, ownership must be there. But it also must be open for scrutiny from the other members of the team.

Lauren said previously in relation to power differences, she felt that power was confidence. For Lauren then, power and leadership are closely aligned in that you need to have confidence in your professional skills and disciplinary knowledge and take ownership of—and responsibility for—the things you do. However, she recognises that people do not work in isolation and for interdisciplinary collaborations to succeed, feedback from others is still required:

There was never a moment where the designer could say “I am sticking to the way this is designed and I don’t want you to change it [banging her hand down on the table].” Or the web developer giving his own interpretation and his own spin on the design. I mean the web developer would certainly have that. But the web developer is also very open to you coming over the shoulder and saying, “Ah-a, now we’ve got to tidy these things up”. And that’s what happened, you know, he sat there and tidied things up. So there’s an expectation that that’s going to happen.
Andrew, as the academic, client and LTG project leader, was the outgroup member on this team. However, all the SX team members acknowledged his importance in terms of leadership, especially since 'he was so passionate about it. And it’s his students and they are doing some really wonderful things and he is really, you know, really about a project that is about online learning and it’s about giving students a really great environment' (Lauren). Thus, Andrew’s vision of the project and what he wanted to achieve for his students, ultimately lead the project and underpinned his involvement, especially in the production stage. In respect to the question did he ever need to take a leadership position within the team in respect to his discipline background and theoretical frameworks, Andrew responded:

*Not much. No. But at times to kind of, I suppose, clarify what it was we wanted to achieve from this thing that was being built...and what the primary functions were as opposed to the – yes, that would be good, but that’s not actually what I need in semester 1.*

Overall, Andrew felt that in terms of leadership, he provided the ‘client’s perspective’ on the team. He knew what he needed the online learning resource to do, which was based on his understanding of what he needed built to facilitate student learning in first semester of the following year.

### 4.8 Summary of Project A

This was a very successful project. The aim of this project was to build an online production and media distribution system to assess and showcase student work. Overall, it was an uncomplicated project, and although it was complex in terms of process (technical) complexity, it was relatively straightforward in terms of product complexity and there was no adverse organisational complexity.

The startup processes clearly established the project goals, and the project management dimensions placed clear boundaries around the project in terms of goals, roles and timelines. Power differences were based on expert authority and everyone was able to share and take leadership positions in respect to their different disciplines. Overall, it was a very positive experience for all team members as evidenced through the psychological dimensions of the group boundary property of EIRT.
Occasionally there were those negative feelings [in the team], but for the most part, it was overwhelmingly, “Oh, isn’t it good to work with creative people!” and get that sense of common purpose and commitment.

Emma, academic teaching staff member and LTG project leader
5.1 Background

Two academic teaching staff members, to be known as Emma and Shirley, initiated the second LTG case study, Project B. They wanted to push the boundaries of student learning and enhance student engagement in a second year unit. In particular, they wanted to expose students to an immersive, technologically rich, online learning environment to help them develop collaborative knowledge and learning capabilities using Problem Based Learning (PBL) scenarios. This LTG project wanted to redesign the curriculum of a second year unit to move away from the traditional lecture/tutorial model, and be disruptive because:

Second year seemed to be a problematic year in a four year...[field of study omitted]...degree, and it was problematic because the gloss of first year and newness was over. The students kind of felt they've got, still got three more years to go. And we saw an increase in disengagement, but also some students leaving...And so we took a look at the units that we were undertaking in second year and said how can we make them more engaging?...So the idea of this project came about in terms of trying to meet that particular need (Shirley).

Prior to this LTG project, Emma had developed a pilot version of it. The pilot version used blogs and wikis in Blackboard13, and linked to a basic website Emma had developed. Students had to complete various online tasks and access evidence to solve a PBL scenario. The Blackboard wikis were used extensively to foster group problem solving capabilities, collaboration and communication, and the teaching staff were therefore able to monitor student learning and participation. However, Emma and Shirley felt that student engagement with the online environment was limited by a number of factors, which included Blackboard’s lack of flexibility, the static web pages Emma had created and a lack of multimedia content. Thus Emma summarised the pilot as ‘somewhat crude and amateurish from a design perspective and a little bit clunky. And it was a lot of work to put all that content together’.

Emma saw the university's LTG program as an opportunity to create a sophisticated, immersive and multimodal learning experience for their second year students, and to push their boundaries in terms of disciplinary, theoretical and applied learning in their field of study. It was therefore ultimately meant to be a vehicle to provide a safe context

13 The pilot used the Campus LX building block for blogs and wikis in Blackboard.
in which students could explore and extend their learning in the present, as well as prepare for professional practice in the future. Emma thus approached Service X (SX) and filled in a production request, and met with Lauren and the Director of SX, Frank, who both thought it would be an appropriate project. Lauren was appointed the provisional project coordinator and provided Emma with a preliminary project scope for the LTG application that included an estimate of the hours which ‘was a ball park amount which ended up being a lot less than we needed to have’ (Lauren). Ben was appointed the project coordinator and it was logged in their database. After the LTG application was approved by the university, Emma contacted SX and the project then entered the pre-production stage.

The project team effectively comprised two highly interdependent teams: the academic team and SX. The academic team consisted of disciplinary subject matter experts who were responsible for researching and developing the content for the PBL scenarios, and SX who was responsible for designing and building the online learning resource. The academic team started developing the three PBL scenarios in January. Between February and May, there were ongoing meetings between the clients, Emma and Shirley, and Lauren and Ben from SX, to fully scope the project and produce the detailed project specification documentation that included the system architecture, administration system as well as other learning objects requirements. The wireframes and the production plan were approved by the clients in late May. SX then began to design and build the resource, including the back-end administration system, the learning objects and the interactives. This LTG project, thus had to effectively develop an entire semester’s unit in six weeks, and it was meant to be ready by week one, second semester.

5.2 The project team

There were six main team members in Project B as shown in Figure 5.1 and further details are provided in Table 5.1. The two academic staff members, Emma and Shirley, formed the academic team responsible for research and content development, while Emma was also the LTG project leader. The four SX team members were: Ben, the SX project coordinator and main web developer who was responsible for building the
system in the production stage; Lauren, the senior interface and graphic designer who was responsible for producing the detailed project specification documentation in the pre-production phase, and later for reviewing the design work; Helen, the graphic designer who developed the graphic/interactive design for the system and learning objects; and finally Gavin who scripted, filmed and produced the video and audio files for the project.

Web development (Ben) and graphic design (Lauren and Helen) were collocated in the same open plan staff room, while audio and video production was located in the same building although on a different floor. They all shared a common kitchen. Informal conversations occurred in the kitchen, as well as around people's desks in the open plan office. Both Emma and Shirley were located on another campus, roughly an hour’s drive from SX’s location. Both were located in the same building, albeit on different floors. They did not have access to taxi vouchers to travel to meet with SX, so they needed to drive to the main campus for all meetings which according to Emma meant:
It's a half a day. Even though we might meet for an hour, by the time you get in there and meet, and it was never just an hour, and come back again, it's a much bigger thing.

Table 5.1: Team member details in Project B

<table>
<thead>
<tr>
<th></th>
<th>Emma</th>
<th>Shirley</th>
<th>Ben</th>
<th>Helen</th>
<th>Lauren</th>
<th>Gavin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male/female</td>
<td>Female</td>
<td>Female</td>
<td>Male</td>
<td>Female</td>
<td>Female</td>
<td>Male</td>
</tr>
<tr>
<td>Role in team</td>
<td>LTG project leader &amp; client Discipline expert – academic</td>
<td>LTG project team member &amp; client Discipline expert – academic</td>
<td>Web developer Project Coordinator SX</td>
<td>Interface and graphic designer</td>
<td>Senior interface and graphic designer</td>
<td>Audio and video production</td>
</tr>
<tr>
<td>Award</td>
<td>Academic</td>
<td>Academic</td>
<td>HEW</td>
<td>HEW</td>
<td>HEW</td>
<td>HEW</td>
</tr>
<tr>
<td>Age group</td>
<td>45-54</td>
<td>55-64</td>
<td>45-54</td>
<td>25-34</td>
<td>35-44</td>
<td>45-54</td>
</tr>
<tr>
<td>Years at PU</td>
<td>0-5</td>
<td>16-20</td>
<td>0-5</td>
<td>6-10</td>
<td>0-5</td>
<td>16-20</td>
</tr>
</tbody>
</table>

In terms of identity groups, there were two males and four females. Four team members were Australian, one was from Canada and the last person was from Scotland, although both the Canadian and the Scot had been in Australia for more than 20 years. The dominant age range was 45-54, with Shirley being in the older age range of 55-64, Lauren in the younger age range of 35-44 and Helen in the 25-34 range. In terms of organisational groups, there were four task groups: academic teaching staff, web development, graphic/interface design and audio-video production. In terms of hierarchical groups, team members were divided across structure and award types, Academic and HEW, and respective levels within them. Three of the team were relatively new to PU having worked there for less than five years, while there were two team members who had worked there for more than 16 years.

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14 There were two people employed on short term contracts, a low-level research assistant and a Flash developer. As neither of these people was still employed at PU at the time of data collection, they are not included as team members in this project, although they have been mentioned on occasions.
This was a very large and complex project that was ‘a little bit creative and a bit quirky’ (Emma) and while stressful, overall it was ‘challenging, rewarding and fun’ (Helen). In essence, there were two separate, but highly interdependent teams that worked on the project, both of whom had different deliverables. The first team, Emma and Shirley, was the academic team, and their main deliverable ‘was to have resources in place to support our teaching [in week one of second semester]’ (Emma). They had multiple roles across the project including being the clients, discipline experts, project instigators, researchers and the content developers for the PBL scenarios. However, they still had full teaching loads as they were unable to use the LTG funding to buy out their time as time release. As Emma stated:

_Things like this are always add-ons to your work load and it’s not like Shirley and I were given any additional time away from our existing teaching loads to develop these sorts of resources._

The second team was the production team. SX had to develop the system architecture which included a wiki and online discussion forum, a back-end administration system to allow for the flexible management of learning objects, and the learning objects themselves. These consisted of a range of multimodal learning objects including videos, audio files, templates for both text content and objects, images and interactive multimedia objects, or interactives. Both teams employed additional support on short-term contracts. The academic team employed a low-level research assistant to help in research and content development, while SX employed a Flash developer to work on some of the interactives\(^\text{\textsuperscript{15}}\). Both contracts were funded from the LTG budget.

The two teams were very interdependent even though they were located at different campuses (physical boundaries). So how did intergroup relations affect successful collaboration in this project? This chapter presents the story of this project through the five properties of EIRT.

\(^\text{15}\) Flash is an Adobe multimedia authoring program used to develop interactive content for websites.
5.3 Group boundaries

This section explores the group boundary property of EIRT in relation to the second case, Project B. Figure 5.2 shows the compiled responses for all the participants across the 11 dimensions used to assess the group boundary property.

The responses to these dimensions indicate there was less optimal boundary permeability than in Project A. There was only one dimension, individual effort, that all team members identified as being optimally bounded, while communication patterns, underlying team feeling and discipline/theoretical frameworks were generally clustered within the optimal boundary permeability range (with one exception in each). However, the other seven dimensions showed both overbounded and underbounded responses. The area that was most chaotic was the timelines dimension in which five of the six respondents indicated that they were extremely short, which was one of the major stress factors in the project.

The following analysis of the 11 group boundary dimensions once again starts with the project management dimensions and then proceeds to the psychological dimensions to assess the impact these had on successful collaboration within the team.

5.3.1 The project management dimensions

This section explores the responses to the project management dimensions in Project B. There was a greater level of disparity across the continuums from overbounded to underbounded in this project and no dimension was considered optimally bounded by all team members. This section explores the team members’ responses to the project management dimensions and the effects these had on the project.
Figure 5.2: Compiled responses for the group boundary property in Project B
5.3.1.1 Project goals

In Project B, there were various levels of uncertainty in relation to the project goals in terms of both the scope and the actual project itself. The scoping process in the pre-production stage was meant to put boundaries around the project both in terms of its scope and the actual project goals, but in reality, it had the opposite effect. As previously mentioned, one of the major issues with Type 3 projects (see section 2.5.6.2, Project uncertainty), is that client goals are often vague and cannot be specified until the clients know what is technically possible (Turner & Cochrane, 1993). Thus, startup processes in Type 3 projects (see section 2.5.6.3, Startup processes) are very important, as it is in this stage that the project’s purpose, goals and objectives are negotiated and defined, so that the final product delivers the desired outcomes.

Following the LTG approval, the pre-production brainstorming/scoping sessions were held and these opened up both technical and pedagogic possibilities for the clients. Emma and Shirley had general goals regarding what they wanted the project to achieve, based on the pilot Emma had created previously, but they did not know what was technically possible. According to Emma:

*The initial scoping [for the LTG application] was done by myself, Frank [the Director of Service X] and Lauren based on the version I [had previously done].*

*[However], when we introduced Shirley and Ben to the mix, the possibilities grew...because Ben kept coming up with what “Well, how about if we do this?” and Shirley would do the same, “What if we had a laboratory? Or what if they went to the library?” And once they started doing those [things], we all started doing that. So, the scope of what was possible was opened up. And once Ben opened the door as to what was possible, we all went a bit nuts.*

This therefore actually increased the scope of the project, both in terms of functionality and complexity, and thus blew the scope out from what had been originally quoted in terms of hours in the LTG application. According to Lauren who was involved in the scoping process:

*The initial meeting [was] with Emma and Shirley, yes, and Ben. And we...tried to really nut out what it was they wanted because they had so much they wanted to say in terms of what they wanted the tool to do and how they wanted it to function and the flexibility of it.*
The focus of the scoping process therefore changed. Instead of producing detailed project specifications about each element of the project, it only captured the ‘big picture’, which was more about the system architecture than individual components. According to Ben, the SX designated project coordinator and web developer:

*In a large project, you can have very clear ideas about the end, the total end product...But there can be individual parts of it which are quite substantial and they're actually the size of a project on their own...[And]...I guess you don’t go into the same detail with some of those things like you do in the overall project, like the big picture.*

*You need to have a really clear idea of what all the components are and what all the components need to do. But some of the components, like in Project B, we created these clues, but the clues were less critical—like if one clue fails, it actually has no effect on the system...But if the system doesn’t have the functions that allow the clue to be included in the system, the whole system fails and the clues are useless, so that has an effect on everything below it. So a lot more effort went into the detail of the bigger picture and some of the smaller interactives, we really just sort of got a general idea of what that was and let that sort itself out.*

However, this did have implications on the team. As can be seen from the project goals dimension in Figure 5.2, Ben was the only person who identified that the project goals were clearly defined, and from his perspective, this was because his first task was to build the back-end systems, and later he developed some of the other multimedia components, or interactives. However, for the other team members, there were various degrees of uncertainty in regards to project goals. Emma identified the project goals as ‘a work in progress’ and Shirley felt that they were ‘emergent’, but she did not consider this to be a negative; instead she saw it as part of a creative process. So while there was a clear goal for the back-end system, this was not always the case across the rest of the project, and thus there was ‘a sense of not really having a clear overall picture of what the project was about’ (Helen).

Another issue with the project goals was that different organisational task groups had different and sometimes competing goals. For example, when asked ‘Were the goals of the project clearly defined?’ (Interviewer), Emma’s response was ‘Whose goals, mine or Service X’s?’ Emma felt that there were two highly interdependent teams on the project who had different needs:

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My needs, or the need of the academic team, was to have resources in place to support our teaching that would engage the students and integrate technology in ways that they could see and understand and use and learn from. Service X had a bigger agenda which was the information architecture...[and]...I think both sides underestimated the complexity of the project.

Another issue arose in terms of the specification of the project goals. Not only did the clients not know what was technically possible, but they also lacked experience in technical specifications. According to Emma:

*In hindsight, no, the goals weren’t particularly clearly developed because it was a work in progress and it was really difficult. We had specified, we thought what we needed. But not having enough experience in these sorts of projects. I think that showed up...And so, we probably didn’t specify the goals clearly enough at the beginning.*

However, once finally scoped, the project became more of a Type 1 project, in that it became more of a discretionary activity/task-based project, where the activities/tasks formed components of the overall project. Some of the tasks, such as the video and audio files were discrete, sequential tasks, while many of the other tasks, for example developing the individual interactives were reciprocal tasks, especially between design and web development (see section 2.5.6.1.2, *Process complexity*). According to Lauren:

*It was a very complex project and having an understanding of separating the project into building a system and then putting artefacts into the system, really helped the collaboration between the designers and the developers. In some ways, they had two very different tasks, especially for the designers, because they had to design the look of the interface, but then they also had to design the artefacts that were going into the system.*

The scoping process did try to clarify the project goals and place boundaries around the structural and technical complexity of the project. However, as Ben stated:

*The project goals, being so broad, had an impact on the team’s ability to work productively together because not everyone really got the full picture and so they had their bits to work on, and it caused some confusion.*
5.3.1.2 Authority relations

The majority of people (n=4) considered authority relations in Project B to be within the optimal boundary permeability range. In short, three team members placed authority relations on the optimal boundary mid-point, in that 'basically we all knew what we had to do. It had all been delegated' (Gavin). Two people, Emma and Helen, indicated that authority relations were more towards the multiple and competing extreme, although Emma still identified them as within the optimal boundary permeability range, saying that authority relations were ‘democratic’ and based on respect and expertise.

Ben was the designated SX project coordinator and was recognised as such by all team members. Gavin identified authority relations as being optimally bounded and made the following observations in respect to Ben and authority relations in general:

I’d say in the middle, because basically – I mean, if you’re talking about monolithic, your talking about somebody who wants to control everything. And Ben never did that. I mean, Ben basically deferred to everybody’s expertise. So you know, you had a job to do. All he was really interested in was that the job came in on time. He never questioned that at any point in time, the quality of it or anything like that.

When asked about authority relations, Ben, as the project coordinator, said what was great about the team ‘is people go off generally and do their bits, and do their bits very well. You don’t need to micro-manage’. However, he did place authority relations as more towards the monolithic overbounded extreme saying ‘I was clearly the person who was the PCF16. But it was – there were competing interests’.

Some issues did arise in relation to authority relations in the project team, and these subsequently affected role definitions. As the project coordinator, Ben felt that his role was clearly defined, but in response to the question about leadership style within the team he responded:

Ben: I try to give people room to move. Basically to keep them informed about what’s going on as much as possible. I think I fell down a little in this project just because the timelines were so tight, but it was hard to take the time [especially in the initial six weeks] to communicate with people fully.

16 The research interviews were carried out after SX had introduced a new role into the group called a Project Collaboration Facilitator (PCF). At the time of the interview, Ben used the current terminology, instead of project coordinator, as he was at the time of the project.
Interviewer: So what have you learnt from that?

Ben: What I’ve learnt from that is it’s important to communicate a lot, as often as possible and to keep people in the loop as much as possible. But also to make sure people have a very clear understanding of who has what responsibilities in the project.

Keeping track of all the elements and components in this project was problematic as there were in excess of 40 individual components, or artefacts, that needed to be designed and developed, some of which were substantial projects in themselves, and most of were multimedia interactives. This therefore ‘created a lot of pressure for different people at different times’ (Helen). In the absence of a formal way to do keep track of the components, Helen created a design schedule checklist document to keep track of the design tasks, but this document meant different things to different groups in the project.

Lauren: There’s a perception that goes on in collaborative groups of what it means to understand what an object does, or a list of objects. And the designer made a list of all the artefacts that had to be built and had a checklist with a deadline there, and we’d check it off and say finished when it was done, and send that to the client so that the client could see, could be available to approve those artefacts. Now this is not the actual interface that it went into.

And development had a real problem when they saw this documentation, because their perception was that it wasn’t finished. The designers were just talking about the design, not the design and the development.

Interviewer: Let me try and verify this in my own mind. That was because the developers thought that they hadn’t developed the system in which the artefacts were to live yet or...?

Lauren: It was because every one of those artefacts would have an action, would have an animation in some way, would act in a particular way...And so when this list went out and it had “Finished” next to things, the developers were like, “Well no, that’s not – those things are not finished.” So there was a – there was a real odd moment between the developer and the designer in that the developer couldn’t see that this was just a way – a tool for the designer to tick off that they had done their bit.

As this was a very large and complex project with incredibly short timelines, design needed a system to keep track of the design elements in the project, especially in the initial stages, as Ben was extremely busy, and by his own admission, communication was not optimal. This document therefore created issues as web development thought that
design was over-stepping its role, and ‘were more in charge of it than they were’ (Ben). In fact, the document was eventually used across all groups in the project team, ‘and became a living document’ (Lauren) to facilitate communication across the team. The lack of this type of documentation in the initial stages was therefore problematic, and the creation of the document caused some conflict because it was seen to challenge authority relationships within the team. However, once it became a living document, it facilitated collaboration across the production areas.

So in summary, authority relations were generally good on this project, but the tight timelines brought about by the explosion in the project’s scope—particularly in relation to its size and complexity—did create issues. The project coordinator felt that design had exceeded its authority in creating the design schedule checklist document. However, the purpose of the document was to allow design to keep track of the design tasks. Thus while the document worked for one group initially in the team, it meant different things to the different groups involved in the project. However, as the project—including the smaller individual components—developed, the document transcended its initial purpose as a design checklist to become a living document that helped manage the various components of the project.

5.3.1.3 Role definitions

A majority of team members (n=4) considered role definitions fell within the optimal boundary permeability range. Four of the six team members identified role definitions as being clustered close to the optimal boundary mid-point, while two team members, Gavin and Lauren identified them as more towards the overbounded, restrictive extreme. In general, team members felt that their roles were clearly defined, they had clear responsibilities and they were core team members in relation to their contributions across the project. None felt that role definitions were imprecise, incomplete or overlapping in any dysfunctional way.

People’s roles on the team were defined and demarcated in terms of professional expertise and thus they were task focused and functionally based. In essence, there were four disciplines involved in the project and they all had interdependencies between
them: web development, design, audio-video production—all from SX—and the academic team who were ‘responsible for coming up with the ideas and content and specifications’ (Emma). The academic team was separated from SX by their physical location (physical group boundaries), but as they had not worked with SX before, they did not have a clear grasp at first of the demarcations across the different production areas, that is, who they needed to communicate with and for what. While this did not negatively affect the project, Emma said that they devised strategies for ensuring information got to the right person:

Email is a wonderful thing. You can CC everyone in the same email so that’s what we did. So, we overwhelmed each other with emails. So I figured send it to everybody and the right person’s got it.’

A common theme across the responses to role definitions was the importance of professional independence, and once again there was an acknowledgement of the importance of interdisciplinary overlap in terms of enhancing successful project outcomes and collaboration. Shirley stated that roles were ‘quite defined, but with some freedom within that’ and this was reiterated by Gavin who stated:

Well, I can only talk from my end, I mean basically I took on that segment and I was given a fairly free hand in terms of creating what was there, what finally came out...Everybody had an area of responsibility and certain freedom to professionally express themselves.

As online resource development teams require people from different disciplines to collaborate in order to produce desired outcomes, there needs to be a level of professional independence and autonomy, as well as flexible interdisciplinary overlaps. Two issues arose in this project that caused conflict between two team members: first, there was the design schedule checklist and second there was a lack of flexibility in the interdisciplinary overlap between design and web development.

Helen created the design schedule checklist for a particular purpose; to keep track of all the design work. However, Ben felt that Helen had overstepped her role as a designer in developing the document and that she was actually trying to manage the project. The design checklist was never meant to be a definitive record of all of the design and web components of the project, although that is what it eventually became. According to Helen:
I guess the main problem for me was when the design part had finished, I thought my – that part of my responsibility was finished. But then somebody else thought that I was also keeping track of the web tasks as well, which I wasn’t doing.

So, it sort of, caused a bit of conflict about why I wasn’t you know, keeping track of those things being done. And from my perspective, I’d never been doing that. I’d only been focusing on the design side of things.

The paradox in this is that Helen felt that it became expected of her to keep track of the status of the web tasks, and Ben felt she was trying to manage the project. Once again, the scope and complexity of the project had a huge impact on the timelines and Ben, as the main web developer and project coordinator, had an enormous amount of development work to do and he did not communicate with the team in the first six weeks of production as well as he might. Additionally, many of the smaller interactives and sub-tasks had not been fully scoped and were built and scoped on a just-in-time basis. This also made it difficult for both design and development to keep track of the status of the individual components. In the end, the design schedule checklist became a task management document and was used across the production teams, but initially it did create some conflict and impacted on perceived role definitions in the team in terms of management, though not in terms of task responsibilities.

The second issue raised in relation to role definitions was in the creative interdisciplinary overlap space, between design and web development. In general, there is a close relationship between design and web development in SX. However, while roles and tasks are clearly defined between these two groups, Lauren spoke of the importance of collaborative interdisciplinary overlaps between the two:

*Interviewer:* Were people’s roles generally tightly constrained leaving no flexibility or were they imprecise and overlap?

*Lauren:* That’s an interesting question...They need to be both, yeah, they absolutely need to be both. It’s got to be that real clear partition between design and web development, but at the same time there’s got to be an understanding from both sides that it’s got to be overlapping. You know you’ve got to have that flexibility for overlapping.

And I think the definition of what that overlapping is, that’s what’s not clear, that is really unclear and I think it could be done a little bit better than what it is now.
The issue in this project was that the interdisciplinary overlap was problematic, and there was little dialogue or discussion in relation to decision making processes. According to Lauren:

*So with Project B, the designer will come up with, say, a design for an artefact and that artefact might animate in a particular way. So the designer will think about that animation and will design it so the animation can happen, like so conceptually [she] is thinking about how it’s going to animate.*

*And then the developer will take it and then build it based on the designer’s specifications. Now the developer will look at the design and might need to—might look at the way it’s been designed and see that actually the animation is now difficult to build because of the design. And I’m speaking about a specific project, a specific kind of thing.*

*So the designer will come along and look at what’s being done and say that’s not what I envisaged. And the developer will say, “Well, tough, that’s how it’s—that’s the only way we can do it.” So rather than having more discussion so that those two things can overlap so the developer can say, “Well if you design it like this, this is what’s going to happen”, and the designer is saying, “If you do this, this is what’s going to happen”, so there needs to overlap and it needs to be done in a much better way.*

The space between design and web development in this project was, on occasions, a contested space, not a collaborative space. Generally there are very good relationships between design and development in SX, but it was not optimal in this project. Lauren indicated that role definitions were more towards the overbounded extreme because the professional overlap did not occur as well as it might have, and she recognised the need for there to be clearer parameters and definitions around how that collaborative overlap occurs. Helen summed up the project as follows:

*It was a very weird project. And a lot of the time it was very dif... [deliberate break]. The teams didn’t really feel like they were working together.*
5.3.1.4 **Communication patterns**

Communications patterns were generally good across the project. Five of the six team members identified communication patterns as falling within the optimal boundary permeability range, although there were some variations across these. Overall, this indicated that there were no real communication issues in this project and people received the information they needed, when they needed it. Email was the main communication mechanism, although there were also formal and informal mechanisms, such as meetings, casual discussions and phone calls. Regular meetings were held between different parts of the team at different times. For example, in the pre-production stage there were regular face-to-face scoping meetings held with the clients, while in the production stage, these were organised on more of a needs basis. However, in the production stage, there were more production related meetings—both formal and informal—between the production areas, such as between web development and design. The biggest impediment to communication was that the clients, Emma and Shirley, were located at a different campus and needed to travel to the main campus for face-to-face meetings with SX, and these became increasingly problematic once the teaching semester started.

As there were separate areas of responsibility across this project, different areas had different meeting requirements. The academic team had weekly face-to-face meetings in their location to develop the concepts, conduct the research and write the content. According to Shirley:

> The communication was ongoing, but [it had] started many, many months before the project started because we had to have it up and running. So there was a huge amount of work beforehand.

Formal meetings served specific purposes, and were arranged on a needs basis.

According to Emma ‘it was always pretty clear when we needed to meet’. As the client and project leader, Emma highlighted some purposes these meetings served:

> Sometimes [it was] to give feedback on designs and clarification, so we then had to call a meeting. And we needed to meet more regularly at the beginning to convey the ideas around the scenario to make sure we are on the same page with it and that they, which is SX, understood what was in my head and Shirley’s head.

Emma mentioned the importance of communicating with SX so they understood ‘what was in my head’ on a number of occasions. While this was important initially to ‘see
whether this was [technically] possible’ (Emma), it became a very important consideration for communicating about design. According to Emma:

[We] met with Helen, so she would understand what’s in our heads to get an understanding of what the look and feel might be and what sort of things she needed to be designing...And that’s really important when you’re after a design, that’s really important that people get inside your head. Because I knew what I wanted it to look like in my head and Shirley had ideas in her head of what it would look like. But Helen doesn’t live in my head or in Shirley’s, which is probably a very good thing. They are very bizarre places to be [laughs].

Once the design process was underway, face-to-face meetings were used as a mechanism to supplement design feedback discussions. As Emma observed:

Sometimes when you’re communicating either over the phone or online about, say it was one of Helen’s designs, it is really sometimes hard to articulate what you feel about it without being able to point to it and say “This bit here, could this be...”. So trying to find the words that clearly communicate what you’re thinking is difficult. So we would need to supplement those sorts of discussions with face-to-face meetings.

Honesty is the basis of good communication. Emma stated that people were open and honest when they met, ‘but respectfully so’.

Emma: It’s very difficult sometimes to be critical of somebody’s design, because you feel like you’re – you feel like your insulting them in some way.

Interviewer: It becomes personal because they’ve created it?

Emma: Yes that’s right, and what they’ve created might be really lovely, but it’s not what was in my head. And I got better at doing that in ways that were objective and constructive. It helps that I give feedback like that to my students, so I would borrow from my feedback techniques to them, to try and give feedback to Helen, particularly on the design stuff, because she put so much work and creativity into those things, you just don’t want to upset anybody and offend them.

Communication between SX and the clients generally ran smoothly, although it was hampered on occasions by their respective geographic locations. Within the production areas of SX, communication patterns were generally assessed as being good, and although there were some formal meetings, much of the communication was conducted
informally. Ben stated in relation to how communication was managed across the team ‘well, there were kitchen conversations’, and Gavin also responded that ‘we’d often just talk about it with a coffee in our hands’. Helen and Ben had one-on-one meetings to review the design and to ensure that the designs were technically possible, but overall, people just did what they needed to do. The audio-video production communication and proofing was done through email and placing files in a location where the clients could access and review them, but ‘some of the other stuff like design stuff they [the clients] needed to look at, and the interactive stuff we needed to discuss’ (Ben). As the project coordinator, Ben acknowledged that the SX team did not meet often enough and stated:

[Communication] could have been better, but it wasn’t a major problem. It didn’t greatly impact upon the project. The timelines of the project itself were the only thing that really substantially impacted on the project. But people generally had the communication they needed to have.

5.3.1.5 Budget

The budget for this project caused minimal stress for all but one team member, Emma. She placed budget at the absolute impending crisis extreme on the underbounded side, while the other five team members all placed budget on the minimal stress overbounded extreme. As the LTG project leader, Emma’s LTG application contained a budget which turned out to be ‘bloody inadequate. It was ridiculously inadequate...[and resulted in]...impending crisis. Total impending crisis’ (Emma).

The budget in the LTG application was based on the pilot project Emma had previously created and used in Blackboard. Emma knew what she had created with no budget, and wanted to produce something a bit better than that. According to Emma:

And that was the basis upon which the grant application was put in...So, [in the consultation process for the LTG application] that was discussed with Frank and Lauren...I showed them the...[date omitted]...crude, rude and totally amateurish version and so we came up with a budget. However [once the application was approved] that’s when – when we decided to specify what would be needed, and that’s when we started to get a little more creative and we kept adding functionality that wasn’t initially specified.
The main issue with the budget for Emma was that it was totally insufficient for the project once the detailed scoping and specification documentation was completed. According to Emma, the budget therefore was:

\[\text{Insufficient and created problems...because it is okay to specify stuff, specify the project, but Shirley and I still had to develop a lot of the content for each scenario and given our timelines, that was really difficult to do.}\]

They therefore used the budget to employ a low-level research assistant, as LTG funding conditions did not allow them to buy out their own time to work on the project. However as Emma explained:

\[\text{It still took as much of my time I think as if I had done it myself, because I had to brief her and get her inside my head. It would have been easier to pull in a sessional teacher to take one of my classes, which is one class a week for the semester, to allow me to do this.}\]

Thus the budget created stress, especially for the academic team, as they had insufficient resources to adequately support the project. As Emma stated:

\[\text{The budget buys you time. Either your time or someone's time that you can buy in to help you do things that you want to do – that you haven’t got time to do...Had there been more budget, then more people could have been brought in on that within that space of time.}\]

The budget shortfall in terms of time—as a result of the explosion of the project’s scope—also forced SX to review its processes and procedures. The initial LTG application was to develop the system architecture and the back-end administration system along with three PBL scenarios. Lauren had provided an estimate of 500 hours for the LTG proposal, but it soon became apparent to all that this was impossible given time, budget and human resource constraints. According to Lauren:

\[\text{We had six weeks to build that tool, yeah and that was just – that was nuts. Six weeks to design, develop and build something. And what we got from that was we won’t do a project like that again, even if it is an LTG.}\]

Thus a phased approach was instigated to complete the project. The first phase was to develop the system architecture and back-end administration system along with the first PBL scenario, but the wiki was dropped. Negotiations then took place between SX, Emma, Shirley and the university’s LTG manager Joe, and it was agreed that the second
PBL scenario would be developed in the following year at no further cost and the third scenario was scraped. SX also introduced a cap of up to 350 hours per project in relation to future projects. According to Lauren:

Yeah so the 350 hours, I mean, that was a – that was a real turning point. It was just too big. It would have been better—like when an LTG comes to us now, and if we can see that it’s got these real complexities like Project B, we will actually try and hone down the project before it gets any further.

So, we’ve become a little bit more, you know, by capping things at 350 hours we can scope projects better. We can get more information, we can give feedback to Joe about projects earlier now... We can now say to Joe or to whoever “This project needs to be thought out a little bit more, it’s a bit premature, they need another year to work out what they’re going to do”.

Thus, time was of the essence in this project. The explosion in the project’s scope impacted on all the project management dimensions in the group boundary property, but none more so than the timelines and the stresses this placed on all team members.

5.3.1.6 Timelines

The timelines for this project were extremely short for reasons already identified, especially in relation to the explosion of the project’s scope and the lack of budget to buy more time. All team members, except Shirley, indicated that the timelines were very short and that this had a major impact on the project. The production team had an initial six week period, from the sign off of the detailed project brief and specification documentation, to build the functional back-end system as well as design the interface for it, so that it was ready for staff and students to use in week one, semester two. However, the design and development of other components took place on a just-in-time basis across the rest of the teaching semester. In all, there were in excess of 40 individual components or artefacts that had to be designed and developed, some of which were substantial projects in themselves and most had multimedia animations. Therefore, ‘a lot of things were compromised because of the time, and it created a lot of pressure for different people at different times’ (Helen).
The academic team began work on their PBL scenarios in late January. Both Shirley and Emma described the workload as ‘enormous’ and ‘horrendous’ respectively, and Emma added that this ‘wasn’t recognised anywhere’. Both indicated that this impinged on their personal time, with ‘hours and hours of work at home’ (Emma) and it also had an impact professionally because ‘other aspects didn’t get enough [time], because the project doesn’t free us in any way’ (Shirley). Of concern to both academics, was that these types of projects are always ‘add-ons to your existing work load’ (Emma) as they were not released from their existing teaching loads and other work commitments. Shirley was the only person to indicate that the timelines were optimal in that they were ‘appropriate in terms of getting the job done...So we started very early, we planned non-stop and we got the job done’.

It took a few months to develop the detailed project brief and specification documentation, so it was not until late May that production work commenced. This left six weeks to build and design the content management system and the first set of learning objects, as well as itemise the full inventory of learning objects that needed to be developed. According to Lauren:

We worked out fairly quickly with Emma and Shirley that we needed to – on that list of the artefacts that were going into the system...that there was going to be deadline problems. So, we did a priority list because not everything gets released obviously over the full 13 weeks. So things got released slowly. So this meant that for the things further down the list, we had longer, longer to work on. So that it actually ended up being an ideal situation. I mean we hadn’t – we hadn’t scheduled the project to work like that, but it was taking a lot – a lot longer.

This staggered/just-in-time production strategy meant that the production team members knew the timelines and dates that the students and clients were expecting things. As Gavin explained:

I think initially we were given a timeline on paper that basically explained whatever date in the semester the students were expecting a certain thing. So by a certain date, the clients were expecting this part of it – like the first two steps to be up there. And then the next couple of weeks down the track, they expected another two steps to be added to it. So we knew by looking at this, what...needed to be completed.
However, the major impact of this approach was that the system was not fully user tested—either functionally or for usability—before it went live with students, and this affected the academics. According to Shirley:

*So, when I had the 8.30 in the morning group... and nothing was working, it was so stressful. So, I was, in a sense, that guinea pig of what—you know—didn’t happen, and I don’t like relying on technology, I want to rely on me* (Underlining denotes major emphasis and intonation placed on word).

This lack of user testing was identified as a major shortfall in the project, and it created stress for all team members. According to Ben, ‘the bits were delivered on time, but they weren’t properly tested... so there were things that didn’t do quite what was expected’. This then created re-work, and time that could have been used building new features, was spent fixing parts that didn’t work.

**5.3.1.7 Summary of project management variables**

There was no consensus across the project management dimensions of the group boundary property in this project. No dimension was rated as optimally bounded by all participants, and there were varying degrees of overbounded and underbounded responses. Across the dimensions, 17 of a possible 30 responses\(^\text{17}\), fell within the optimal boundary permeability range, nine fell towards the overbounded extreme and the remaining ten were towards the underbounded extreme.

The explosion of the project’s scope in the formal pre-production scoping/specification stage impacted on all the project management dimensions, and it was most keenly felt in relation to timelines. The short timelines meant that all team members were placed under great stress and ultimately this led to issues in the authority relations and role definitions dimensions.

\(^{17}\) Six project management dimensions were assessed by five team members making a total of 30 responses that were distributed across the overbounded to underbounded continuums.
5.3.2 The psychological dimensions

This section explores the participants’ responses to the five psychological dimensions. In these, only one dimension, individual effort, was considered to be optimally bounded. However, while the majority of responses in the other dimensions fell within the optimal boundary permeability range, there were exceptions in each.

5.3.2.1 Individual effort

The responses to individual effort were all within the optimal boundary permeability range. All participants said that people put effort into working on the project, that their efforts were maximised and directed appropriately, that they thought their efforts made a difference to the project and that people’s efforts helped the team to work productively ‘because everybody put in 110%. It was amazing’ (Emma).

Shirley felt that recognition of personal and professional strengths was an important factor in enhancing team collaboration and individual effort. Based in part on understanding people’s role definitions and task functions within the team, she identified that understanding your own psychological needs, as well as those of the other team members, helped people to collaborate effectively and reduced potential conflict. Thus, she felt within the team:

\[
\text{We did bring different things to the fore...Because I could recognise ICT was Emma’s domain and putting things up and managing them, and I was the ideas person. And we would praise each other’s contribution, so that made it easier. So it’s [understanding] who you work with and your [own] needs.}
\]

There was also a genuine belief in the project and people responded accordingly. Gavin suggested that this in itself could be viewed as one of the benefits of LTG projects, because they are intrinsically interesting projects.

\[
\text{Gavin: I think that most of the staff involved in the project did step up and they kind of enjoyed that they got something out of it. They actually had to do something that pushed them.}
\]

\[
\text{Interviewer: And that made a difference?}
\]
Gavin: That made a huge difference. You know, we all had something that pushed us a bit further than we'd been required to in the past. And, professionally, that's a great thing to do.

5.3.2.2 Emotional climate

The emotional climate of the team was assessed by four of the team members, Ben, Gavin, Helen and Shirley as being in the optimal boundary permeability range. The other two team members, Lauren and Emma, indicated that it was at the overbounded extreme, that is absolutely positive inside. While the overall emotional climate of the team was identified by all as stressed, mainly due to the issues identified in the project management dimensions, the team generally worked well together and found the project a positive experience.

Emma identified the project as ‘very stressful but exciting...[and]...a little bit creative and a bit quirky’. Everyone ‘was under the pump’ (Emma) because they were ‘trying to do so much so quickly’ (Ben). However, the emotional climate was still identified as ‘happy and positive’ (Lauren) and ‘really positive even though it was very, very stressful’ (Emma). It allowed people to be creative, and do things that they wouldn't normally do. According to Helen:

I guess...the emotional climate...varied throughout the project...And would probably be overall positive because it was a pretty fun project to work on in terms of, you know, like in different areas from design, we got to do a lot of fun things, we got to make a lot of videos. That was really fun...That was a really positive part of the project. I mean a lot of emotion went into the project, because there were a lot of people putting in a lot of work and effort...I think at the end, everyone seemed happy with what we had achieved.

This project was stressful, but the team enjoyed the challenge of it and overall the balance of feelings was positive. While there may have been some confusion about the project goals, generally the goals and priorities of the project were well understood. This project enabled people to be professionally creative and they were all proud of the final product.
5.3.2.3  Mix of groups

The majority of team members (n=4) identified that the mix of groups fell within the optimal boundary permeability range, and of these, three team members identified them as falling on the optimal boundary mid-point. In relation to identity groups, there were four females and two males on the team, four of whom were born in Australia, one was from Scotland and the other was from Canada. Three team members, Emma, Ben and Gavin were in the 45-54 age bracket (mode age group). Helen was the youngest person and was in the 25-34 age group, followed by Lauren in the 35-44 age group. Finally Shirley, the oldest person, was in the 55-64 ages group. In relation to generational groups, there were three distinct baby boomers, and three Gen X’s.\(^{18}\)

There was little cultural diversity in the team. All team members were white and the Scot and the Canadian had both been in Australia for more than 20 years. Gavin made the following statement about the lack of identity group diversity in the team:

> Look, I’d say it [the team] was almost mono-cultural. You know, it’s kind of – I mean basically I have had two women – two middle aged women who are the clients, both “white bread”, and three middle aged SX members, staff members who equally were white bread.

In terms of organisation groups, there was a mix of both task and hierarchical groups in the team. In relation to hierarchical groups, there were some differences across people’s organisational roles and award levels, but overall, all team members ‘were treated as equals’ (Ben). There were also four different task groups: academics (n=2), web development (n=1), graphic design (n=2) and audio-video production (n=1). However, in general, there was consensus that neither identity nor organisational groups dominated in any negative way. As Shirley concluded:

> I think I always felt not just listened to, but understood even though the others didn’t necessarily come from the same place and thinking. And we would toss around ideas. I would say it was more aligned.

Thus, overall, people felt the mix of groups was good and helped the team work productively together ‘because it brought multiple perspectives—and different perspectives—and different ideas which in the end made the project so much better’ (Emma).

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\(^{18}\) One person was on the cusp of late baby boomer and Gen X, but self-identified with Gen X.
5.3.2.4 Underlying team feeling

The underlying team feeling was generally assessed as being optimally bounded, and was summarised by five of the team members as 'happy'. There was only one team member, Lauren, who described the underlying team feeling as more towards the overbounded extreme of flight or fight, and this was because of the tensions that developed between design and web development. Her comments on the underlying team feeling were thus:

Lauren: You know, I would lean towards the flight or fight. It's interesting because you can feel it and then people say 'No let's just get on with it'. Let's fly. Let's just fly.

Interviewer: Okay. And did this actually affect the team's ability to work productively together?

Lauren: This? Yeah. Look, I guess, it was a – it did affect it. In a creative environment, if you can't fight, then there's a problem. You know, I've always said that about creative environments because you're dealing with the emotional, creative part of the brain and it's actually the best way to work. If you can't sort of say, "No, that's wrong and I disagree" and things like that, then [there's a problem].

The issues previously identified in the project management dimensions (and are further explored in section 5.4, Power differences in this chapter) regarding the interdisciplinary overlap space between web development and design, affected the underlying team feeling in this project. As Lauren states, 'if you can't fight, there's a problem' and that was the issue in this project: design was powerless to fight web development, so there was an underlying team feeling of flight.

However, this aside, all team members indicated that the project was a positive experience, and one in which 'the feeling was good and we worked well together' (Ben). In essence, people knew what they had to do and when they had to do it by. It was intrinsically an interesting and creative project and one in which people were pushed professionally. Thus Emma summarised the underlying team feeling as follows:

So occasionally there were those negative feelings, but for the most part, it was overwhelmingly, "Oh, isn't it good to work with creative people!" and get that sense of common purpose and commitment.
5.3.2.5 **Theoretical frameworks**

The final psychological dimension is discipline or theoretical frameworks (cognitive work). Once again, most of the participants (n=5) placed this dimension in the optimal boundary permeability range, and the four female team members, Lauren, Emma, Shirley and Helen all marked this on the optimal boundary mid-point. However, Ben identified theoretical frameworks as falling slightly towards the underbounded multiple/no theory extreme. Gavin was the only person who identified theoretical frameworks as falling towards the overbounded extreme. Firstly, he felt the team in general was mono-cultural ‘white bread’, and secondly that as the script writer for the videos, he found that the clients had a very fixed idea of ‘the order of sequence that certain things needed to be unveiled. So that kind of discipline was there and there was no real movement away from that. There was no flexibility on that’ (Gavin).

Generally, the team was able to share their different theoretical frameworks, although as discussed, there were some tensions identified in the interdisciplinary overlap between design and web development. However, from the clients’ perspective, they felt the teams were able to share their different theoretical frameworks. This was especially important for them, as the project was about building something for educational purposes, so it needed to be pedagogically sound and have inherent ‘internal logic’ (Shirley). According to Emma:

> I think we shared. I think we shared because Shirley and I were very strong on understanding the pedagogical basis of whatever decisions we were taking as a whole team. So, the developers in SX might suggest things and Shirley and I would often – we would really seriously consider whether pedagogically that made sense. And likewise, in reverse, they would seriously consider whether some of the things that we were asking for technically made any sense, or from a design perspective, were possible.

> So, it was really a coming together of people with limited, and in some cases, even less limited technical understanding of what was possible. Shirley’s technical knowledge was very slight. Mine was a little bit more current, but nowhere near what Ben’s was, or Helen’s or Lauren’s, in terms of what was technically possible. And then they developed—I think they developed—a deeper pedagogical understanding as a result of us discussing some of the things that they suggested. So, there was really good give and take.

Overall, this project successfully brought together four disciplines: web development, design and audio-video production, and the pedagogical and disciplinary understandings
and practices of the academic team members to develop this creative and ‘slightly kooky’ (Emma) online learning resource for students. Once again, all participants identified the project team as an interdisciplinary team, as summarised by Emma:

Inter means those disciplines then get interwoven as opposed to a multidisciplinary team where those disciplines tend to do their bits in parallel. And I guess there were times when that happens like Ben would go off and do his developing and I, you know, we didn’t have much to do with that. But, this was a true interdisciplinary team because our various perspectives came together and melded as opposed to, you know, you do your bit, I do my bit, we’ll bring the two bits together at the end.

5.3.2.6 Summary of the psychological dimensions

There was more consistency across the psychological dimensions of the group boundary property in this project compared to the project management dimensions. There was only one dimension, individual effort, which all the team members identified as being in the optimal boundary permeability range, but overall, the majority of responses—24 of a possible 30—fell within the optimal boundary permeability range. Generally, there was a good mix of task groups, and neither identity nor organisational groups dominated.

Across this project, the balance of the psychological dimensions accounted for an overall positive team experience, albeit there were some tensions between design and web development and it was very stressful for all due to the incredibly short timelines. However, that being said, everyone described the project in positive terms; as creative, playful and fun. Everyone put a lot of effort into developing this online learning resource and felt that their efforts were valued, made a difference and that their knowledge and skills were expertly utilised. Thus overall, the psychological dimensions indicate that this was a positive overall team experience.
5.4  Power differences

There were various perceptions regarding power differences in the team. Professional
knowledge and capabilities were once again identified as a major source of power in this
project, and one that was generally based on equitable horizontal expert authority.
However, there were some power differences that were seen as the result of power
effects and authority relations.

People’s definition of power ranged from ‘power is sweet’ (Gavin) to ‘taking over’
(Shirley). Helen defined power in terms of ‘being able to carry out what you want to carry
out’ while Ben and Lauren had previously defined power in terms of control, that is
‘coercion’ (Ben) and ‘confidence’ based on knowledge (Lauren) in Project A. However, the
person who saw power in broader terms was Emma, who spoke of power in theoretical
terms, as an effect. According to Emma:

*Power is in effect. Power is not something that one person holds
over another, it’s what is generated out of the way those people and
those things all come together, so I’m going to throw in my Actor
Network Theory stuff. So, it’s about the interactions between all the
actors in a network and it’s not just the people in that network, it’s
the spaces and the material objects within that network that
create—or that generate—this power effect. And there was a lot of
that.*

As the client and LTG project leader, Emma felt there were a lot of power effects
generated by different actants and their networks (see section 2.5.4, *Actor Network
Theory and black boxes*). In particular, she identified the online system and technology
itself, timelines, PU’s property services, the IT services areas and the LTG conditions
themselves. According to Emma:

*The technology generated a lot of power, and the way that we
interacted [with it]. The timelines generated a lot of power because
of the fact that we just had to get stuff done...There was no choice,
and that’s a form of power. There was no point in resisting or
subverting that, because the job wouldn’t have got done and we
had a semester of teaching with no back-up plan...And I guess that’s a
power effect as well, because we believed Ben and Lauren, yes this
can be done. We had complete faith in them. And it wasn’t until they
started really working that we thought “Oh God, no”.*

*And I guess there was also power exerted by the system because the
technology didn’t always work, and that wasn’t always a
development issue, that was also a computer lab access issue or PU*
network issues...[And]...I guess another power effect that was generated was around the LTG conditions as well, and the fact that we were supposed to get everything done, but once we’d rescoped it, we couldn’t.

As mentioned, the explosion in the project’s scope caused issues and generated many power effects. However, as mentioned, Emma felt that the LTG accountabilities and conditions were also a major power effect, because the funds needed to be acquitted within the LTG timelines, and there were no further funds available and the timelines were not renegotiable. Thus the outside agency of the university as ‘THE power’ (Andrew, Project A) was demonstrated again.

As previously mentioned, Emma and Shirley’s first priority was to have teaching resources in place for week one, semester two. Another power effect identified was that they ‘had complete faith’ in SX to be able to deliver the project, but they did not fully appreciate the impact that the explosion in the project’s scope would have overall, therefore they had no back-up plan. This placed them in a somewhat powerless position as ‘we had run out of time [and] Ben and I made do with the system as he could develop it, to the point where we just had to run with it’ (Emma) and it had not been user tested. This meant that ‘when the technology didn’t work, the power effect was, we had to then change our teaching or apologise and disappoint the students’ (Emma), and once again this added to overall stress. Thus the interplay of these power effects had major impacts on the project and created different stresses for different people at different times.

However, power effects aside, professional knowledge and skills were once again identified as the basis of power differences in the team, and these were the basis of horizontal expert authority. According to Lauren:

\[
\text{Power would shift when crucial moments and a deadline would happen or decisions needed to be made and those changes and shifts happened quite seamlessly and happily.}
\]

Gavin also stated that ‘there was professional power across the whole project with everybody equally, because nobody really felt able to involve themselves in anybody else’s area...[as]...we all have specific skills’. However, Ben, as the SX project coordinator acknowledged that not everyone had equal power in terms of authority relations, but ‘people in SX will communicate based upon what they are making rather than on who’s in charge’. Emma felt that as the LTG project leader and client, she had equal power with the developers, but stated that the ‘lack of technical knowledge generated a power
vacuum, so we had to rely on the technical expertise of the others to tell us what was possible’. Thus Emma made explicit reference to the power technicians can wield:

> In Actor Network Theory, the techie is a gatekeeper—and a gatekeeper in a not so good way—because they hold this knowledge that other people don’t hold and therefore unless they share that knowledge, they can be a barrier to the use of the technical network.

Shirley observed that ‘there was power sharing’, especially in relation to the academic team, and that ‘there was a willingness to give over power because you just know that person can do it better than you’.

The only person who felt quite powerless in the team was Helen. In terms of hierarchy, she was a junior female designer, but was responsible for the design component of the project in the production phase. In previous projects, Helen felt that design and web development had worked well together, but in relation to this project:

> [There] was a bit of an issue that, yeah...In previous projects the way it had always worked would be that, I would come up with the design and then we would work to build that. However in this situation, because of—I don’t know why—Ben had his own idea of how. And that was a conflict because for me, it was very confusing and unexpected. I guess I did feel quite powerless because I didn’t really have anywhere to, you know, like there’s nothing I could do about it because of my position.

Thus in this project, not ‘everyone had equal power. I think some people had that, you know, wielded that power of being in control of the technology’ (Helen). Normally there is a good degree of horizontal expert authority and interdisciplinary overlap between design and web development, but in this project it was not optimal. Helen felt that her designs were ignored and that Ben basically pleased himself. However, ultimately Ben was ‘in control of the technology’ and as the SX project coordinator he did have hierarchical power in the team. Therefore, the issues identified in the project management dimensions—due to the explosion of the project’s scope, and the short timelines—also amplified power differences in the team as a by-product of authority relations and role definitions.
5.5 Affective patterns

In this project, affective patterns were once again discernible through team boundary disagreements. Figure 5.3 below presents each team member’s assessment of who worked on the team and the relative importance of everyone’s team role function and involvement in the project. Figure 5.4 then presents the collated responses about each team member—as distinct from by each team member—and their team role function and participation in the project (see Appendix 8 for an enlarged version). The official team in Project B comprised six people, with an additional two short-term people employed specifically to work on the project. In SX, this was Tom, the Flash developer, and in the academic team, this was Unknown (denoted by U), as she was only mentioned once by Shirley and was identified on a quadrant as ‘Sessional (Researcher)’. As can be in both figures, there were team boundary disagreements.

This project comprised two teams who were located at different campuses. In relation to SX, no-one worked across the entire project: Lauren was heavily involved in the new project and pre-production phases of the project although she still had oversight of design during the production stage; Ben was involved in the pre-production scoping phase and across the production phase; and Helen and Gavin were only involved in the production phase. Emma and Shirley were effectively the academic team and were involved across the entire project from inception to handover in terms of content and conceptual development, although Emma as the LTG project leader had a more prominent role in the project.

Looking then at Figure 5.4, Emma (n=4) and Ben (n=5) were the only two people whose team role functions and involvement in the project were consistently identified as high/high by the majority of team members, and this reflects their involvement, tasks and responsibilities in the project. However, there was no consensus regarding the other team members. This could be due in part to the fact that ‘people came in and out of the project’ (Emma), and they had different areas of responsibility. Thus people would have had interactions with different people at different times, which is a possible reason that accounts for team boundary disagreement (Mortensen, 2008, 2010).

19 Figure 5.4 has been included to show the collated responses about each team member to make it easier to identify team boundary disagreements in relation to how each person was assessed by other team members, as well as to show who was added to the team.
Figure 5.3: Individual assessments of team role functions/involvement in Project B
Figure 5.4: Assessment about team members’ role functions/involvement in Project B
Alderfer (1987) states that affective patterns are mediated by the permeability of group boundaries. In this project there were both psychological and physical boundaries across different disciplines and locations. For example, Shirley only identified the actual academic team with whom she was collocated as team members, that was herself, Emma and the unknown research assistant despite being asked ‘So that would be the team as you see it?’ (Interviewer), to which she replied ‘Right’.

Team boundary disagreements were also evident in relation to the clients in this project. Ben and Lauren were the only two people from SX to identify Emma as a team member, and Ben was the only person to identify Shirley, although all people from SX mentioned Emma and Shirley regularly. Emma was more inclusive of SX in her assessment of who worked on the project and identified five people by name, and then denoted a group as Other (O), which included Gavin and Tom. According to Emma:

> I know that there were other people involved in the project who were brought in. So like Gavin was brought in to do some video stuff and I know that Fran – there was a Fran for a little while involved and there was somebody else involved whose name I no longer remember and Tom was a contractor brought in to do interactives so they came in and out and I know that a few of them, and Cate’s husband and children, starred in one of the videos.

Thus, as in Project A, people were added to the team who did not actually work on it, such as Fran, a web developer, and Zoe, another designer. However Cate—and her husband and daughter—did act in the videos, but she did not do any design work. A lot of the production team acted in the videos, such as Helen and Lauren, and one was shot at Lauren’s house. There was a great deal of camaraderie across the different SX production teams, and overall the project was assessed as a creative, fun and quirky.

There were people on the project team who had the same disciplinary backgrounds. Ben identified that the casual employee, Tom, had some aspects of his disciplinary background, and Lauren and Helen were both designers. The two academic teaching staff worked in the same school and taught into the same program, although with slightly different specialisations. Gavin was the only video production person on the team, but after his many years of professional practice, he had no problems working or collaborating with people from other disciplines. This was reiterated by all the other team members. Ben stated that he found it easy to collaborate with others because ‘I know that I can’t do what they’re doing and I respect what they are doing. And it’s clear to
me where their bits fit in with the other bits’. In relation to the amount of tolerance shown to people from other disciplinary backgrounds (outgroup members) Emma stated that there was ‘a high level of tolerance for all of us. I mean, I got pretty stressed last year with this, as we all did, and there were occasions where I got a little bit terse. Everyone understood that’.

As has been stated, the project was identified as stressful, but the stress factors did not fracture the disciplines and/or teams into warring tribes, even though there were some issues between web development and design. Even though SX was a well established team, there was still evidence of ingroups and outgroups within it. Once again, Lauren observed that the issues between design and web development were in some ways:

...more personality based, you know. If there’s going to be an issue – you know, if people – if an academic or a web developer or designer are open to collaborating and open to making mistakes and things like that, then I don’t see a problem...[However]...there is definitely a divide between development and design. And often, they, you know – within the groups, they’ll talk about what’s wrong with the other camp. The problem is that...they become insular in their own groups. Not on all projects, but there are some little things that seem to be happening a little bit more so.

Affective patterns result from the permeability of group boundaries and power differences between groups embedded in their contexts. In this project, the issues created by the explosion of the project’s scope and the tight timelines placed stresses on the group/team as a system, which is similar to pressing your finger into an inflated balloon. The displaced air has to bulge somewhere else causing stress in another area, and too much pressure can break the system. The issues that developed between web development and design in this project highlighted some ingroup and outgroup membership issues within the SX team, and ultimately power differences between the disciplines.
5.6 Discourses (cognitive formations)

There are a multitude of academic and professional disciplines and Discourses, both primary and secondary, found within universities. As stated, the relationships between Discourses are mediated by the contexts in which they interact and there are inherent power relationships and differences that operate between and among them. They are also affected by parallel processes that give tacit status and hierarchy to some Discourses, while others are marginalised. For example the status given to hard sciences as opposed to soft sciences, research activities as opposed to teaching activities and academic staff as opposed to professional staff. This section explores the perceived value of the team members’ disciplines and professional backgrounds within the team and the university more broadly.

Within the team, everyone felt that their disciplines were respected and valued. Ben stated ‘it’s certainly generally valued very well’; Lauren said ‘very highly’; Emma answered ‘highly’; Shirley stated ‘I think it was, so I would take aspects that the team knew that I had expertise in, and I would develop those areas’; Helen answered that she was ‘not sure...[but]...I guess fine, it was fine’; and finally Gavin responded with ‘I’m pretty certain that my skills were recognised’ although he did add that he wasn’t ‘fussed one way or another. I mean, I’ve been in the business long enough to know if I’ve fucked it or not. If I’ve done a shit job, then I know it’.

While everyone felt that their disciplines were highly regarded and valued within the project team, once again, people did not feel that their disciplines were valued as highly in the broader context of the university, and that there was a hierarchy of perceived value and status. Emma, as an academic staff member, felt that service groups in general were undervalued within universities, but that teaching activities were relegated as secondary to research activities. According to Emma:

\[\text{I think the academic role is more highly valued than the service role in this particular case. But I think there’s another sub-category within that, the research role is valued more highly than the teaching role.}\]

However, while the research role was identified as having the most status within the university, Shirley identified that ‘the university wants it all’ in that while there was pressure for academic staff to produce research outputs and teach, people were not given time and that people have different needs and strengths. According to Shirley:
I think for me, valuing is about time. They’re not saying “Go away and write that book”, or “Go away and develop this project”...I feel the university wants it all, but they – we’re not all the same kind of people. And so what I want is recognition that those people that need to do that, teach less, but those people that really want to teach, teach more.

However, while there was a divide identified between the status and value placed on research activities versus teaching activities, technical roles were perceived as lesser again, although they can too can be highly specialised. From Ben’s perspective:

I think in the university in general, technical roles are not viewed—not respected—to the extent that they should be, and this group has people who have very high technical skills. And so therefore I tend to take the view that actually we’re the equal of any of those professors because we’re specialists in our area, just like they’re specialists in theirs. It’s just that our specialities are not as widely respected in the university.

Furthermore, a distinction was also made on the divide between the value placed on ‘hard’ technical skills and ‘soft’ design skills. Lauren identified that within the university context, web developers were viewed ‘way higher than designers’ and gave the following analogy:

It’s – I think web development has that perspective – you know, it’s like the mechanic working on the car. You know, you’re a bright person yourself, but really, you don’t know how the car works so you trust the mechanic. And there’s that level of mentally with web development because web development is all that back-end stuff and “I don’t get it”.

But whereas, design is a bit different because you can actually see it coming together and everybody has, to some degree, their way that they can input, you know, in terms of the design. They can give input into it. They can’t necessarily give input to programming and languages (Underlining denotes major emphasis and intonations placed on words).

These sentiments were reiterated by Ben who felt that in general web development was not valued enough within the university but that design was valued even less. In relation to web development and design Ben explained:

Ben: At least we’re viewed as having a technical skill that most people would find – you know, most people would struggle with writing some PHP code. Most people would look at it and go “Oh no,
I’m not going anywhere near – I’m not even going to try and work that out.” Graphic design, they all go, “Yeah, I can draw something”.

Interviewer: I acknowledge my limitations; I still draw in stick figures. I know that I can’t draw (both laugh).

Ben: And people, yeah, a lot of what they do – if you look at the typography stuff where they’re laying out a document or something like that, they say “I can put a font on a page, I can put some words on there and choose another font for that, you know, some Comic Sans looks really good. And you know colours. I can put colours together”. You know? So people generally look at what they do and say “Yeah, they’re putting some fonts and colours together, I can do that”, which isn’t true.

Ben also commented on the value placed on audio-video production in the university. In terms of the increasing use of video on the web, especially with the rise of video production platforms like YouTube and Vimeo, and in learning resources more broadly, Ben felt that video production was ‘more valued now than it was’. However, he felt that:

It will probably deteriorate again because people will say “Yeah, I can do video”. [However]...Once again, it’s like with web, it’s an obvious technical skill as opposed to graphic design which is a less obvious technical skill, it’s more of an aesthetic ability than it is anything else. And it’s easy to recognise, people can recognise “Yeah, I can probably shoot some video, but I wouldn’t know how to edit it” so they respect something that they need that they can’t do.

The increasing use of video in online education was also highlighted by Gavin who said ‘basically video is going through the roof...You know, everyone wants – they want everything now done on video...And I can see that, you know. Online would be bloody boring if it didn’t have visuals’.

However, in regards to how people viewed and valued SX as a service in the broader university, visibility was identified as an issue. In relation to this, Gavin stated ‘Well, it depends on who you’re talking about. I’m not sure if everybody knows we exist. There’s probably, you know I’d say probably 50% of the university have no idea that they have us’.


21 The data collection for this research was conducted before the rapid rise in smart phone and tablet technologies that have allowed people to shoot video on personal devices. That being said, there is a great divide between amateur and professional video production as there is between amateur and professional photographers.
These sentiments were echoed by Helen who said ‘I think that not that many people within the university know about SX...[so]...I don’t know if our area is viewed – is very well known outside of this, you know, little environment. Emma also made the following observations about SX:

*I don’t think that they’re valued highly enough because I don’t think a lot of people know about the projects that they do outside the people who commission the projects...But I think they do really high quality work...[and]...I don’t think their capabilities are widely understood.*

As previously discussed (see section 5.3.2.5, *Theoretical frameworks*), most people (n=5) denoted theoretical frameworks in the optimal boundary mid-point range, four of which were located on the mid-point. At a basic level, interdisciplinary collaboration is about people from different disciplines combining their areas of expertise in pursuit of a common goal. Within this project, the ability to combine theoretical frameworks and Discourses was good. However, Emma identified another factor that she felt enhanced successful collaboration in this project; the ability to learn. According to Emma:

*Emma: One of the really refreshing things is that Lauren and Ben particularly, were really interested in the pedagogies that Shirley and I were using to underpin what we did. They were learning from us as much as we were learning from them and that’s what made it a really positive relationship.*

*Interviewer: Yeah. And that’s collaborative, isn’t it?*

*Emma: Yes. And that’s exactly what collaboration should be.*

Interdisciplinary projects provide opportunities for people to work with people from outside their areas and thus they can help to break down group boundaries and affective patterns. It is important that people from different groups and disciplines are able to collaborate and learn from each other, irrespective of the relationships that exist between the groups embedded in their contexts including the effects of parallel processes.
5.7 Leadership behaviour

Leadership behaviour was generally viewed positively across the team. Team members defined leadership in terms of: ‘someone who has a vision that people are willing to buy into’ (Ben); ‘setting an example of what you want, setting the standards for – taking charge of what you want to happen’ (Helen); ‘leadership is engagement’ (Gavin), ‘visionary – big picture. Not a messy big picture, it’s very clear, clear objectives, that kind of thing’ (Lauren); ‘being really organised and allowing others—in your team—to get the work done’ (Shirley); and finally ‘leadership is about vision and direction setting, about creativity and looking into the future...[and]...the ability to bring people along with you on that journey into whatever that direction is’ (Emma). However, Emma made a distinction between leadership and management in that management is ‘about fine detail, making sure every box is ticked’.

In terms of leadership behaviours in relation to the project, there was a general consensus that leadership was collaborative and distributed both in terms of vision and professional expertise. According to Emma, leadership was ‘multi-pronged...[and]...from both sides really, because the leadership was about the ideas, the pedagogy that underpinned it, the technical possibilities’. This was supported by Ben who stated ‘so, in this project, basically the leaders – say me, Lauren and the clients, had a vision of where the project needed to go and what it needed to end up looking like’.

With the vision established, leadership behaviours focused on professional expertise. According to Gavin:

\[
I was a leader in the whole area that I work in. And people are good about it. They accepted that and did what I asked them to do, and I had a very clear idea of what I wanted. And I think I expressed that quite clearly to them.
\]

All team members felt that they took leadership positions in relation to their disciplines and professional practices based on their specific tasks and responsibilities. Helen, however, was the only person who felt that at times leadership across and within the project team was ‘confused’, and this reflected the issues previously identified in the authority relations and role definitions dimensions of the group boundary property. Helen felt that as the main designer on the project, her disciplinary inputs in terms of design were sometimes ignored by web development, and that basically web development pleased themselves, and due to the short timelines, she had no option but
to acquiesce and ‘eventually say, “Well, whatever”’. She did state though that she felt she needed to take a leadership position in relation to the management of her design tasks, and hence she developed the design schedule checklist document as ‘a practical way to get the project done’ (Helen), and it ultimately was used to manage all production aspects of the project.

Shirley saw leadership in terms of her academic role. She stated that leadership for her was in terms of disciplinary leadership and get her students to understand the relationships between the multi-disciplinary approach taken in this unit and how it transferred to broader disciplinary practices in their field of study. Therefore, ‘I had to often push for it when they were reading articles...[as]...our students have a huge amount of difficulty transferring information. So they still can’t see what they did in this, and how it could be useful in that situation’.

Leadership existed both in terms of individual leadership, and leadership within the team in relation to professional expertise. However, Emma as the project leader and client, identified that she felt that there could have been more professional leadership and advice from SX in bounding the project’s scope, as this affected the entire project. Ben stated that leadership was ‘implicit...[and]...they trust us to know the web part of it and what it should look like and what we can do and can’t do’. However, as has been previously acknowledged, the clients were unaware of the technical possibilities and once Emma and Shirley were introduced to them ‘we all went a bit nuts’ (Emma). Emma thus identified that this was perhaps an issue with leadership, in that ‘there was nobody in that clear leadership role to say, “Uh-uh, no, we’re pulling it back.”’.  

As has previously been mentioned, the project’s scope exploded when the clients became aware of the technical possibilities. In interdisciplinary project-based teams, people have different areas of expertise and they rely on guidance and advice from other experts—that is expert leadership—as was the case in this project. Ultimately, the clients would have benefited from more expert leadership and advice from SX in relation to containing the project’s scope, and the project itself would have benefited from a greater balance between creativity and pragmatism, as Emma summarises below:

*Because we had no clear leadership and because Service X were actually so damn accommodating, because they would go, “Oh, yeah, that’s a good idea.” or “Maybe we could just do this and we could just do that.” And so, we kept adding and adding and adding to the...*
Thus, within the project team, leadership behaviours occurred at different levels. There was leadership in terms of vision and direction and then in terms of professional expertise and horizontal authority. However, there needed to be more expert consultative leadership by SX to help bound the project’s scope, both in terms of technical possibilities and functionality, but also to achieve a greater balance between creativity and pragmatism.

5.8 Summary of Project B

Overall, this project was successful although there were some issues. The aim of this project was to build an immersive, technologically rich, online learning environment to engage students in collaborative, active learning. The aim was achieved, but not as originally intended: only one scenario of the three original scenarios was completed, the second one was to be completed in the following year, and the final one was scrapped. As a consequence of the explosion in the project’s scope, SX evaluated their processes and introduced a cap of up to 350 hours for future projects.

This project was complex in terms of both product (technical) and process complexity. The startup processes were not optimal, as instead of bounding the project, the project’s scope exploded. This led to major stresses in terms of timelines, and affected all the project management dimensions of the group boundary property. The tight timelines, led to suboptimal communication practices and processes in the production team, which in turn impacted on authority relations and role definitions. Overall, power differences were generally based on expert authority and most people felt they were able to share their areas of professional expertise and take leadership positions in respect to their different disciplines. However, as has been highlighted, this was not always the case in what developed into a somewhat contested space between web and design. However, overall, people felt the project was a fun project, which allowed people to extend themselves professionally. It was generally a positive experience for all team members.
as evidenced through the psychological dimensions of the group boundary property of EIRT.
I know what that unit has been through, being shunted around from pillar to post and disrespected and all of the rest of it. I mean, it must be a terribly sapping place to work.

Robyn: Academic consultant Project C
6.1 Background

Karen, a vocational staff member from a vocational group (V-group) in PU, in conjunction with a faculty-based academic staff member, Robyn, instigated this LTG project, Project C. The aim of this project was to develop a new online learning resource that would be placed inside an existing, publicly available website. SX had previously designed the interface and built the site architecture of the host site, but V-group owned and managed it, and they created their own resources for it. The project’s outcome was to be an online learning resource that contained—among other things—eight vox pop style videos.

Karen submitted a production request for the eight videos. She then met with SX who provided her with the required budget estimate, which she included in the LTG proposal. The application was submitted and subsequently approved by the university. However, the approval was mislaid and V-group did not receive notification that the project had been successful until May, approximately six months after it had been approved. Karen then contacted SX, and Peter from audio-video production was assigned to produce the videos.

The V-group’s ‘in-house’ online resource development team comprised Karen and Michelle, who were both educational designers and content developers, and Diana, an eLearning web and multimedia developer. In this project, V-group were to develop all the content for the learning resource, write the scripts for the videos, find students for filming and create the resource, doing all the web production work. Thus, SX’s task was to film and produce the videos. The V-group team had worked together closely for a number of years, but unlike SX, they did not have formal project management and scoping processes.

Not everything went to plan. This case study is complex, and the levels of complexity reflect intergroup relations, parallel processes and changes in broader university policies, all of which are explored in this chapter. However, as a precursor, V-group was a group that was struggling in itself. As a result of an organisational review two years previously, the entire group (n=19 staff members, an equivalent of 15 EFTs) were moved from a faculty area into the Students’ Division (SD). V-group, as a whole, did not think that this was an appropriate organisational move or fit, as they were all teachers and employed on a Vocational Award (VA), while the rest of the SD were on HEW awards.
The culture of the SD was also very different from their previous area’s, in that it was very political and hierarchical. According to Karen:

I think this is a very hierarchical organisation. I think all the people in the non-academic and teaching areas fight overall for everything. It’s a very political sort of situation...a very political environment. So, it’s more about people positioning themselves than about respect for role.

The politics in the SD, and more broadly in the university, were keenly felt in this project and are explored more fully later (see sections 6.4, Power differences and 6.5, Affective patterns).

However, other factors also impacted on this project. First, Diana, the web developer, worked between two services in the SD. After the organisational move to the SD, another area approached her to develop online resources for them, and this was approved. Thus her time was split evenly between two service areas and she had a number of other resource development projects to complete. The second factor was the introduction of the university’s new branding guidelines in late August. As previously mentioned (see section 1.7.2, Service X), the new branding guidelines applied to all new print and digital resources. However, only authorised groups in the university were able to use them, and SX was one. To recap: courseware resources that sat behind a login were exempt from the guidelines, but publicly available resources such as information and advertising material, needed to comply. As this online learning resource was to be a publicly available student resource, although it was to be placed inside an existing non-branded website, there was still a possibility that the new guidelines might apply. V-group therefore sought advice from SX as to whether the new resource would need to comply with the new guidelines, and according to Cate, a lead designer in SX:

Marketing had released the new corporate guidelines and there was a real clamp down on the online presence to make things look as uniform, and a part of the corporate brand, as possible. And what we do with every project is evaluate whether it should be treated as courseware, which is of course exempt from the corporate branding, or part of the online web corporate presence, in which case, you’d have no choice, but to make it look like the rest of the PU website.

And I remember sitting in the meeting with Lauren and with Karen and others and saying “Look, we’re not sure. We’re not sure which way this is going to go, but I suspect because this is student information, a student resource, it is quite likely it will have to be in
As a result of this, and other issues which are explored, Diana withdrew from the team. The loss of their web developer, and the possible need to comply with the branding guidelines, left V-group with no option other than to ask SX to complete the project. Thus a second production request was submitted in late October for SX to finish the LTG online learning resource.

There are many levels of organisational complexity in this case study that operate in both the foreground and background of the project. The project was completed, but not as intended. Moreover, it was not a positive experience, as there was a plethora of intergroup issues that impacted on interpersonal relationships between people from different groups in PU.

### 6.2 The project teams

The departure of Diana from the project, and the subsequent second production request to SX, meant that there were two different configurations of people (n=7) who worked on this project. This section provides details of the two overlapping project teams, along with their identity and organisational group memberships.

#### 6.2.1 Project Team One

Project Team One (Team-1), as shown in Figure 6.1, comprised five people: Karen, Michelle and Diana, all from V-group; Robyn, the faculty-based academic; and Peter, the audio-video production person from SX. Table 6.1 provides further team member details.
Table 6.1: Team member details in Team-1

<table>
<thead>
<tr>
<th></th>
<th>Karen</th>
<th>Robyn</th>
<th>Diana</th>
<th>Michelle</th>
<th>Peter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male/female</td>
<td>Female</td>
<td>Female</td>
<td>Female</td>
<td>Female</td>
<td>Male</td>
</tr>
<tr>
<td>Role in team</td>
<td>LTG project leader Educational designer and content developer</td>
<td>LTG project team member Discipline expert – academic consultant</td>
<td>LTG project team member eLearning developer – web and multimedia</td>
<td>LTG project team member Educational designer and content developer</td>
<td>Audio &amp; Video production</td>
</tr>
<tr>
<td>Award</td>
<td>VA</td>
<td>Academic</td>
<td>VA</td>
<td>VA</td>
<td>HEW</td>
</tr>
<tr>
<td>Age group</td>
<td>45-54</td>
<td>45-54</td>
<td>45-54</td>
<td>55-64</td>
<td>55-64</td>
</tr>
<tr>
<td>Years at PU</td>
<td>11-15</td>
<td>0-5</td>
<td>6-10</td>
<td>11-15</td>
<td>21+</td>
</tr>
</tbody>
</table>
In relation to V-group, Karen was the LTG project leader, educational designer and content developer; Michelle, who self-deprecatingly called herself ‘worker bee’, was also an educational designer and content developer; and finally Diana, who was the eLearning web and multimedia developer. This group all had teaching qualifications and backgrounds, and had worked closely together on a wide range of online resource projects for more than 5 years.

As PU’s LTG program aims to foster innovation in learning and teaching to enhance student learning outcomes, professional/vocational groups can not apply for grants unless there is at least one academic partner on the team. Robyn was therefore the academic consultant on the team, but her availability and time were limited due to her teaching workload and extensive offshore teaching commitments in second semester. Robyn herself was an early career academic, having come to academia later in life, after a successful career in Human Resource Development. The final person in Team-1 was Peter, the audio-video producer from SX, who had worked at PU for in excess of 21 years, ‘29 to be precise’ (Peter). Karen and Michelle were collocated in the same office in V-group, and Diana was located close by, but in the other service area in which she worked. Robyn was located approximately a 10 minute walk away from V-group in a different faculty area and building. Peter was located in SX, roughly a five minute walk from V-group, but in the audio-video production area which was on another floor from graphic design and web development. Generally the four women met in V-group, but went to SX’s film studio to record the student videos.

In terms of identity and organisational group memberships, there were four females and one male on the team. All female team members were born in Australia, while Peter was from Canada, but had lived in Australia for more than 30 years. The mode age group was 45-54 (n=3) and the majority of people (n=3) had worked at PU for in excess of 11 years. In terms of organisational groups, there were three groups: vocational, academic and professional staff. There was thus a mix of awards, with the V-group team members employed on a VA, Robyn on an Academic award and Peter on a HEW award. The three V-group team members had worked with both SX and Peter before. Robyn and Karen had also worked together before, but Robyn had not worked with the other team members.

The time frames around this LTG were different from the others. As mentioned, although the LTG application was submitted in November of the previous year (as required), V-
group were not notified that their application was successful until May. This left approximately eight months to research, design, develop the content, find the students for the videos, write the scripts, make the videos and develop the final resource. However, no-one worked full time on this project. Each V-group team member had one day per week allocated to it, and Robyn had half a day per week, but this was not always possible, particularly when she had offshore teaching commitments. Thus, no-one had dedicated blocks of time devoted to the project, except for Peter, who was to produce the videos, but this was contingent on the sequential tasks of V-group writing the scripts and finding the students.

6.2.2 Project Team Two

Project Team Two (Team-2) resulted from the second production request. This team comprised six people, five of whom participated in this research as shown in Figure 6.2, and further details are provided in Table 6.2. This team contained Karen and Michelle from V-group and Robyn, the faculty-based academic, who were the content development group. They were joined by Cate, the designated SX project coordinator and lead graphic designer; Jack the web developer; and finally Zoe a graphic designer. Peter was not part of Team-2 as he had already filmed and completed the videos as per the first production request made by Team-1. However, although Diana had left the team, she still had some limited involvement in Team-2, as she became a mediator between SX and V-group team members, over issues with the final product.

22 Zoe did not participate in this research, as at the time of data collection, she was on extended leave. She is therefore not included in this research or in Table 6.2.
Figure 6.2: Project C, Team-2 members

Table 6.2: Team member details for Team-2

<table>
<thead>
<tr>
<th></th>
<th>Karen</th>
<th>Robyn</th>
<th>Michelle</th>
<th>Cate</th>
<th>Jack</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male/female</td>
<td>Female</td>
<td>Female</td>
<td>Female</td>
<td>Female</td>
<td>Male</td>
</tr>
<tr>
<td>Role in team</td>
<td>LTG project leader &amp; client Educational designer and content developer</td>
<td>LTG project team member &amp; client Academic consultant</td>
<td>LTG project team member &amp; client Educational designer and content developer</td>
<td>Production coordinator and senior graphic designer</td>
<td>Web developer</td>
</tr>
<tr>
<td>Award</td>
<td>VA</td>
<td>Academic</td>
<td>VA</td>
<td>HEW</td>
<td>HEW</td>
</tr>
<tr>
<td>Age group</td>
<td>45-54</td>
<td>45-54</td>
<td>55-64</td>
<td>35-44</td>
<td>35-44</td>
</tr>
<tr>
<td>Years at PU</td>
<td>11-15</td>
<td>0-5</td>
<td>11-15</td>
<td>11-15</td>
<td>0-5</td>
</tr>
</tbody>
</table>
In terms of identity groups in Team-2, there were once again four females and one male. Cate and Jack, from SX, were both in the younger 35-44 age group, while Karen and Robyn were in the 45-54 age group, and Michelle was in the older 55-64 age group. Cate, Karen and Michelle had all worked at PU for between 11-15 years, but Jack and Robyn were relatively new to PU, having worked there for less than five years. Across this team, there were once again three award structures: VA, Academic and HEW.

Thus, as in Project B, there were effectively two groups within Team-2, the content development group, comprising Karen, Michelle and Robyn, and the SX production group. These groups were separated by physical boundaries, as they worked at different locations across the main campus. As previously mentioned in regards to Team-1, Karen and Michelle were collocated and Robyn was a ten minute walk from them. In terms of Team-2, Cate and Jack worked in the same open plan office in SX and basically sat next to each other. All meetings between the two teams were once again held at SX.

6.2.3 Groups in Team-2

Team-2 is problematic in terms of group membership and identification. It comprised three subgroups:

- **The V-group**: Karen and Michelle, and on occasions Diana as a mediator/web consultant.
- **The content development group**: Karen, Michelle and Robyn, the academic consultant.
- **The SX production team**: Cate and Jack.

To help clarity in terms of team members and subgroup identification, where necessary, team members are identified in relation to these groups, regardless of how they were referred to in the interviews. However, SX—as a university group—is still referred to as SX, if it is not within the context of their production work in Team-2.

This case study is more complex than the other cases, mainly due to the breakdown of Team-1, and the need to ask SX to complete the project within the context of changed
policies at PU. The rest of this chapter presents the story of this project through the five properties of EIRT.

6.3 Group boundaries

This section explores the group boundary property of EIRT in relation to Project C. Figure 6.3 presents the compiled responses from the seven team members who worked on both the initial and final variants of the project. However, Michelle and Diana both identified that there were two separate groups within Team-2; the content development team (Karen, Michelle and Robyn) and the SX production team. Furthermore, they identified some dimensions on a separate sheet of paper, which they thought pertained specifically to the SX production team in Team-2. Therefore, a second colour-coded and initialed marker with a diagonal line through it is used to denote their responses for the dimensions that they felt specifically applied to the SX production team in Team-2.

The responses for the group boundary property in Project C show that this was the most chaotic project. There was not a single dimension that all team members agreed fell within the optimal boundary permeability range, although there were three dimensions—timelines, individual effort and underlying team feeling—that were generally assessed as being within the optimal boundary range with one exception in each. In contrast to the other two cases, there was more divergence across the psychological dimensions, with a greater spread along the continuums from the overbounded to the underbounded extremes.

The following analysis of the group boundary property once again is divided into two sections covering the project management and psychological dimensions. This section starts with an exploration of the project management dimensions.
Figure 6.3: Group boundary responses for Project C
6.3.1 The project management dimensions

This section explores the responses to the project management dimensions in Project C. There was a greater level of disparity across the continuums from overbounded to underbounded in this project compared to the other projects, and no dimension was considered to be optimally bounded by all team members. The following sections explore the team members’ responses to these dimensions and the effects they had on the project.

6.3.1.1 Project goals

In Project C, the project goals responses were spread across the continuum from the overbounded, very clear extreme towards the underbounded unclear extreme, although on average they were skewed more towards the underbounded extreme. In relation to Team-1, Karen, as the LTG project leader and project coordinator in V-group, stated that the project goals were ‘very clear’, although there was room for some flexibility, but in essence ‘it was a small group and they all agreed with the goals. So we’re all working to the same thing’. Michelle thought that the project goals were optimally bounded, in that ‘they were perfectly clear but they were not restrictive’; Diana said she ‘wouldn’t consider them perfect, so probably more to the slightly unclear’ although this was not problematic; and Peter, the SX team member, said that the project goals in relation to his component of the project had been clarified through ‘initial discussions...but it was amicable and coordinated discussion, so in the end I believe it was reasonably straight forward’. Robyn identified the project goals as closest to the underbounded extreme, but she did not perceive this as a negative and stated:

For us...[the project goals]...were relatively clearly defined, although I’m going to put the mark about halfway towards unbounded or unclear. But I’m not actually—the word “unclear” is probably often used in a judgemental way. I’m not thinking of that as a judgemental thing because we wanted to have the capacity to scope it out and change it as we learnt more and as we developed it.

Once again, this is in keeping with Type 3 projects, as goals are not always clear at the start of a project, but are clarified as the project is scoped. However, there was no formal scoping process in Team-1. They scoped the project and developed content as they went...
along, which for V-group was a familiar way of working. In this case, they knew the deliverables they had to develop within the LTG time frames, and what resources, such as scripts, videos and instructional content needed to be developed in order to produce the final resource.

However, things changed when Diana withdrew from Team-1. On submission of the second production request to SX, this project became an SX project, and it needed to be formally scoped in order to clarify the project goals and outcomes. According to Cate, the project coordinator and lead graphic designer in the SX production team:

*The outcomes they wanted were quite clear I felt. It was the way they’re going to achieve them that was not clear. That’s where we were able to suggest things.*

*Generally, there were a couple of sticking points, but that was kind of getting down into the nitty gritty details like how certain video clips were going to be done.* And, you know, I think that one of their...I wouldn’t say it was a problem, but they didn’t know in some instances what they wanted until they actually saw it in front of them...So if I don’t know quite know what I want, but I’ll know it when I see it...Yeah. And that was something to get around. But that’s not that unusual.

Although Cate identifies here that it is often the case the clients do not know what they want until they see it, this was not the case in this project. Both Michelle and Diana stated that they did not think that the SX production team understood the project goals in terms of how the V-group members in Team-2 had planned and envisioned the final resource, as ‘the thing they did in the end, wasn’t the thing that we wanted’ (Michelle). According to Diana—who mediated between the V-group members and the SX production team in Team-2—the project goals were:

*A bit unclear actually, because there was a lack of understanding between the V-group members in Team-2, who had already been on the path of what they were developing [and the SX production team]. And when it was handed over to the SX production team to produce it, they didn’t quite understand what was wanted.*

The resource was to sit inside a host website that SX had previously designed and developed which had an existing site interface and architecture. However, the resources

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23 This refers to how the videos were to be displayed/embedded within the online learning resource, not the production of the videos which had previously been completed as part of Team-1.
V-group had developed for this host website, used a template V-group had created with its own distinct interface design, navigation, layout and structure. The online learning resource that the SX production team in Team-2 produced did not follow the structural format of the other resources. It was not placed where the V-group team members thought it would go and the design, interface and site navigation of the host website were also changed. According to V-group team members of Team-2, these changes were never discussed and hence were done without consultation as Diana explained:

*Even where it was positioned, where the online resource was actually put, was never actually agreed upon by the V-group members of Team-2. In the initial planning stage, it was never explicitly said that that resource was going to live in this place and be put in as part of the overall design of the initial thing [the host website]. The V-group members of Team-2 thought it was going to be a [learning resource] that would hang off...[a content area of the host site]...like the other resources we developed.*

As previously mentioned (see section 1.7.3, *The production process*), SX’s pre-production processes are meant to scope the project, identify the project goals and develop the detailed specification documentation. Wireframes are then developed and sent to the client(s) for approval before any production work commences. According to Diana however, this did not happen:

*I would have thought that you needed to have created a – what’s the word? A first draft and then presented it to the V-group members of Team-2 and said “Is this what you’re after?” And that didn’t happen. It [the final product] was presented as a fait accompli.*

In terms of Team-2 then, the SX production team did not follow their own processes, nor did they deliver what the clients wanted or were expecting. The SX production team seemed to work to their own goals, not the clients, and this had ramifications in other dimensions of the group boundaries property and more broadly within the project.

### 6.3.1.2 Authority relations

There were different authority relations, and dynamics, that operated across and within the two project teams. The authority relations dimensions explored whether there was a designated leader or multiple leaders within the team, what the leadership style in the
team was like, whether people knew who to report to and whether the leadership style affected the team’s ability to work productively together. As can be seen in Figure 6.3, Karen, Robyn and Michelle from Team-1 placed authority relations in the optimal boundary permeability range, as did Cate and Jack from Team-2. Diana indicated that authority relations were towards the overbounded extreme, while Peter thought they were more toward the underbounded extreme. Michelle was the only person who commented on authority relations between Team-1 and Team-2, and she found these to be multiple and competing.

Within Team-1, all female team members identified Karen as the designated leader, while Peter identified both Karen and Robyn as they ‘were the only two people I really dealt with...[but]...[i]n so far as I was aware, there was not a designated leader’. All team members said they knew who to report to: in terms of content and web development, everyone reported to Karen; but in terms of video production, people contacted Peter. However, as Peter identified there were only two people he dealt with, he reported to both Karen and Robyn, as he needed someone to review (and approve) the videos and edits as required. In terms of leadership style, Peter commented that it was ‘very open and collaborative’, and this was supported by Robyn, who said that it was ‘collegiate and collaborative’. However, neither Peter nor Robyn worked in V-group.

In relation to the V-group team members in Team-1, Diana found the leadership style to be ‘a bit authoritative’, and this was also inferred by Michelle, but she stated, ‘it was very familiar’. Nevertheless she did not consider this to be a negative, stating ‘I suppose Karen, as a leader, is someone who does keep pushing the thing along, but she does get down and dirty and does it herself’. The need to push things along was noted as important in the project, due to the disruptive nature of the time fractions people had allocated to it, their physical locations and Robyn’s limited availability as the academic consultant. However, this created a dynamic in which the leadership style was experienced by Diana as:

Well bullying is the wrong word. It was more – the person that had the deliverable had a single-minded focus. They needed to get this done by a certain period of time and had a tendency to panic a bit about it. And whilst panicking, it impacted upon the other team members...[since]...then they had that tendency to go, “You need to do this! You need to do that!”: You know, that sort of thing.

With the handover to Team-2, authority relations changed. Within Team-2, Jack and Cate both believed there were ‘multiple leaders’. Cate stated that the leadership style was
‘fairly democratic I would have thought. Anytime we had email correspondence, everyone was CC’d in’. In terms of knowing who to report to, Cate identified Karen, but Jack stated that ‘there was some confusion over the clients because there was at some meetings four clients, or four members of the client team’, although he did go on to say ‘but there really wasn’t a lot of reporting required’.

However, authority relations between the V-group members and the SX production team members in Team-2 were assessed by Michelle as close to the multiple and competing extreme, and she felt that there was a ‘cross purposes’ problem. The main issue, according to Michelle, was ‘getting them to do what we wanted…[but]…they seemed to have a set way that they did things’. She went onto say:

> It was actually that we were coming from different places. We were coming from – we wanted it to look like this because we know that students are more likely to read it [on screen]. And they were coming from “this has to be read on an iPod or whatever, so we have to do it this way”. And I don’t think that they had any choice, [but if they did] they weren’t open to it.

Thus, SX delivered the project, but when ‘it actually got produced, the V-group members of Team-2, said “Oh, that’s not what we wanted”’ (Diana). In terms of authority relations then, they were multiple and competing, but ultimately authority resided with the SX production in Team-2 who produced the final resource, and V-group team members were powerless to do anything about it.

6.3.1.3 Role definitions

Across both Team-1 and Team-2, four of the seven respondents indicated that role definitions fell within the optimal boundary permeability range, and where the SX production team in Team-2 was specifically mentioned, their role definitions were assessed as falling on the optimal boundary mid-point. In relation to Team-1, Karen, Michelle and Robyn indicated that role definitions were good.

Karen, the LTG project leader, overall project coordinator and content developer, stated that ‘they were fine’, but added ‘that was because the people accepted my role [because] if they don’t you’ve got problems. If they’re constantly undermining you and wanting to
compete, you’ve got problems’. Robyn, the academic consultant, indicated that her and Karen’s roles ‘overlapped a bit’, but she ‘didn’t feel any discomfort in that’. Michelle, the other content developer, thought that role definitions were good, but as already mentioned, she self-deprecatingly referred to her role as ‘worker bee’. Peter felt that his role as the audio-video producer was clear, but in relation to the other team members, that they overlapped a bit. This supports his previous comments, in that he only dealt with Karen and Robyn, and he sent things to both of them to be sanctioned and he didn’t care who responded.

Diana, as the web developer, felt that role definitions were imprecise and overlapped particularly in relation to the content developers in Team-1. Overall there were three female content developers, and according to Diana:

They kept going over old ground, so it was a very slow process because there wasn’t a very clear – I don’t know what the word is – editing process sorted out. So, I think they sort of reinvented the wheel quite a lot. It took a long time for the content to actually get to the point where it was going to get delivered.

In relation to being a core team member, Karen, Michelle and Robyn all stated that they were core team members. Peter, the SX team member in Team-1, said that his role in the project ‘was rather peripheral’, in that he only produced the videos based on V-group’s requirements.

In relation to Team-2, both Cate and Jack counted themselves as core team members and felt that there was a clear delineation between the roles and functions of design and web development within the SX production team. ‘I guess the roles were pretty clear, we have a structure where design doesn’t stray into web too much, and web doesn’t stray into design much’ (Jack). However, Cate did note that ‘there was no sort of pointing out of roles on the side of the content development group in Team-2. I knew it was a project because Robyn obviously doesn’t work for V-group. But it didn’t really seem to make any difference’.

However, it was Diana’s role that changed over the course of the project, as she withdrew from Team-1, and became a mediator in relation to Team-2. There were several reasons that underpinned Diana’s decision to withdraw from the team. In the first instance, Marketing had introduced the new branding guidelines and there was uncertainty as to whether they had to apply to the new online learning resource. Diana was not authorised to use the new branding styles, so if they were required, she would
not be able to design/build it. Ultimately, the resource did not need to comply. However, Michelle observed that while Diana had been ‘a bit worried about all the new marketing rules and all of that’, she did not think that Diana ‘was that interested even before that happened’.

Diana’s original role was to develop the website for the project, based on content developed by the other Team-1 team members. However, she found herself in a catch-22: Karen wanted her to ‘start looking at possible designs and how it might be laid out and stuff, and she just kept saying “I can’t do it without the material”’ (Michelle). Thus, the time taken to develop usable content affected Diana’s ability to work on the resource, and this hold-up was due—in part—to Robyn’s availability, as Karen insisted on waiting for Robyn’s auspice on decisions whenever she returned from her offshore teaching commitments. Thus decisions were delayed and this created ‘a lack of momentum at times’ (Diana).

However, as previously stated, Diana worked between two areas in the Students’ Division (SD), and she had other projects to do. She worked four days per week, and one of these days was allocated to this project, but the lack of content and the dynamic created through Karen wanting to keep the project pushing along became problematic for her. Thus, Diana felt that her time could be used more effectively and stated:

Because the content took so long to get developed and I was brought in to be the actual production person – and I was working on several jobs, competing interests basically took me away from the project.

Thus role definitions within the two teams was summarised by Michelle as follows:

They were pretty right. Apart from Diana’s role which I am not quite sure about. I think you know, she just ended up not being part of it in the end. But I don’t think she minded. I don’t think she minded, she didn’t seem to mind. In fact I think she seemed relieved when we suggested bringing in SX.
6.3.1.4 Communication patterns

Communications patterns were generally assessed as good across the project. Five of the seven team members identified that communication patterns fell within the optimal boundary permeability range, with four people placing them on the optimal boundary mid-point. Overall, this indicated that there were no real communication issues in this project and people received the information they needed, when they needed it. Once again, email was the main communication mechanism between team members, and it was supported by other formal and informal mechanisms, such as meetings, casual discussions and phone calls. In relation to Team-1, Karen and Michelle worked in the same office, and Diana joined them for her allocated day, so face-to-face meetings and informal conversations were held in V-group. In relation to Peter in Team-1, email was the main communication mechanism ‘with copies to all participants that I was aware of’ (Peter). Communication with Robyn was more problematic due to her offshore teaching commitments. Thus for Robyn, the main communication mechanisms were ‘email, phone calls, mobile, often lots of phone calls between Karen and I at home in private time, yeah and emails and meetings’.

The V-group team in Team-1 met weekly to develop the resource. According to Diana:

> I met, I worked physically with them one day a week. And then, that would be when we would meet and talk and discuss things on that day...So I didn’t meet with the academic or anyone like that unless it was a group meeting on the day that we all [had] set to do it.

For Robyn, regular formal meetings with Team-1 were more difficult, so there were alternate strategies and meeting cycles.

> There were times when we didn’t see each other for weeks because I was offshore. It depends how you define meetings. Some weeks, Karen and I would be on the phone to each other several times a day, everyday. But physical meetings? At one stage, it was once a week or so, at other times, we wouldn’t meet for weeks.

However, Robyn’s offshore commitments did affect the team and exposed some of the underlying dynamics that operated both within the team and more broadly within the university. Michelle made the following observations in relation to the impact communication had on the team’s ability to work productively together:
Michelle: The only thing was that often we were waiting on Robyn, because Karen didn't feel she could make certain decisions without waiting for her.

Karen felt strongly that she should keep deferring to her as “the expert”, whereas Robyn kept sort of saying “Don’t wait for me”. So it was a funny dynamic which I found irritating because, I’d become stuck in the middle and go “Let’s just fucking get on with it” you know. [Both laugh] Hurry up! You know what I mean? It was just sort of like “Oh, get over it”. It doesn’t matter, it doesn’t matter if she’s not here. She’s not here, let’s make a decision and go ahead and tell her about it. She won’t care because she was very easy going. She was an easy going person.

So it wasn’t coming from there, it was coming from Karen who was feeling this – maybe a lack of, maybe a lack of her own academic authority as an expert in this, you know, because she is the expert. She was the one who knew what she wanted the project to be.

Interviewer: You’ve said the word defer a few times

Michelle: Yeah, that was my feeling. She keeps deferring to this person who’s saying “Don’t defer to me. I’m never here.” And that sort of did seem to be the dynamic.

This paralysis in decision-making held up content development, and as already mentioned, this was a contributing factor to Diana’s withdrawal from the team. However, Karen’s reluctance to make decisions without Robyn’s auspice reflects broader intergroup relations and parallel processes pertaining to the status of academic teaching staff compared to vocational teaching staff within the university. LTG projects require academic partners, so Robyn’s role on the team was important in terms of the university, but also to the validity of the project itself as Michelle explained:

[Robyn] was only a consultant, so she only had a small role and I think that was intended. But her importance was extremely high. Yeah. She had a very high importance.

Her involvement was kind of important in terms of its visibility and its communication to the university which are really important things...because it was important to have that person of higher status.

Thus Karen was caught in a bind where she often felt powerless to make decisions, and this impacted on the team.
Communication within Team-2 was problematic. While communication between design and web development was good, communication between the SX production team and the clients was not optimal. As has previously been mentioned in relation to SX in general, design and web development shared an open plan office, where a lot of ‘stuff gets discussed on the fly, and we need to be able to do that, we’re a creative team’ (Cate). Once the second production request was received, there were initial meetings held to scope the project, then the meetings became semi-regular. ‘In the beginning we met more regularly as we were still nutting out how the project was going to proceed, but once it started, people like Karen would meet individually with people like Zoe’ (Cate). However, it was what was not communicated that caused issues in the project.

As has been mentioned in the project goals dimension, the SX production team in Team-2 appeared not follow their own processes as: there was confusion over the project goals and the project was not properly scoped. The clients did not receive wireframes, and hence they did not know that the design of the overall host site had been changed nor the location of the final resource. Thus, overall, the final product was not what they had expected (or wanted). Diana attributed these issues to a lack of communication between V-group and the SX production team members in Team-2, and this affected the ability of the teams to work productively together. According to Diana:

> Because it was a last minute thing that the SX was brought in on the project, I don’t think the brief was made clear enough from the V-group team members in Team-2. [Also] I don’t think the SX production team in Team-2 communicated the actual process of...I would always have thought that you would go to the client and show them your idea and a draft [wireframe], and that didn’t happen.

Furthermore, she also noted:

> Because the SX production team had been brought in to basically—not save their skin—but basically to make sure that this got completed on time within a time frame, I think the V-group members of Team-2 felt a bit beholden, if that’s the word. [This meant] that they maybe were a bit conciliatory in meetings rather than being a bit more upfront about this is what we want, or maybe they weren’t clear exactly where they wanted to put it themselves. But eventually it was resolved through discussion.

However, from the SX production team’s perspective though, they felt that they had communicated their intentions and there had been discussions about placement and
changes to the overall site. According to Jack:

*The original thing was that this new section would be buried under another section which would mean that it was sort of not visible on the website and then our team actually went to the clients and said “Hey, why don’t we make it one of the primary links on the main page? And also, take some other bits that were buried which were links to schools and also promote them to the main page”...so it did change quite dramatically.*

There were communication issues in both teams in this project. Karen’s inability to make timely decisions affected Team-1, and there needed to be more open and honest communication between the clients and the SX production team in Team-2, including the provision of appropriate wireframes.

**6.3.1.5 Budget**

The budget caused minimal stress for most people in this project. As has been explained previously, Karen met with SX and received an estimate of hours (budget) for the video production in Team-1. In terms of the formal LTG budget, monies were used to buy time release for the V-group team members from their substantive duties. They could do this as they were not academic teaching staff. In terms of budget for the SX production team’s work in Team-2, there was no formal LTG budget for this, so an estimate number of hours was worked out in SX, and that became the allocated budget for the project.

Four team members marked budget within the optimal boundary permeability range, with Cate and Diana, assessing it as optimally bounded. Jack, the web developer, said that it went slightly over the budgeted hours, as he *‘had to come in and do four hours on a Saturday’*. Karen was the only person who indicated that the budget was tight, although she still placed it within the optimal boundary permeability range, but on the overbounded side. The other three team members, Peter, Michelle and Robyn, marked budget on the underbounded, minimal stress side.

There were only two people across both teams who said that the budget was relevant to them, Karen and Robyn. As stated, academic staff could not use monies to buy time release, and while the budget had no negative impact on Robyn, she did reflect:
The only thing that it could've done, would've been to have more money to actually take us offline, to work on it properly as a team, rather than trying to shove it in on top of what everybody already did.

The person for whom the budget had the most relevance was Karen. From Karen’s perspective:

The budget was very tight. It was tight, which meant we had to work hard to get it finished. We started in May, end of May, and finished it in January. So it’s tight. It’s really tight. There’s no time for mucking around.

Karen acknowledged that part of the reason the budget was tight, was that ‘Robyn was away overseas a lot, so that was more of a lack of accessibility to her’. However, in view of the issues that have been identified in role definitions and communication patterns, time was often lost due to Karen’s reluctance to make decisions without Robyn’s auspice, although she was forced to do so on occasions, as Michelle observed:

I think finally there were things where Karen said “Stuff it. We just have to go ahead with it, we’ve run out of time. She’ll just have to take it as it comes.” And she was quite happy to take it as it came, she didn’t try—she didn’t expect—that we would do that or that Karen would actually wait for her as much as she probably did.

This then had implications with Team-1, as it created a dynamic whereby:

Perhaps, the personal tension that the leader—that the person who was leading—was feeling towards getting their project delivered on time, then reflected upon the other team members in creating tension as to, you know, feeling like they had to sort of harass the other people to keep them motivated.

6.3.1.6 Timelines

Once again, there was a close relationship between budget (in hours) and timelines. All responses, bar one, for the timelines dimension were clustered within the optimal bounded permeability range. Most people indicated that the timelines were appropriate: Jack stated ‘they were close, a little too short, but very close’; Cate said they were ‘good’ and that Team-2 ‘worked productively together because the timelines were reasonable’;
Michelle felt they were appropriate, but suggested they may have been a bit ‘on the long side’ and acknowledged that was good because with ‘Robyn away so much...we had time to wait for her’; Robyn stated ‘they were relatively appropriate...[but]...there were times when we were rushed’; Peter felt that they were ‘perfectly appropriate to me’; and finally Diana stated, ‘they should have been. Theoretically, there was plenty of time to have developed what was eventually developed...[but because of the things mentioned before]...it ended up being a bit of a rush towards the end’.

The only person to indicate that the timelines were short was Karen. According to Karen ‘they were pretty short. They were very short, because I took on that making sure everything was done, so I took the load really’. As Karen was the LTG project leader, it was her responsibility to ensure everything was done. However, time wasted in developing content, and waiting for Robyn, created stresses within the team, which contributed to Diana’s decision to leave Team-1.

### 6.3.1.7 Summary of project management variables

As in Project B, there was no consensus across the project management dimensions of the group boundary property in this project. No dimension was rated as optimally bounded by all participants, and there were varying degrees of overboundedness and underboundedness across the dimensions. Timelines was the only dimension that all participants (with one exception) indicated fell within the optimal boundary permeability range, and budget was the only other dimension that overall everyone felt (with one exception) caused minimal stress.

Diana’s decision to withdraw from Team-1 was the result of two factors: the first was the introduction of the new branding guidelines and the second resulted from the issues identified in role definitions and communication patterns and the dynamic this created in terms of authority relations. However, in terms of the SX production team, the project goals were not properly scoped at the beginning and this lead to a cross purposing of viewpoints, which ultimately meant that the final deliverable was not what the clients wanted. Communication therefore was not optimal across the two project teams.
Table 6.3 presents the tallied responses for different team combinations. The first data column presents all responses—including Team-1’s assessment of the SX production team where applicable—making 50 responses in all. In this, nine responses fell on the overbounded side, ten on the underbounded side, and 31 fell within the optimal boundary permeability range. Next, the second data column presents all team members in Team-1 and Team-2 (n=7) making 42 responses in all. Eight responses fell on the overbounded side, seven on the underbounded side, and 27 were within the optimal boundary range. However, if Team-1 is assessed by itself, six responses fell on the overbounded side, seven were on the underbounded side and 17 were optimally bounded. And finally if Team-2 is assessed by itself, five responses fell on the overbounded extreme, three responses on the underbounded extreme and twenty two responses fell in the optimal boundary permeability range, making Team-2 a more optimally bounded project in terms of the project management processes, although ultimately it did not deliver what the clients wanted.

**Table 6.3: Total responses for project management dimensions**

<table>
<thead>
<tr>
<th>Dimension</th>
<th>All responses (inc. Team-1’s assessments of SX in Team-2)</th>
<th>All team members (n=7)</th>
<th>Team-1 only (n=5)</th>
<th>Team-2 only (n=5)</th>
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<tr>
<td></td>
<td>Over</td>
<td>Optimal</td>
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<td>Project</td>
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<td>Authority</td>
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<td>5</td>
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<td>1</td>
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<tr>
<td>Roles</td>
<td>1</td>
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<td>Comms</td>
<td>2</td>
<td>5</td>
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<td>Budget</td>
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<td>4</td>
<td>-</td>
<td>3</td>
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<tr>
<td>Timelines</td>
<td>-</td>
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<td>Total</td>
<td>9</td>
<td>31</td>
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6.3.2 **The psychological dimensions**

This section explores the responses to the psychological dimensions of the group boundary property in Project C. As in the project management dimensions, there was a greater level of disparity across the continuums from overbounded to underbounded in this project compared to the other projects. No dimension was considered to be optimally bounded by all team members, although if the V-group team members perceptions of the SX production team in Team-2 are excluded, all responses to underlying team feeling are within the optimal boundary permeability range. However, many of the issues raised in the psychological dimensions are in fact external to the project but they impacted on the teams, especially Team-1, through parallel processes. This section explores the team members’ responses to the psychological dimensions and the effects these had on the project.

6.3.2.1 **Individual effort**

All participants, except Robyn, identified that individual effort fell within the optimal boundary permeability range. Thus generally, people felt that everyone put effort into working on this project, that their efforts were maximised and directed appropriately, that their efforts made a difference to the overall project and that their efforts helped the team to work productively together. In relation to Team-1, Karen, Peter and Michelle all responded positively to the statements above. However, from Diana’s perspective, while she thought that people put effort into working on the project, she did not think that those efforts were maximised or directed appropriately, saying ‘it was a bit all over the place’. In relation to her own effort, she felt that it ‘was probably not very good’, but she felt it was not maximised appropriately either as ‘the content took so long to get developed’ (Diana), and as stated, this had a major impact on her ability to work productively on the project. In relation to Team-2, Jack identified effort as falling on the optimal boundary mid-point, saying ‘I think everyone did a good job’ and Cate thought the same too in terms of the SX production team saying ‘I think everyone made a really good effort’.

The V-group team had worked closely together as an online resource development team for more than five years and they were collocated together to work on this project for a
day per week. Peter, as the external SX person, was separated from the other team members by both physical and organisational boundaries. Thus Peter had little contact with the other team members, but stated that from his perspective regarding individual effort, 'everything went as well as could be expected...[and it was]...a credit to the personalities involved'. Robyn, the only academic on the team, was also separated from V-group by physical and organisational boundaries, and these were further exacerbated by geographic boundaries when she was offshore. However, although Robyn 'had such little involvement in some ways' (Michelle) she had ongoing contact with V-group across the project, and she assessed individual effort as more towards the overbounded extreme, 'not because of any lack of will or intelligence or capacity on behalf of those involved', but because of broader organisation dynamics. Robyn made the following observation in regards to whether people's efforts were maximised and directed appropriately.

Look, I feel for Karen because I think she was very torn between some of the politics that exist within that part of the organisation and wanting to do a good job on this. And it’s linked to the budgetary stuff. For Karen, I would’ve liked to have seen her have enough money to actually get out of that swamp for a day, or a week, or something.

That ‘swamp’ was the Students’ Division (SD) area. As previously mentioned, V-group was moved into the SD following an organisational review. The group had not been happy about the move, nor the restructure that accompanied it. At first, a temporary management structure had been put in place and Karen was appointed a coordinator, but when the final structure was released, there was one manager, and the coordinator positions below that were abolished. Thus Karen’s role effectively disappeared and she was not happy about it as she explained:

I’ve done a lot of project work since moving to the Student—where are we?—the Students’ Division...although there was a year when there was – I was a project coordinator, but unless I went for the manager’s job, I had no role, and I’ve lost all the work that I do. So I’m not very happy about that...[in fact]...I’m pissed off with the structure I’m working under, because basically, all the good work we did has gone down the toilet.

Karen found the SD to be very political and hierarchical. The loss of her coordinator’s position meant she had lost power, but also recognition of the work that she did. This project therefore was important to Karen, as it had high visibility within university and provided external recognition and validation of the work she (and others) did. Thus in
relation to effort on the project, Karen ‘put in a huge amount of effort...she was a complete workaholic...[and]...it would have been exhausting’ (Michelle).

6.3.2.2 Emotional climate

The responses to the emotional climate dimension ranged from the overbounded extreme across to the underbounded extreme. Within Team-1, both Karen and Peter identified that the emotional climate within the team was ‘very positive’, while Michelle identified it as ‘good. It was good’. Diana said that the emotional climate within the team ‘had its ups and downs and there were times of tenseness...but nothing too challenging’.

There were various levels of influence, or concentric circles of influence, that affected the emotional climate of the teams in this project: firstly there were those within the teams themselves, then more broadly in the SD area, and finally the wider university itself. Within Team-1, the emotional climate was positive and based on respect, task and outcomes. According to Karen:

> It was very positive. Even though Robyn was an academic, she didn’t play status or hierarchy. She deferred to our knowledge, because our knowledge was different. So we weren’t competing on who was the expert...We were very task-focused. It wasn’t about self worth. And that was it. There wasn’t any emotional baggage. It was about getting the task done and people were task focused.

This was supported by Robyn, but she highlighted that external factors did influence the emotional climate of the team, particularly in relation to the SD, and thus she marked emotional climate as more towards the negative inside, underbounded extreme, stating:

> It was sometimes negative, but it wasn’t negative to do with the relationships within the team at all. We worked together fabulously...[but]...the outside affects the way the players feel on any given day, and that’s going to have an impact on what gets done.

Robyn hence identifies that parallel processes were evident in this project. To recap, parallel processes refers to an unconscious phenomenon whereby the dynamics found in a system will reflect those of the macro or suprasystem above as well as the subsystems below, and they can bring forth unconscious emotional (affect), behavioural and
cognition responses in individuals and groups after long periods of engagement with the
system (Alderfer, 1987). As previously stated, ‘group level parallel processes...are likely
to have intrapersonal and interpersonal effects’ (Alderfer & Simon, 2002, p. 420), for
example, feelings of futility after interacting with a group for a long period of time, could
indicate that the group is struggling and that no matter how much energy is expended,
nothing changes, so why bother.

The politics of the SD, and the impact it had on V-group, were very time consuming and
‘it was emotionally draining’ (Robyn). As mentioned in section 2.3.2.1, System boundaries,
universities as systems are underbounded as there are multiple sources of authority,
power is diffuse, and they are loosely controlled (Bolman & Deal, 1997; Buch, 1992;
Strachan et al., 2008). Alderfer (1980, 2011) claims there is an inverse relationship
between the state of boundary permeability between suprasystems and subsystems in
that underbounded suprasystems often create overbounded subsystems, and vice versa.
For example, in relation to universities, disciplinary boundaries have been fiercely
contested (Becher, 1994; Becher & Trowler, 2001), and the rise of the Enterprise
University has created strong administrative/bureaucratic domains.

The SD was an overbounded group with very hierarchical and rigid management
structures. In terms of parallel processes, it sought recognition and relevance within
broader university hierarchies and power structures that privilege research and
academics over professional staff. Power in the SD was based on hierarchy, recognition
and kudos, and V-group had none of these. They had been reluctantly moved into the SD,
and had lost their identity along with levels of professional autonomy. They were also
plagued by levels of infighting in the full V-group (n=19). In this dynamic, V-group was
an underbounded group, and were trapped in the environmental turmoil and chaos of
their context.

These external SD dynamics impacted on this project and the project team members.
However, V-group was generally oblivious to the maelstrom of discontent they
projected. Thus Robyn, as the external academic on the team who had ongoing contact
with V-group across the duration of the project, commented:

_There were times when I could’ve done with less V-group politics,
you know, I just sort of got a bit sick of hearing about it. But every
time I have anything to do with anybody from there, I hear the same
thing._
So that’s not directed at Karen or Michelle, I know what that unit has been through, being shunted around from pillar to post and disrespected and all of the rest of it. I mean it must be a terribly sapping place to work.

In relation to Team-2, the SX production team were not immune from the politics or the emotional climate emanating from V-group in relation to this project and the SD more broadly. According to Cate:

There was a lot of negativity affecting the clients…and I think there was a lot of stuff going on over there which was quite distressing. People were having some concerns about their job security and all that sort of stuff and…it sounded really bitchy actually. And people were clearly distressed by that…it actually sounded awful. I got that impression. So there was a stress there, but it had nothing to do with us. But I was aware of a political issue.

Thus, both teams were affected in some ways by of the underlying issues and emotional climate of the V-group team members.

The other factors that affected the emotional climate of Team-2 were the new branding guidelines and the possibility that the new resource would need to comply with them. Surprisingly, they actually had a cohesive influence on the emotional climate of Team-2, which Cate described as a bit ‘like us against the world’:

[It was] positive within. I remember there was a huge bitch session about the university generally in the first meeting, mostly about the new corporate branding and all that sort of stuff because that caused so much angst, and of course it was all new to us as well, and I had to go away and find out what was going on and then come back and explain.

And you know, I didn’t really want to be the mouthpiece for PU Marketing, but I had to explain that if we had to comply, we had to comply. And that was difficult, and that’s why we were scrambling for solutions – so it didn’t have to look like that. So generally, within the group, it was positive; it was sort of like us against the world. It was really funny.

In the end, the resource did not need to comply with the corporate branding guidelines. However, it shows that groups embedded in organisational contexts are never immune from what occurs within the broader systems. A myriad of both internal and external factors affected this project, and thus the emotional climate across this project varied within and between the two teams, as they interacted with and reacted to the groups
and contexts in which they were embedded.

6.3.2.3 Mix of groups

The majority of the team members (n=5) identified that the mix of groups fell within the optimal boundary permeability range, and of these, three team members identified them as falling on the optimal boundary mid-point. In relation to identity groups, in Team-1 there were four females and one male on the team, four of whom were Australian, and one Canadian. Three of the team members, Karen, Robyn and Diana were in the 45-54 age bracket (mode age group), and both Peter and Michelle were in the 55-64 age group, all team members were baby boomers. In Team-2, once again there were five team members, and again there were four females and one male. Karen and Robyn were in the 45-54 age group, Michelle was in the 55-64 age group and Cate and Jack were both in the 35-44 age group. The new mix of generational groups meant that there were three baby boomers and two Gen X's. All team members were Australian.

Karen and Peter felt that identity groups were more prevalent in the project, and although people had different tasks, Peter identified that ‘the two key members that I worked with and I came from fairly similar cultural perspectives, and similar age group and history at PU’. As for Karen, she thought that the team were ‘probably similar ages and status, except for the academic, but she was an emerging academic and didn’t play – wasn’t interested in that. So I think status hierarchies were pretty even’. Michelle also commented that there was ‘hierarchy in terms of that Robyn was important because she was an academic, but she didn’t pull rank or anything like that’, but overall ‘it was in the middle’. Diana marked the mix of groups in relation to Team-1 as within the optimal boundary permeability range, and described the mix of groups as ‘definitely baby boomers’ and ‘cranky old women [laughter]’. She did comment though that in relation to Team-2, she thought they were more hierarchical and task focused, and ‘they had very clear roles and structures’ so she marked the SX production team in Team-2 on the overbounded side. Cate concurred with Diana, and thought that in Team-2, tasks groups dominated, and thus she marked the mix of groups on the overbounded side, but still within the optimal boundary permeability range. Finally Jack, Michelle and Robyn all marked the mix of groups on the optimally bounded mid-point, with Robyn stating that
neither group dominated, but that:

We managed to work off the dynamism of the diversity of the group. It was a very good—it was a positive example of—the diversity sometimes caused very, very minimal friction, but I'm talking about the type of friction that leads to learning, rather than friction that leads to bad feeling.

6.3.2.4 Underlying team feeling

The underlying team feeling was assessed by all team members as falling within the optimal boundary permeability range, although Michelle assessed the relationship between Team-1 and Team-2 as more to the underbounded flight-fight extreme. From each individual’s perspective then, general comments were: 'I think we were happy to work together' (Jack); 'it was collaborative and cooperative' (Robyn); 'it was very harmonious and happy, and productive and unified' (Peter) although he did add that there was 'slight angle towards dependency in so far as they expressed an insecurity about some of the technological aspects of video production and editing and delivery'; from Cate’s perspective 'trust was established, so it was all very positive'; and Diana stated that 'it was pretty civil' but she marked the relationship between Team-1 and Team-2, on the underbounded extreme, but still within the optimal boundary permeability range, stating that 'team one was a bit stressed at certain points about team two, but it was never like animosity'. Michelle felt that within Team-1, 'it was fine...Yeah it was pretty okay', but she did mark the relationship between Team-1 and Team-2 on the underbounded extreme, saying:

There was a tension there in getting them to sort of see our point of view and what we wanted. I mean it was good when we had the initial meetings, but once they’d done it, Karen wasn’t happy, so she complained.

Finally Karen made the following observations in regard to the Team-1 and team-based work:

People were happy to be together. There wasn’t – you know, people worked on task and they were happy to work, they liked each other, they liked each other.
And I think the other thing is that they felt competent to do the job. I think sometimes people in teams can be disruptive because they don’t feel competent and they’re in a position – they’re not sure what to do. And that wasn’t the case. They felt competent.

Overall, the underlying team feeling was positive. Although there were some issues in both teams, they did not have a negative impact on the underlying team feeling, nor overtly affect the interpersonal relationships between the team members.

### 6.3.2.5 Theoretical frameworks

The last psychological dimension is discipline/theoretical frameworks, and like the emotional climate dimension, the responses ranged from the overbounded, single theory/ideology dominated extreme side, through to there being multiple theories operating within the project. Two people, Karen and Peter, felt that the disciplines/theoretical frameworks fell on the optimal boundary mid-point. Karen stated that ‘people shared things...[and]...it was a good mix’, while Peter said ‘it was balanced’. However, there were competing discipline/theoretical frameworks that operated within and between the teams, which had ramifications on the final resource.

A number of disciplines/theoretical frameworks operated within the teams. Within Team-1, the V-group team members had worked closely together over a number of years and had developed a specific approach to developing eLearning resources, based on their teaching backgrounds and areas of expertise. Their approach was based on the principles of making the implicit, explicit (Discourse related literacy theory), and the KISS principle (Keep it Simple, Stupid). They had good writing for the web expertise24, so that in general, less text equals more understanding on screen. However, Robyn as the academic, had another approach to text that was based on academic writing style in which text is more dense and prolix. Thus within Team-1, there were competing theoretical frameworks in relation to text, and Michelle felt that V-group compromised

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24 Jakob Nielsion, a web usability expert, wrote a seminal report on How Users Read on the Web in 1997. The answer is ‘They don’t’. Nielsion states that readers of web pages scan pages, and he provides a set of structural, formatting and content guidelines to improve the scannability of text on screen, and thus a user’s ability to read and absorb content from screens. See [http://www.nngroup.com/articles/how-users-read-on-the-web/](http://www.nngroup.com/articles/how-users-read-on-the-web/)
their practices and ‘had too many words on the page’ to accommodate Robyn. Michelle stated:

And that was another thing which was to do with Robyn, she is a very verbose person. She’s sort of very much an academic and she’s used to making everything into more words than necessary. So, everything that we wrote, she beefed up and we didn’t feel that we could cut her out completely because she kept adding stuff.

I mean we did cut everything down. We kept cutting it down and cutting it down and then showing it to her again. But it was just a different style and she’s coming from a different place, you know. She’s used to making everything more. We’re used to making everything less.

And we talked about that and explained it, but it’s still – I think she felt—for her to be involved in it—she felt there had to be some academic voice in it and that was missing if we made it too simple. But she is an academic, and if she is going to want to be associated with a project like this, then, I guess, she wants to feel that the “academicness” is in there.

So while there were some issues with text that were underpinned by different theoretical frameworks within Team-1, there was a clash of theoretical frameworks in relation to eLearning design and usability in Team-2.

This clash was caused by two different theoretical frameworks: firstly there was V-group’s educational design principles and practices which were based on applied knowledge of the intended student audience; and secondly, there was SX’s need to comply with the university’s accessibility framework and web design guidelines. According to Cate:

There are certain things that we had to adhere to, like accessibility guidelines for video and all that sort of stuff. So we had to have transcripts available and that’s something we didn’t have a fight over, but we had to point it out, and that they had to be enforced, and that was fine once it had been pointed out. So I guess there were multiple ideologies coming into play then.

However, while there was no debate about the need for video transcripts to comply with web accessibility standards, or that it also needs “to be read on an iPod” (Michelle quoting SX), it was the layout and design of the final resource that caused angst in Team-2.
SX did not have an educational designer in the group, and Jack had previously identified this as a weakness in SX (see section 4.3.2.5, Theoretical frameworks). Michelle reflected that:

*Their knowledge of how students tick is barely minimal...[and so]...they didn’t really understand why we wanted—why it was so important—to have a different visual format. They didn’t understand that. They didn’t understand about our audience and who they were and that English was difficult for them. They really didn’t want to read down a whole page.*

Michelle also identified that she felt there were ‘cross purposes’ between the V-group members and the SX production team members in Team-2 and stated:

*I think this is probably what comes up, is that you get these different people with different ideas of where they’re coming from. And that leads to this kind of misunderstanding or whatever it was. It wasn’t a misunderstanding; it was just “We have to do it this way” [SX production team in Team-2]. And we were saying that “We know it’s not going to work for these reasons” [V-group team members in Team-2], and it hasn’t or that it probably hasn’t worked. There are students who have read it on their iPods, on the train, because it’s the way it is. But there are a lot of students who have come to us and said “Oh, we wanted more information”. Well there was more information, the link to the information was at the bottom of the page. They didn’t go down. They don’t go down to the bottom of the page, they only read the [visible] screen.*

In relation to this, Jack recollected that ‘there was some discussion about technical things, about whether pages could stretch and whether there should be vertical scrolling and things like that. There was some compromising on that sort of thing, so I guess there were competing ideologies in that way’. However, it was not the SX production team that compromised. Ultimately, V-group was not happy with the final product, and it was not what they expected.

There were multiple and competing theoretical frameworks within and between the two project teams. However, while there may have been some compromises made, ultimately SX’s theoretical frameworks dominated this project. In terms of being interdisciplinary teams, within Team-1, all people felt that they bought different disciplines to the team and they functioned as an interdisciplinary team. In Team-2, once again, all people felt that there was an appropriate mix of disciplines, and the SX team members felt they operated as an interdisciplinary team. For example, Cate stated that ‘certainly within our own group, we had graphic designers and web developers and video people, so they were
an interdisciplinary teams as far as I’m concerned. However, it was in the interdisciplinary overlap between the content development group (Karen, Michelle and Robyn) and the V-group team members (Cate and Jack), that group boundaries tightened and interdisciplinary collaboration suffered, as it came to be dominated by power differences, affective patterns and leadership behaviours which are explored later in this chapter.

6.3.2.6 Summary of the psychological dimensions

Alderfer states that ‘psychological boundaries tell more about the “here-and-now” of a system’ (Alderfer, 1980, p. 269). In this project, no dimension was considered to be optimally bounded by all team members, although if Team-1’s perceptions of the SX production team in Team-2 are excluded, all responses to underlying team feeling were within the optimal boundary permeability range.

Table 6.4 presents the tallied responses for different team combinations. Once again, the first data column presents all responses—including Team-1’s assessment of the SX production team where applicable—making 40 responses in all. In this, six responses fell on the overbounded side, six on the underbounded side, and 28 fell within the optimal boundary permeability range. Next, the second data column presents all team members in Team-1 and Team-2 (n=7) making 35 responses in all. Four responses fell on the overbounded side, four on the underbounded side, and 27 were within the optimal boundary range. However, if Team-1 is assessed by itself (n=5), three responses fell on the overbounded side, three were on the underbounded side and 19 were optimally bounded. And finally if Team-2 is assessed by itself (n=5), then two responses fell on the overbounded side, three responses on the underbounded side and twenty responses fell in the optimal boundary permeability range, making Team-2 a slightly more optimally bounded project in terms of the psychological dimensions.

Across this project, there was a greater level of disparity across the psychological dimensions. There were roughly equal levels of overboundedness and underboundedness across all of the team combinations. While some aspects of the project were generally positive, for example, individual effort and the underlying team
feeling, the issues created by parallel processes, organisational policy changes, and contested theoretical frameworks, ultimately affected the psychological dimensions in this project.

**Table 6.4: Total responses for psychological dimensions**

<table>
<thead>
<tr>
<th>Dimension</th>
<th>All responses</th>
<th>Only team members</th>
<th>Team-1 only</th>
<th>Team-2 only</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Over</td>
<td>Optimal</td>
<td>Under</td>
<td>Over</td>
</tr>
<tr>
<td>Ind effort</td>
<td>1</td>
<td>6</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>Emotional climate</td>
<td>2</td>
<td>4</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Mix of groups</td>
<td>1</td>
<td>5</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Underlying team feeling</td>
<td>-</td>
<td>8</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>Theoretical frameworks</td>
<td>2</td>
<td>5</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>6</strong></td>
<td><strong>28</strong></td>
<td><strong>6</strong></td>
<td><strong>4</strong></td>
</tr>
</tbody>
</table>
had previously defined power in terms of ‘control I guess, getting your own way, coming out on top when there’s competing needs’ in Project A.

Within Team-1, power differences resulted from horizontal expert authority, but they were heavily influenced by parallel processes. As in the other cases, power sharing was based on expert authority. According to Peter:

\[
\text{In terms of use of technology, I probably had more power, much more power. In terms of the framing of questions and the nature of the responses we chose to keep or not keep, I probably had less power. And I see this as an appropriate power sharing arrangement.}
\]

Karen commented that power differences were minimised if ‘people accept their roles. It’s not about power, it’s about definition’. However, it was not just about role definitions and expert authority; power differences were also identified in terms of the relative status and importance people had within the team by merit of the organisational groups they belonged to, once again an effect of parallel processes.

Michelle identified the relative power Robyn had in the team by merit of her role as an academic in the university, and that she ‘had quite a lot of power with very little involvement’.

\[
\text{Michelle: } \text{[Robyn] had power because she was seen to be an expert. And it’s a university and that’s important.}
\]

\[
\text{Interviewer: And you said before, that as an academic, that she had – she was conceived to be ‘The Academic’ in this. How do you think that relates to the university?}
\]

\[
\text{Michelle: Well that would give her some authority in the university that perhaps we wouldn’t have, because we are only shit-kickers from the Students’ Division.}
\]

Though not acknowledged in the same way, Karen reiterated these sentiments stating ‘when you work with an academic, you’ve got to be reasonably deferential’ highlighting the relative status of their respective groups.

In relation to equality of power within the team, Karen stated that people ‘had power within their roles. They had the power to say I don’t agree. They had the power to say why don’t we do it this way, I’m not sure if this is going to work. They had the power to influence’. While this may have been the case for Robyn, as Karen constantly waited for
her auspice on decisions, Michelle stated ‘well I didn’t have any power, I was a bee’ and Diana commented that people ‘didn’t have equal power’ and in general power was exercised by ‘being told what to do’ (Diana). However, this combined with the impact of authority relations and the emotional climate, saw Diana exercise her power as the only web developer on the team, and she withdrew from the team. According to Diana:

[I] got out because I felt very much like I was just sitting there waiting sort of to be dished whatever it was that I had to make. And then I didn’t have a great deal of input into the process.

From Robyn’s perspective, ‘power wasn’t an issue between us’, that is within the team, but she explained that there were other organisational power dimensions that had a great impact on the project.

I guess you could look at it then as a bit of an onion. So there was the team, and the power structures and relationships within the team, and then there’s the circle of influence that surrounds any team within the organisation and the external environment. So, within the team, we had power relationships that were quite shared and pretty equal. And I felt like there were times when we exchanged power capacities, depending on who was taking the lead at that particular time.

But much more messy and difficult was the next level, the organisational power structures and the team, and the bullshit that we had to go through—and Karen, in particular, had to go through—when what we were working on was a project to help international students that I think was well based in both the literature and the needs of the students, and has since come to pass predominantly in the literature, and resulted in, you know, nationwide, even global, trouble.

The power games that happened at that next level, like with the Students’ Division or with other parts of the organisation that might want to take ownership of the project, were quite ridiculous and blocked the capacity for collegiate relationships, I think.

The Students’ Division and [Another University Group, name omitted]...It was a bit of a—at first, I actually suspected that there was a bit of paranoia happening, but then I started to see proof of it myself. So “Oh, this was a good idea, but it wasn’t my good idea. So, I’m going to try and grab it and take it and get some kudos for this for my particular area of the organisation.” And consequently, we had to put processes in place to [manage this]—like setting up a consultancy group, a steering committee—but in fact, the project was certainly conceptualised. And really, the steering committee was a political power relations exercise.
As previously mentioned in section 6.3.2.2, *Emotional climate*, V-group was as an underbounded group that was embedded in the overbounded Students’ Division. Power in the SD was based on hierarchy, recognition and kudos, and there was little respect for ownership. According to Karen:

> Well, [recognition] seems to be important because that’s the only way you get promotion and work, is by having recognition. I mean...[it seems to be that anyone]...can put in a submission and say they did what I did. It’s almost like we can even take your role and say I did it, which says something about the fluidity in an organisation. Well, even that a manager can let that happen – that it’s all right to pass that on. It’s not, that’s not true.

Thus, there were concentric circles of power, influence and intergroup posturing surrounding this project. As Robyn identifies, this finally resulted in the need to establish a steering committee for a project that had already been conceptualised and approved through the LTG process. This was required to try and manage the competing political and power dimensions of the various groups who tried to claim kudos and ownership of it. Overall, these politics were very time consuming, and a lot of emotional energy was expended.

Within Team-2, power differences were once again based on expert authority and people's roles in the team. In terms of team role functions in Team-2, there was web development, graphic design and content development. In relation to power within the team, Cate stated that she thought ‘the pendulum of power kind of swung back and forth...[and]...so I would never say that the power was ever solely constructed in one area, it was sort of an even dispersal across the group’. However, this does not appear to have been the case. From Diana’s perspective:

> I think there was a perception of unequal power. See, the SX production team in Team-2 were considered the experts in as far as multimedia development goes. So the content development group in Team-2 were kind of in a slightly subservient position...and beholden to them.

As ‘the experts’, the SX production team were in a more powerful position, as they were brought in at the last minute to finish the project to comply with the formal LTG requirements and time frames. However, as they had developed the original host website, they already had a vested interest in this resource. These power differentials were ultimately realised as the SX production team did not deliver what the clients
wanted, nor did they follow their own processes.

Jack identified a further dimension of power. As the web developer, he felt that people in the team had equal power, but he qualified this by stating:

*I think everyone had equal power, but everyone’s arguments were not of equal power. Quite often as a web designer, your arguments are based on well defined concepts like usability and accessibility. And so, if there’s a discussion, those arguments can be more persuasive in this context than arguments that rely on personal – personal opinions and desires.*

The powerful black boxes of usability and accessibility were used to justify the design and production of the final resource. However, as has previously been mentioned (see section 6.3.2.5, *Theoretical frameworks*), there were competing ideologies between V-group and SX production team members in relation to usability. One was based on eLearning design and understanding the needs of the target audience, and the other on more standard web design practices. However, although Jack had previously acknowledged that the lack of an educational designer was a weakness in SX, the SX production team in Team-2 were dismissive of ‘personal opinions and desires’ in relation to V-group’s eLearning design principles.

Thus, the SX production team ultimately had more power in this project. They were able to successfully use their arguments and practices to deliver the final resource, and the V-group team members in Team-2 were powerless to change it. As Michelle summarised:

*We weren’t sure whether it was that these are the rules and we have to follow them, or we just can’t be f*ucked, we’ve done it. *I’ve done that job and we think it’s all right, so you just have to accept it. They wouldn’t change it."

### 6.5 Affective patterns

The affective patterns in this project once again showed that there were team boundary disagreements. Figure 6.4 presents each team member’s assessment of who worked on the team and the relative importance of everyone’s team role function and involvement in the project. Figure 6.5 then presents the collated responses about each team
member—as distinct from by each team member—and their team role function and participation in this project as in Project B (see Appendix 9 for an enlarged version). As stated, Zoe, a graphic designer in SX, was not part of this research, as she was on extended leave at the time of data collection, but she was identified by both Cate and Jack, and hence appears in the charts. As can be seen in these charts, there were team boundary disagreements.

While affective patterns in this project indicate that there were team boundary disagreements, no-one was added to a team. Generally each team member, except Peter, assessed their own team role function in the project as high, although not necessarily their involvement in the project, and this supports that all people—except Peter—counted themselves as core team members in relation to the role definitions dimension as previously discussed (see section 6.3.1.3, Role definitions). Diana also included an assessment of her role as the V-group web mediator/consultant in relation to the SX production team in Team-2.

Karen’s team role function and importance was identified as high/high by five people, but Peter felt her involvement was not as high as her team role function, but he was not part of the content development group in Team-1. Jack did not identify Karen as a team member in Team-2, in fact he only identified the SX team members, and included Peter from Team-1. This may have been because he knew Peter had produced the videos, and they were part of the content he worked with in order to build the online resource.

Karen, the LTG project leader, only identified the female Team-1 members that is Robyn, Michelle, Diana and herself, and omitted all SX team members in both Team-1 and Team-2. However, she acknowledged that SX ‘did the development’ on the project, and actually asked if they were going to be interviewed, to which the reply was, ‘if they’ve been part of it, they will be’ (Interviewer). However, she did not include them as team members although she was explicitly asked if there were ‘any other team members?’ (Interviewer), to which she replied ‘No’.

Michelle identified herself, Karen, Robyn and Diana from Team-1 by name, but gave SX a generic label stating ‘I don’t see them as part of the team particularly because we only worked with them at the end’ (Michelle), which suggests that Peter was not thought of as a team member in Team-1.
Figure 6.4: Individual assessments of team role functions/involvement in Project C
Figure 6.5: Assessment about team members' role functions/involvement in Project C
Robyn identified all team members from Team-1, including Peter, but qualified this stating that ‘for a very short period of time his function and his involvement was really high. And then the rest of the time, it was non-existent’.

However, she did not identify the SX production team in Team-2 as team members, although she did state ‘we used Frank’s group\(^{25}\) as a consultancy, but they weren’t part of the team, really. I wouldn’t describe them as part of the team’. Cate identified all team members in Team-2 and placed everyone in the high/high quadrant—with various levels of involvement—even Diana for her work as the V-group mediator. Finally Diana mentioned all team members, and like Michelle, gave a generic label of ‘Graphics’ to denote Cate and Zoe from SX. She did though place Jack’s team role function as the web developer and involvement in the project as high/high, as he built the final online resource.

There was a spread of disciplines across this project which were underpinned by different theoretical framework, thereby potentially creating ingroups and outgroups. All people identified that it was easier to collaborate with people from their own disciplines ‘as there’s a mutual understanding of – or an implicit understanding of design, for example, that happens’ (Cate). Within Team-1, Peter felt that he worked well with Karen and Robyn, and said that he generally found it easy to collaborate with others because ‘I have a very open approach to most people’. In relation to V-group, both Karen and Michelle had the same backgrounds, and Diana came from an associated background, but had web development skills as well. Robyn, was thus the outgroup—albeit very powerful—member on the team, but as Michelle observed, she was ‘quite open to discussing things when she was there, and she was prepared to listen to our point of view’. In relation to this project, Robyn said that she found it easy to collaborate with the other team members ‘because it was something we were really committed to and we were passionate about doing it and we had ownership of it’. However, she added that she usually finds it easy to collaborate with others because:

\[
\text{There’s the task and the relationship stuff. I always to a fault go for a relationship before I go for task. I think if you look after the relationship, the task will very frequently look after itself. So that’s something that’s very important to me in a way that I work with anybody.}
\]

\(^{25}\) Frank was the Director of SX.
As mentioned, affective patterns are the result of the permeability of group boundaries and power differences between groups embedded in their contexts. Within this project, SX were an overbounded team. They were too closed in their ways of working and thinking which made it difficult to accept external people, ideas or information and this made V-group powerless in many contexts, including in the development of the final resource. Different theoretical approaches in relation to usability and eLearning design were at the heart of the issues regarding the development of the resource. The SX production team were dismissive of the V-group team members’ applied knowledge of the student cohort and their eLearning pedagogy, but they themselves did not have an educational designer in their service. They therefore were not prepared to accommodate what V-group wanted in the resource and as Michelle stated ‘we’d gone to the trouble of making a plan, and kind of everything from giving it to them and saying “This is the kind of layout that we had in mind.” And they didn’t follow it’. In relation to this, Jack identified that people were more tolerant of people from their own area (ingroup members) than from other areas (outgroup members) stating:

Yes, I would say so that I think the views of people within our team relating to usability for example, were more valued than the views of the client team’s views on usability. One example being about how long a page should be. We had a big discussion about that.

But regardless of the discussion, the design used vertical scrolling, and as mentioned, the feedback from students supported V-group’s approach, because the students did not scroll down the page and thus they could not find the rest of the available information.

Affective patterns thus were evident in Team-2, particularly in the relationship between the SX production team and the V-group team members. The lack of compromise by the SX production team in regards to usability had a major effect on the final resource as SX did not deliver what the clients wanted and V-group were powerless to do anything about it.
6.6  Discourses (cognitive formations)

Once again, there was a mix of academic and professional disciplines and Discourses, both primary and secondary, in this project. Recapping from the theoretical frameworks dimension explored earlier, there were multiple and competing theoretical frameworks—and hence Discourses—within this project and these operated both within and between the two teams. In relation to Team-1, there were some compromises in relation to content development based on accommodating different theoretical frameworks in regards to Robyn’s academic style and more general considerations for reading text on screen. However, this was not the case in Team-2. The SX production team did not accommodate the V-group team members’ eLearning design principles and practices. This section explores the perceptions of the perceived value of the team members’ disciplines and professional backgrounds within the team and the university more broadly.

Overall, everyone felt that their disciplines were respected and valued in their focal teams. Karen stated ‘yeah, I think it was’; Robyn said ‘very much well viewed and highly respected within the team’; Diana stated ‘I think it was viewed favourably, and particularly when it came to, you know, designing eLearning and what works and what doesn’t work’; Peter answered that he ‘felt valued. I felt that my experience, my background was regarded well’; Jack stated ‘I think it was valued’ and finally Cate responded with ‘good’. The only person who was unsure was Michelle—worker bee—who answered ‘it’s hard to say, I don’t know’.

However, it was in the next concentric circle of influence and the organisational context more broadly, that people felt there was little recognition of their disciplines and respect shown for their areas of professional expertise, especially for support/service groups. In relation to V-group, the consensus was that within the SD and the university more broadly, respect for role and recognition of disciplinary/professional background was very low. According to Karen:

I think the role of, say, [role omitted] is a very low status role and that’s what you fight with all the time...[but she added]...I think all the people in the non-academic and teaching areas fight overall for everything. It’s a very political sort of situation...[and]...it’s more about people positioning themselves than about respect for role.

Diana commented on the status of academics saying ‘I think in the university, the
academics are the ones that are viewed highly. People like myself are probably lower down on the scale of things'. Cate spoke of the status of support services within the university more generally, stating:

I think any support service in the university gets treated as a bit – not as a second rate citizen, but very much you know, I don't think an academic would regard them as equal.

In relation to how her own discipline, communication design, was viewed and valued within the university, Cate said she thought it had become 'incrementally better, but that's not saying much'. She also commented on hierarchy and the status of academics to non-academic roles in the university, explaining that 'because a university is a very hierarchical institution anyway, it's always the academic who has greater preferential priority over someone who is in a non-academic role'. According to Cate, support services are 'invisible in the sense of – in terms of outcomes, particularly positive outcomes', and in her own experience in SX of working on successful projects with academics, it is often the case that there is no attribution nor kudos given to them, recounting:

And that's happened on multiple times where someone has been openly opened-mouthed that we would deserve to get kudos. You know, even though, we had to build something for them that was actually very, very complicated and there's no way they could've done it themselves. But their attitude was well – yeah, but if I had an afternoon with the software, I could. Well, like no you couldn't.

Universities are sites where there are multiple and complex relationships between people from different identity, organisational and Discourse groups. Discourses, by their nature, have inherent power relations, and within universities generally there is greater value placed on the production and re-production of theoretical knowledge. Hence, through parallel processes, groups that produce and re-produce theoretical knowledge, for example researchers and academics, have higher status, value and legitimacy than other groups. Thus in relation to this project, Robyn's role as an academic was important both in terms of the LTG application needing to have an academic partner, but also because of the legitimacy her type of knowledge brought to the project.

Michelle: [Robyn's] role was to bring an academic presence and knowledge—her knowledge, her expert knowledge—which she does have in this area. Because she's done years of research in this area so it was useful...But we knew the stuff from our own experience, the same stuff in a different way.
Interviewer: Which one do you think the university values more?

Michelle: Hers. That’s why we needed her, you know. And it was good to have her in it, she’s a nice person.

Everyone thought that the role of ‘academic’ was valued more highly than service or support roles in the university, regardless of the levels of formal qualifications held by support/service staff. However Michelle observed that academics were ‘also exploited and treated like shit, but I think they are – without them, you wouldn’t have a university. And I think they [that is the university] know that, but they can probably do without us’.

6.7 Leadership behaviour

Generally, leadership behaviours were viewed positively within the teams. Leadership was defined as ‘about managing and inspiring’ (Michelle); ‘someone with a clear vision of what the project is about. And who’s willing to drive a project to meet those goals’ (Jack); ‘recognising people’s strengths and weaknesses and being able to harness them effectively to achieve a common goal’ (Cate); ‘being able to pull people together to work together’ (Karen); ‘someone who has the ability to bring a team along’ (Diana); ‘visionary, relationship focused, empathetic, knowledgeable’ (Robyn); and finally ‘the ability to get people to do what you want them to do because they want to do it’ (Peter).

In relation to leadership behaviours within the teams, they were described as ‘participative’ (Karen) and ‘committed, enthusiastic, dogged’ (Robyn). Peter stated that he felt that his ‘interactions with the rest of the team was a partnership’, Cate described them as ‘democratic’, Jack said they were ‘cooperative’ and Michelle commented that Karen is ‘very good at managing things and organising. And she is very good at keeping people interested’. The only person who was not kept interested was Diana, and she felt that the leadership behaviours in the team were sometimes ‘stressed’. In Team-1, Karen was clearly identified as the project leader, while in Team-2, leadership was more ‘defuse...There wasn’t one main leader, I think it was quite a cooperative project’ (Jack).

As identified in the previous case studies, once a project’s vision and goals have been established, leadership behaviours came to focus on professional expertise and
horizontal authority. Within Team-1, things became very task-focused as Karen, Michelle and Robyn combined their professional expertise to develop the content. Diana described Robyn as 'a real subject matter expert', and she was happy to defer to V-group’s understandings of eLearning design and resource development. According to Diana:

Robyn was a real subject matter expert, but she didn’t have very much knowledge about how it could be delivered. So she had the theoretical underpinnings, the academic underpinnings of it. And she did suggest several things and we sort of said “No that wouldn’t work,” and she was very good about that. She was able to accept the fact that we’d had more experience developing eLearning resources then she had. But as long as what we ended up developing, not conformed, but reflected the research she’d done, then she was happy.

In relation to Peter, no-one questioned his expertise in video production, and thus:

I felt that where I needed to provide some specific professional insights into how the project would proceed, in so far as the videos were recorded, that was accepted and respected.

The real leadership issues arose in Team-2. Although both of the SX production team members stated that the leadership behaviours were ‘democratic’ and ‘cooperative’, this was not how the V-group team members viewed it.

Michelle: So it was just like they ignored what we asked for. So, they had an agenda, that was obviously a set agenda, and that was it.

Interviewer: So there was no collaboration across that, they had their way of doing things?

Michelle: Yeah, it seemed like it. That’s how it seemed to me.

Both Cate and Jack stated that they did need to take leadership positions to represent their areas of expertise. From Cate’s perspective, while there were aspects of accessibility she gave advice on, such as the need for captions on the video, she stated she did need to be:

Quite upfront and proactive about saying why we were doing things a certain way – like you have to comply with you know, you have to comply with the corporate brand or not comply – all that sort of stuff, we were very upfront about that, there was really no wriggle room about it.
From Jack’s perspective, he felt that he did take a leadership position in relation to usability and that ‘I think my knowledge of accessibility and usability was valued, in that I was trusted to create something that met those standards’. In reality he was and did, but unfortunately, it did not meet the clients’ expectations. Unlike in the other projects where the clients had some basic web development skills as they had both tried to build their projects previously and knew their limitations, it was not the case in this project. The V-group team members had appropriate understandings of eLearning design and pedagogies, along with web and multimedia development capabilities appropriate for their purposes, although Diana did not consider herself a programmer. However, Jack was a programmer and while he felt that he did use his knowledge and skills appropriately to develop the resource, he did not have the same understandings of the target audience that the V-group team members had. To be fair, Jack did fix a lot of accessibility issues in the overall site, for example that all links should open in the current browser window, not a new window\(^{26}\).

In relation to the conflict that developed between the V-group team members and the SX production team in Team-2 over the final resource, Diana was required to take a leadership position in her role as mediator. V-group were clearly not happy with the resource and the changes to the overall site, but they had no recourse. According to Diana:

\[
\text{Yes, when there was the difference of opinion in the development of the project—the final development of the product between the two teams in Team-2—I stood up and made some suggestions that helped the project get finished by going in the middle and working out a way around what had already been done so that there was no more conflict.}
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As in the previous cases, leadership behaviours occurred at different levels and were often related to professional expertise and horizontal authority. However, stronger advocacy from the V-group team members in relation to what they wanted could have resulted in a different final product, but they had run out of time and in any case the SX production team refused to change it. However, as previously mentioned, Diana felt that the V-group team members felt ‘beholden’ to the SX production team members in Team-2 and hence they ‘maybe were a bit conciliatory in meetings rather than being a bit more ...'

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\(^{26}\) The Web Content Accessibility Guidelines (WCAG) are the global standards to ensure the www is accessible for all. For accessibility purposes, links should not open in a new browser window, unless explicitly stated, preferably in the link text, to accommodate people who use screen readers.
Thus, stronger leadership from V-group in terms of the advocacy may have assisted the project, but in the end it became a matter of ‘cut your losses’ in order to maintain positive professional relationships with SX.

6.8 Summary of Project C

It would be hard to argue that this was a successful project. The aim of the LTG application—and hence the project—was to create an online learning resource that was to live inside an existing website. While this aim was achieved, it was a messy project, which highlights much of the complexity of a university as a workplace. The impacts of parallel processes and broader organisational changes, for example reviews, relocations and new policies, as in the new branding guidelines, all influenced this project. Team-1 broke down and SX were brought in to finish the project. However, the final product was not what the clients expected or wanted.

While this was not a technically complex project, it was fraught with organisational complexity. The startup processes were different in both teams. In Team-1, there were no official startup processes, the goals and scope of the project were works in progress. However, in Team-2 the startup processes failed to properly define what the V-group members of Team-2 wanted in terms of the final deliverable, even though the V-group team members had ‘gone to the trouble of making a plan and...saying “This is the kind of layout that we had in mind.”‘ (Michelle). Additionally, the SX production team did not follow their own processes as the clients did not receive wireframes, so the final product was a surprise to the clients, and not what they wanted.

There were multiple group boundaries at play in this project, which led to overbounded and underbounded responses and behaviours among and between the different groups, as evident in the participants’ responses across the continuums from the overbounded to underbounded extremes in the group boundary property. Organisational politics and complexity and group boundaries affected power differences in the teams and ultimately power differences were manifest in the fact that the final product was not what the clients wanted and they were powerless to change it. As affective patterns are based on group boundaries, there were evident ingroup and outgroup affiliations in this project,
and overbounded ingroup responses. Theoretical frameworks (as a manifestation of Discourses) battled for power in Team-2, but as the SX production team were the wielders of the technology, their Discourses and practices mobilised greater networks of actants and hence they had more power. Although the LTG project was completed, it was not a positive emotional experience for the underbounded V-group team members. Overall, this project was not a collaborative space, it was a usurped space, and the V-group were powerless on many fronts.
Chapter 7
Discussion

7.1 Introduction

This chapter presents a cross-case analysis of the three cases presented in the preceding chapters. A cross-case analysis supports the collective case study research design used in this study. It explores three instrumental case studies of online resource development projects in interdisciplinary project-based teams in a university. In instrumental cases, ‘[t]he case is of secondary interest, it plays a supportive role, and it facilitates our understanding of something else’ (Stake, 2000, p. 437). Collective case studies allow for ‘better understanding, perhaps better theorizing, about a still larger collection of cases’ (p. 437).

The following cross-case analysis explores the cases from two perspectives: firstly in relation to the five properties of Embedded Intergroup Relations Theory (EIRT); and secondly in relation to team effectiveness (Hackman, 1987). Together, these provide insights to the main research question:

What helps, hinders and facilitates collaboration in university-based, cross-organisational, interdisciplinary teams in developing online learning resources?

This chapter begins with a cross-case analysis using the five properties of EIRT.
7.2 A cross-case analysis through the lens of EIRT

This section presents an analysis of the three case studies through the lens of EIRT. As previously explained, EIRT is an open systems theory. Open systems are living systems and thus individuals, groups or organisations can be thought of as systems (Alderfer, 1976b). Interactions between systems and their environments are regulated by boundaries, and the permeability of those boundaries determines what gets into and what is excluded from systems (Alderfer, 1980, 1987; Transportation Research Board, 2005). Boundaries can be both psychological and physical, and Alderfer identifies three states of boundary permeability: overbounded, underbounded and optimally bounded (Alderfer, 1976a, 1980, 2011).

In overbounded systems or groups, group boundaries are too tight and thus these groups face the danger of becoming closed off from their environments, and this can make it difficult for them to accept external people, ideas or information, which in turn can lead to group-think (Janis, 1972) and elitism. Overbounded groups are often rigid and have strict hierarchies and management structures. In underbounded systems or groups, boundaries are too loose, and these groups face the danger of not being able to isolate themselves from external environmental turmoil or chaos. Underbounded groups generally fail to keep a sense of their own identity and unity and often suffer from conflicting role definitions. They also tend to lack clarity and purpose. In optimally bounded systems, groups thrive in relation to their environments—and with other groups—and they maintain a healthy sense of group membership and identity. However, group relationships are rarely static and all groups can behave in both overbounded and underbounded ways in relation to different groups and contexts (Alderfer, 1980).

This research explores what helps, hinders and facilitates collaboration in university-based, interdisciplinary teams in developing online learning resources. It uses the five properties of EIRT as a set of multi-faceted lenses to explore groups in context. Alderfer (1987) posits that group boundaries—and the permeability of those boundaries—underpin the following intergroup properties: power differences, affective patterns, cognitive formations (Discourses) and leadership behaviours. This was the case in this research, and this discussion focuses on the following three issues:

1. The quality of the startup processes and the extent to which they enhanced or exacerbated interdisciplinary collaboration in the teams.
2. The extent to which projects became contested spaces when there was an inability to defer to other people’s horizontal expert authority, which was also affected by amounts of interdisciplinary overlap between different task group functions in the teams.

3. The role of complexity, especially organisational complexity, in the projects and its impact on the effectiveness of interdisciplinary collaboration.

EIRT enables a multi-faceted analysis of a complex context—a university as a workplace—in changing times, through different lenses, to explore and develop insights into the main research question. The three cases provide a rich analysis of stories, actants and their networks as people from different organisational groups worked together to develop student online learning resources. In short, Project A was easy, Project B was stressful and Project C was chaotic.

The following sections explore collaboration within the project teams through the lenses of the five properties of EIRT. However, while each property is explored individually, there are many overlaps and inter-connections between them. So, taken together, they provide insights into what helps, hinders and facilitates collaboration in interdisciplinary project-based teams in university contexts.

### 7.2.1 Group boundaries

Group boundaries existed on a number of levels in the projects, and these had both positive and negative effects on collaboration within the teams. Firstly there were structural and organisational group boundaries as people came from different areas of the organisation, were employed on different awards, and thus represented different organisational groups, namely professional, academic and vocational staff. Physical group boundaries accounted for different campus and geographic locations. SX and all of the clients were located in different areas across the university, with Emma and Shirley located on a different campus all together. Furthermore, Robyn’s extensive offshore teaching commitments meant that she was sometimes separated by international geographic locations as well. However, all meetings were held in SX’s space. While this was understandable during the production phase and needing to show clients current
progress, for example on computers with specialist software applications, it was not necessary in the pre-production stages. As stated, overbounded groups are those in which boundaries are too tight and as a result they can be controlling. SX controlled all the processes and the meeting spaces in the three projects. While this did not have adverse effects on the projects, the clients were always in a subservient position, as summarised by Andrew ‘the meetings were always in their territory. They were the ones with the information’.

In relation to the projects, group boundaries manifested in different ways. The 11 dimensions of boundary permeability were used to ascertain the state of group boundaries within the project teams. While this analysis does not look at each dimension individually, it highlights three dimensions—project goals, authority relations and theoretical frameworks. These had the greatest impacts on the projects, and thus on intergroup collaboration within the teams.

7.2.1.1 Project goals

The quality of the startup processes in each project (see section 2.5.6.3 Startup processes) underpinned the success of each project. The startup processes define the scope of work, including the project goals and the schedule of activities. Figure 7.1 shows each team’s assessment of the project goals dimension. Overall, the more overbounded or unequivocal the project goals were, the more harmonious the projects were.

![Figure 7.1: The project goals dimension in Projects A, B and C](image)
Without repeating the in-depth analysis of the project goals presented in the case studies, three general observations can be made:

1. **The quality of the startup processes affected the project management dimensions and final product in each project.**

As previously discussed (see section 2.5.6.2, *Project uncertainty*), software development projects are Type 3 projects, and these can be exceedingly difficult because client goals are generally not clearly defined, but the production methods for achieving them are (Turner & Cochrane, 1993). Thus, startup processes in these types of projects are very important because they define the project’s scope, including project goals, within time and budget constraints.

In Project A, the startup processes were very good. Although Project A was a technically complex project (process complexity), it was easy to scope and everyone indicated there were clear and unequivocal project goals and priorities. Thus everyone knew what had to be done, by whom and by when, and this established good project management processes. Overall, the project was optimally bounded across both the project management and the psychological related dimensions of the group boundary property of EIRT.

The startup processes in Project B failed to contain the project’s scope, and there were greater levels of disparity across the project goals continuum. The scoping process saw the project’s scope explode. This affected all the project management dimensions, especially the timelines, and led to stresses between two groups in SX, web development and graphic design. This project had high levels of both process and product complexity. However, there was still enough structure across the other project management dimensions to bound the project accordingly, and overall the psychological dimensions were good. Ultimately, the project would have benefited from a greater balance between creativity and pragmatism.

The startup processes in Project C varied in Team-1 and Team-2. Overall, the responses to the project goals dimension were spread across the continuum from overbounded to underbounded, but skewed more towards the underbounded extreme. Team-1 had no formal startup or scoping processes, and although this was a familiar way of working, a better scoping process may have assisted timely content development and decision
making, as it may have generated firmer timelines and accountabilities, and ultimately stopped the team from disintegrating. The startup processes in Team-2, failed to capture project goals, as V-group did not think that the SX production team understood what they wanted, or why. SX also failed to follow their own production processes as the clients did not receive any wireframes, and in the end, the final product did not meet the clients' expectations. Overall, this project had the greatest levels of divergence across both the project management and psychological dimensions, and neither team could be considered effective.

2. **Project coordinators had far stronger understandings of project goals than other team members.**
If the non-academic project coordinators—Lauren (Project A), Ben (Project B) and Karen (Project C)—are isolated as a group, each assessed project goals as close to, if not on, the overbounded extreme. In Projects B and C, there were greater levels of divergence across the continuums between how the project coordinators assessed project goals compared to other team members. Thus, while it is important that team leaders have clear goals and visions, these need to be communicated to all team members to reduce ambiguity and to make sure that everyone has shared levels of understandings.

3. **Academic staff were happy for project goals to be works-in-progress.**
If the academic staff are isolated as a group, they generally assessed project goals less rigidly than other team members. None of the academic staff saw this in negative terms, as they were happy for project goals to be ‘emergent’ (Shirley, Project B), and they ‘wanted the capacity to scope it out and change it as we learnt more and as we developed it’ (Robyn, Project C). This focus on enquiry and learning is in keeping with their professional practices as researchers and is inherent in their identities and Discourses as academics. However, while this could potentially create tensions between inputs by academic staff and the needs of production staff to produce outputs, good startup processes can help to ameliorate these differences.

Thus, interdisciplinary collaboration in these Type 3 projects was affected by the quality of the startup processes. The better these processes were in scoping the projects, and developing shared understandings of project goals and priorities, the better overall collaboration was, as people knew what had to be done, by whom and by when.
7.2.1.2 Authority relations

The authority relations dimension explores whether there was a designated leader or multiple leaders in the team, leadership style, reporting lines and the impact these have on the ability of the team to work together productively. Figure 7.2 shows each team’s assessment of the authority relations dimension. However, nothing occurs in isolation, and authority relations overlapped with both role definitions and power differences, because of the nature of horizontal expert authority in the teams.

![Figure 7.2: The authority relations dimension in Projects A, B and C](image)

As can be seen in Figure 7.2, the majority of responses fell within the optimal boundary permeability range, and in Projects B and C, three responses in each were marked on the optimal boundary midpoint. The responses suggest there were generally few issues in relation to authority relations in the projects. However, two general observations regarding authority relations can be made.

1. **There were both formal and informal authority relations in the teams.**

   Formal (vertical) authority relations existed through LTG project leaders and SX project coordinators. LTG project leaders were accountable to the university to deliver the project on time and within budget. In Project B, Emma needed to renegotiate the project deliverables with the university due to the explosion of the project’s scope. In Project C, Karen was required to find an alternative web developer to complete the project, because of Diana’s decision to withdraw from the team. She therefore asked SX to finish the project. Additionally, within each project there was also an SX project coordinator.
The project coordinators were responsible for overseeing project development and managing internal processes and procedures to ensure the projects were developed and delivered as per their relative production schedules.

Informal horizontal authority relations were evident in each team based on expert authority. People’s roles in the teams were based on areas of specialisation and project requirements. Thus, as Andrew (Project A) stated, ‘there were multiple leaders because they were coming from different discipline areas’. Professional expertise therefore accounted for horizontal authority, and this overlapped with role definitions and power differences, as professional expertise was considered to be a scarce resource in each project (see section 7.2.2 Power differences). This allowed people discrete levels of professional autonomy in their duties, ‘because nobody really felt able to involve themselves in anybody else’s area...[as]...we all had specific skills’ (Gavin, Project B). While this was at first confusing for some clients—as they were unsure of different areas of demarcation—they soon adapted and developed strategies to address this, such as copying everyone into emails.

2. **Conflict arose in the overlap between formal and informal authority relations if there were insufficient formal processes to manage tasks.**

While there was no conflict in Project A, there was conflict in both Projects B and C. In Project B, the design schedule checklist was at the heart of the conflict that arose between the formal and informal authority relations in the team.

Helen, the main designer on the project, created the design schedule checklist as a way to manage the different design elements of the project, as there were no formal processes or documentation for doing this. However, this document became a boundary object as it meant different things to different groups in the project. Within the Communities of Practice (CoP) literature, boundary objects mediate relationships between two (or more) CoP (Wenger, 1990). Boundary objects can be: artefacts, such as tools, documents or models; Discourses as previously discussed (see section 2.4.6, *Discourses as cognitive formations*); and shared processes such as routines and procedures (Wenger, 2000). In short, boundary objects ‘allow multiple practices to coordinate their contributions’ (p. 236). However, ‘it is easy to overlook that they are in fact nexus of perspectives, and that it is often in the meeting of these perspectives that artifacts obtain their meanings’ (Wenger, 1998, p. 108).
In this project, the design schedule checklist was a boundary object that created tensions between formal and informal authority relations in the team. It was created as a way to manage design activities, but Ben felt Helen had overstepped her authority in developing the document, and he perceived that she was attempting to manage the whole project. It was therefore paradoxical that it was not until the document became a living document and was used to manage production activities across the project, that these tensions eased.

In Project C, conflict arose in Team-2 over the final deliverable. Michelle assessed authority relations between the two groups working within Team-2 as multiple and competing, as once the project went to SX to finish, SX controlled both the formal and informal authority relations through hierarchy and horizontal expert authority. As a result, V-group were marginalised and became powerless, as they had lost control of the production processes. Conflict in this project resulted from power differences and leadership behaviours (discussed further in sections 7.2.2, Power differences and 7.2.5, Leadership behaviour).

There were levels of both formal and informal authority relations in each project. Interdisciplinary collaboration was facilitated when there was no conflict at the nexus between these two, and conflict was minimised by having—and adhering to—formal processes that managed tasks and demarked areas of responsibilities.

**7.2.1.3 Theoretical frameworks**

Theoretical frameworks (cognitive work) account for disciplinary ways of knowing, thinking and doing and thus they are the disciplinary-based manifestations of Discourses. As previously mentioned (see section 2.5.2, Collaboration in interdisciplinary teams), interdisciplinary teams comprise people with different areas of specialisation. For these teams to function effectively, they need to be well-integrated. This means there is support for the team’s overall goals, people feel comfortable sharing their points of view, and they are able to contribute openly in team discussions and decision making processes (Lichtenstein et al., 1997). Collaboration itself is the process by which ‘people from different organizations (or units within one organization) produce something
together through joint effort, resources, and decision making, and share ownership of the final product or service’ (Linden, 2002, p. 7). Thus in interdisciplinary project-based teams, how well different theoretical frameworks are shared and accommodated, underpins effective collaboration. Figure 7.3 shows each team’s assessment of the theoretical frameworks dimension.

![Figure 7.3: The theoretical frameworks dimension in Projects A, B and C](image)

As can be seen in Figure 7.3, in Projects A and B, the overall consensus was that there was near optimal sharing of different theoretical frameworks, with one exception, Gavin in Project B. General comments across the two projects included: ‘there were multiple ideologies that went into the mix’ (Jack, Project A), ‘there was lots of sharing’ (Lauren, Project A), and ‘I think we shared...there was really good give and take’ (Emma, Project B). However, this was not the case in Project C, as there was a far greater divergence of responses across the continuum from the overbounded to the underbounded extremes.

The acceptance of other people’s theoretical frameworks was either enhanced or exacerbated by two factors, which were also found to influence power differences in teams (see sections 7.2.2, Power differences):

- the ability to defer to other people’s professional expertise
- the amount of interdisciplinary overlap between different task group functions in the team.
Both of these—and how they were managed—affect the quality of collaboration in the project teams.

1. The ability to defer to other people’s professional expertise.

Jack stated in relation to Project A, ‘Andrew was happy to defer to our knowledge as far as web design went and I was happy to defer to Lauren’s knowledge as far as design went’. This ability to defer to horizontal expert authority helped collaboration in the teams and as Lauren (Project B) stated when this type of collaboration works ‘it is actually quite inspirational’. But there was not any interdisciplinary overlap in task group functions in Project A as ‘you are either building websites or you are making designs. There were no other elements to the project’ (Ben, Project A).

From the clients’ perspective, there were open discussions about different theoretical perspectives. In relation to Project A, Andrew stated, ‘we kind of talked about different approaches to it’. For Emma and Shirley this was particularly important as their Problem Based Learning (PBL) scenarios needed to have ‘internal logic’ (Shirley) and according to Emma ‘Shirley and I were very strong on understanding the pedagogical basis of whatever decisions we were taking as a whole team...[and as a result, SX]...developed a deeper pedagogical understanding as a result of us discussing some of the things that they suggested’. However, this was not the case in Project C, particularly in relation to Team-2, which meant theoretical frameworks were contested in the interdisciplinary overlap between V-group and the SX production team.

2. The amount of interdisciplinary overlap between different task group functions on the team.

As has previously been described, Diana’s decision to withdraw from Team-1 in Project C resulted in V-group asking SX to finish the project. Thus there were two main task groups in Team-2, the V-group content development group, who had a lot of experience in eLearning design and online resource development, and the SX production team, who did as well. Thus there was a lot of interdisciplinary overlap between the different task group functions, and they both had different approaches and theoretical frameworks informing their practices. V-group’s theoretical frameworks were based on educational pedagogy and an applied knowledge of the intended student cohort, while the SX production team had their own development principles and practices, but they lacked an educational designer.
However, along with differing theoretical frameworks and interdisciplinary overlaps in task group functions, there were also competing authority relations in the team, based on power differences. Although Jack had previously identified in Project A that SX lacked an educational designer, SX was unwilling to accommodate any of V-group’s educational design practices or theoretical frameworks into the design and layout of the resource. Thus, where there may have been collaboration in the interdisciplinary overlap between the two sets of practices and task group functions, the SX production team controlled the processes and did not accommodate or defer to any of V-group’s eLearning design pedagogies, even though ‘their knowledge of how students tick is barely minimal’ (Michelle, Project C).

In this project, there was interdisciplinary overlap in task group functions by merit of the fact that both groups within Team-2 had eLearning design and development experience, but SX did not compromise, or accommodate, any of V-group theoretical frameworks. Thus SX usurped the interdisciplinary overlap space between the different task group functions, and the project ended up being a contested, not a collaborative space. Thus, the ability to accept other people’s theoretical frameworks was contingent on the ability to defer to other people’s professional expertise, and this was either enhanced or exacerbated by levels of interdisciplinary overlap in task group functions in the teams.

Interdisciplinary collaboration in these projects was helped when group boundaries were permeable enough to allow people to defer to other people’s expert knowledge, and when there was mutual recognition and respect for people’s different skills and theoretical frameworks, as in Projects A and generally in Project B. However, in these projects, there was little interdisciplinary overlap in task group functions, as people generally had discrete areas of specialisation, although there were issues in the interdisciplinary overlap between web and design in Project B. However in Project C, there were high levels of interdisciplinary overlap between task group functions, and SX demonstrated overbounded responses, for example group think and elitism, as they did not defer to or accommodate any of V-group’s theoretical frameworks in the final product and this adversely affected interdisciplinary collaboration (and outcomes) in Team-2.
7.2.1.4 Conclusion of group boundaries

Group boundaries, and the levels of boundary permeability between groups, helped, hindered and facilitated collaboration in these projects. At a basic level, team members came from different organisational groups: professional staff (the SX team members), vocational staff (the V-group team members) and academic teaching staff. Within the teams themselves, there were different Discourse groups who brought their particular theoretical perspectives and ways of knowing, thinking and doing to the project teams. Thus the permeability of these group boundaries affected intergroup collaboration.

In relation to group boundaries, collaboration in these interdisciplinary project-based teams was affected by:

- the quality of the startup processes as these defined project goals, determined the scope of the project and laid the foundations for the project management dimensions in each project
- inadequate processes to manage the overlap between formal and informal authority relations
- the ability to defer to other team members’ horizontal expert authority
- the amount of interdisciplinary overlap between different task group functions in the team.

The quality of the startup processes affected the final product in each case. The more optimally bounded the project management dimensions were, the more stable the psychological dimensions were. While there were different levels of process, product and organisational complexity in each project, good processes assisted task-focused activities and this helped to facilitate good interdisciplinary collaboration. Moreover, interdisciplinary collaboration was hindered by overbounded responses to other team members’ horizontal expert authority, as this did not allow people to defer to other people’s knowledge or accept different theoretical frameworks. However, this appeared to be dependent on the amount of interdisciplinary overlap between different task group functions on the team, and this affected other variables, such as power differences, which is discussed next.
7.2.2 Power differences

The second property of EIRT is power differences. To recap, Alderfer (1987) states that power differences are determined by unequal access to, and use of, scarce resources and power differences ‘influence the degree of boundary permeability among groups’ (p. 203). By their nature, interdisciplinary teams comprise people with different skills, disciplines and Discourses, who may also represent different organisational groups. Thus, power differences can affect collaboration between different groups in teams accordingly.

Professional skills and knowledge were identified as scarce resources in all three projects and these underpinned power differences in the teams. This supports the recent research on hierarchy in contemporary knowledge-intensive organisations, as previously mentioned (see section 2.5.3 Authority relations in interdisciplinary teams), that posits authority relations exist on a number of formal and informal levels (Lundholm et al., 2012). Although formal authority relations in knowledge-intensive organisations exist through vertical organisational hierarchy and structures, more informal horizontal authority relations are based on knowledge and expertise, thereby creating expert authority (Barley, 1996; Lundholm et al., 2012; Olsen, 2006; Ostroff, 1999).

In each project, professional knowledge and expertise were scarce resources. Collaboration occurred because people were able to combine their expertise to achieve the desired outcomes, and this created the foundations of power sharing. However, there were a number of conditions that enhanced or exacerbated power differences, and therefore power sharing, in the teams:

- the state of boundary permeability surrounding the project management dimensions of the group boundary property of EIRT
- the levels of process, product and organisational complexity affecting the projects
- the ability to compromise and defer to other people’s professional expertise
- the amount of interdisciplinary overlap between different task group functions in the teams.

While there are some overlaps with the previous discussion of the group boundary property, each of these is discussed below within the context of each project.
In Project A, the project management dimensions of the group boundary property, showed that there were unequivocal project goals, clear authority relations and role definitions, and communication, timelines and budget were optimal. Andrew, the client, had ‘already trialled this project with his students in a more low tech way and he was aware of the limitations of that’ (Ben). Thus in approaching SX to develop the project, Andrew recognised SX’s expertise in design and production, so throughout the project, Andrew was ‘happy to defer to us – to what we thought’ (Jack).

Power shifted in the team depending on whose role took primacy as people had specific task group functions. Although the project was technically complex, ‘[t]here was no overlap in people’s responsibility in this project...It was you are either building websites or you are making designs. There were no other elements to the project’ (Ben). Andrew’s role as the client was clear, and he was ‘brought on board to make decisions’ (Andrew) and he never felt powerless. Finally Jack stated there was equitable power sharing as ‘Lauren and Andrew were both willing to take suggestions and input’ (Jack).

Thus in this technically complex project, the strong project management dimensions established during the startup processes, the ability to defer to other people’s expert knowledge and the lack of any contested interdisciplinary overlaps, enhanced power sharing and collaboration in the team and minimised adverse power differences.

Things were not as optimal in Project B. This project had high levels of process (technical) complexity, but it also had far greater levels of product complexity. Once again, Emma had previously developed a prototype of this project herself, and she knew the limitations of that. In this project, none of the project management dimensions was considered to be optimally bounded. Time was identified as the scarcest resource, and this skewed power differences in the production team.

Time constraints negated expert authority as a means to influence others in this project and it ultimately affected the interdisciplinary overlap between web development and graphic design. This resulted in a dynamic that saw web development tighten its group boundaries which resulted in the breakdown of the interdisciplinary overlap between web and design. This was experienced as ‘the teams didn’t really feel like they were working together’ (Helen) as they had done in previous projects, as ‘Ben had his own idea of how [things should be done]’ (Helen). If group boundaries are overbounded, power differences can emerge between those who have power and those who do not, and
adversely affect collaboration. In this project, power differences emerged between those who controlled the processes and had technical power, to the detriment of other disciplines and considerations.

Overall, the startup processes were problematic as they failed to contain the project’s scope and this affected other aspects of the project. The explosion of the project’s scope meant that there was insufficient time to properly develop the resource, and this generated a great deal of stress and power effects for the clients, as they ‘had a semester of teaching with no back-up plan’ (Emma). Both the academic and the SX teams had ‘underestimated the complexity of the project’ (Emma). Thus, in relation to the production team, technical production took precedence over design considerations, and collaboration in the interdisciplinary overlap between web and design suffered accordingly. Although this could be considered a pragmatic solution to complete the resource so that the backend system and the first components of the just-in-time production schedule were in place for the clients in week one, semester two, it did affect collaboration in the interdisciplinary overlap between web and design.

Power differences were complex in Project C. In terms of the project management dimensions of the group boundary property, no dimension was considered optimally bounded by all participants, and there were higher levels of divergence across each dimension than there were in the other projects. This project had no levels of process or product complexity, but it was plagued by organisational complexity. The organisational politics and complexities surrounding this project resulted from parallel processes and organisational power relationships, neither of which affected Projects A or B.

In relation to power differences, Robyn stated that ‘there’s the circle of influence that surrounds any team within the organisation and the external environment...[and these organisational power structures were]...much more messy and difficult’. V-group was an underbounded group in the overbounded Students’ Division (SD), which Robyn also referred to as ‘that swamp’. V-group had been through organisational restructures, name changes and a more recent restructure, which saw all coordinator positions—including Karen’s—abolished. In ‘that swamp’, power was based on hierarchy, recognition and kudos, and there was little respect for ownership. Robyn witnessed this when the SD and another university group tried to claim ownership of the project. At first Robyn ‘suspected that there was a bit of paranoia happening, but then I started to see proof of it myself. So “Oh, this was a good idea, but it wasn’t my good idea. So, I’m going to try and
grab it and take it and get some kudos for this for my particular area of the organisation”.

Overall, V-group had been ‘shunted around from pillar to post and disrespected and all of the rest of it’ (Robyn). In effect, V-group had lost its identity as a group, and they were quite powerless in this context.

As previously mentioned (see section 3.4 Theoretical perspectives), power relations—as a by-product of power differences between groups—result in structural encasements where groups ‘become caught in a set of binds that constrain the way they view the world and the nature of their interactions with others’ (Smith, 1982, p. 98). These binds result in dynamic defensive, reactive and resisting behaviours based on three relative power positions: uppers, those with power; lowers, those without power; and middles, those who mediate between the uppers and the lowers (p. 98). In Project C, the concentric rings of power, influence and intergroup posturing impacted on the project, as various groups tried to claim kudos and ownership of it.

V-group was in a powerless situation in the SD and more generally in the university. Smith asserts that groups in conflict adopt ‘defensive, reactive and resisting’ postures (p. 97). In short, powerful groups (uppers) resist attempts by less powerful groups to change the status quo and differentials of existing power relationships, while powerless groups (lowers), defend against losing any power or advantage they already have. Powerless groups thus treat powerful groups with suspicion and constantly feel under threat—whether this be real or perceived—thereby creating an atmosphere of paranoia, as was the case in this project.

Organisational complexity aside, the ability to defer to other people’s professional expertise and the amount of interdisciplinary overlap between different theoretical frameworks also marred this project. While not repeating the previous discussion, (see section 7.2.1.3, Theoretical frameworks), power differences in Team-2 were based on expert authority and who controlled the production processes. The SX production team were ‘considered the experts in as far as multimedia development goes’ (Diana). As ‘the experts’—and the fact that they had been brought in at the last minute to finish the project—the V-group team members in Team-2 ‘were kind of in a slightly subservient position...and beholden to them’ (Diana). Thus, the SX production team were in a more powerful position although this was not how the SX production team felt, as according to Jack:
I think everyone had equal power, but everyone’s arguments were not of equal power. Quite often as a web designer, your arguments are based on well defined concepts like usability and accessibility. And so, if there’s a discussion, those arguments can be more persuasive in this context than arguments that rely on personal – personal opinions and desires.

Thus, SX were able to mobilise their networks of actants which included a powerful alignment of black boxes such as university policies, usability and accessibility to justify their actions. However, as Michelle stated, V-group didn’t know if it was ‘that these are the rules and we have to follow them, or we just can’t be f**ked, we’ve done it’. V-group never questioned the accessibility requirements; their main concerns were regarding usability in terms of their expert knowledge of the intended student audience. Once again, programmers wield considerable power through the mobilisation of their facts, technologies, networks and allied actants, as was the case in this project. Ultimately, there was no compromising or deferring to V-group professional knowledge in the interdisciplinary overlap between the two groups within Team-2, which led to unequal power differences. And once again, V-group were powerless in relation to in this dynamic.

Power differences had both positive and negative effects on collaboration in the three project teams. Generally, horizontal expert authority accounted for the major power differences between team members. However, power differences also appeared to be affected by the levels of boundary permeability across the project management dimensions of the group boundary property of EIRT, in that the more optimally bounded these were, the better the team processes were. Where there were good project management dimensions, power sharing was based on mutual respect for horizontal expert authority, and thus negative power differences were minimized and collaboration was good. However, when there were suboptimal project management conditions, power differences emerged in the interdisciplinary overlaps, and this hindered collaboration in the teams. Negative power differences limited the capacity to defer to other team members’ expert knowledge and professional expertise. In these cases, those who controlled the systems, processes and technologies wielded more power than other groups, as access to these was limited and thus they also became scarce resources.
7.2.3 Affective patterns

The third property of EIRT is affective patterns. According to Alderfer (1987), affective patterns are emotional responses that account for ingroups and outgroups, that is, the degree to which positive feelings are associated with ingroup members and negative feelings projected onto outgroup members. These vary with the degrees of boundary permeability and relative power differences between and among groups embedded in their contexts.

Affective patterns, at their worst, account for ethnocentric behaviours and attitudes, which according to Smith, is the 'tendency for a group to develop one set of parameters, explanation, rationales, etc., for understanding its own behavior while holding a different set for looking at the behavior of other groups with which it interacts' (1982, p. 104). This results in ingroups and outgroups—or in conflict situations, an 'us' versus 'them' mentality—in which groups construct their realities as 'the reality' (p. 105, original emphasis). According to Smith (1982), groups tend to acknowledge heterogeneous aspects within themselves, but see other groups as homogenous wholes. Thus:

> The net effect of these psychological filters on among-group perceptions is to diminish the differences that exist among members in the other groups and then proceed to treat the whole group as though everyone within it were fundamentally the same. This makes that "other group" easy to categorize and label (p. 105).

This tendency to see things from only one perspective—and to make generalisations about people from other groups—skews perceptions of, and tolerance for, different groups. In turn, emotional and psychological boundaries—including extreme xenophobic stereotypes—can develop, such as all muslims are terrorists, based on levels of fear associated with outgroup members.

Affective patterns influence intra and intergroup relations as people can subconsciously identify people as belonging to ingroups or outgroup. In terms of identity groups, all participants were white; there were 11 Australians, two Canadians and one Scot. There did not appear to be any ingroup/outgroup dynamics based on identity groups, although there was evidence of ingroup and outgroup memberships based on organisational group memberships.

To assess possible affective patterns in the project teams, each participant was asked to identify respective team members, and indicate their relative levels of involvement in the projects along with the importance of their job role functions. This was used to
assess team boundary disagreement (see section 2.5.7, Team boundary disagreement), that is 'the extent to which members of a team disagree as to which individuals are, and which are not members of that team' (Mortensen, 2004, p. 3). There was evidence of team boundary disagreement in each project.

As previously mentioned (see section 2.5.7, Team boundary disagreement), traditional notions of teams assume that there is mutual recognition of who are—and thus who are not—team members. However, the changing nature of work in knowledge-intensive organisations, for example in project-based teams, has led to more fluid teams with ambiguous or ‘fuzzy boundaries' (Mortensen, 2008; Mortensen & Hinds, 2002). Mortensen (2004, 2008, 2010; 2002) contends there are a number of factors that account for team boundary disagreements in project-based teams, which include:

- geographic locations
- shared mental models based on shared experiences (transactive memory)
- shared social identity (social categorisation with salient groups – ingroups)
- multiple team memberships
- task distinctiveness
- communication (inclusion in levels of formal and informal communication)
- task interdependence.

From an organisational perspective, SX, V-group and the academic team members represented different organisational groups embedded in different geographic locations within the university. Over time, each of these groups has developed their own shared social identities, which include shared mental models and group-level memory systems based on shared experiences. These factors underpin affective patterns, as they help to delineate ingroup and outgroup memberships.

Tables 7.1-7.3 below present each team member’s (left hand column) assessment of who worked on the project (top row). The different organisational groups have been colour coded: academics = pale blue, professional staff = pale green and vocational staff = pale pink. In Table 7.3, Team-1 participants are demarcated by a thick border. In Projects A and B, additional SX staff were added to the team (Add-ins). Moreover, in some cases, people were not named directly, but were mentioned as part of specific groups, so the group’s name has been used. For example, reading from left to right in Table 7.1, Andrew—in the left hand column (academic project leader (PL) shaded in blue)—identified himself, Lauren and Jack (team members along the top row) as working on the
project. On the other hand, Lauren (project coordinator (PC), left hand column) identified herself, Ben and Jack along with one Add-in from SX (top row) as working on the team. Thus, as can be seen in Table 7.1, no-one from SX identified Andrew as a team members\textsuperscript{27}.

### Table 7.1: Participants' assessment of who worked on Project A

<table>
<thead>
<tr>
<th>Assessment</th>
<th>Andrew</th>
<th>Lauren</th>
<th>Ben</th>
<th>Jack</th>
<th>Add-ins</th>
</tr>
</thead>
<tbody>
<tr>
<td>Andrew (PL)</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Lauren (PC)</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>1</td>
</tr>
<tr>
<td>Ben</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Jack</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>1</td>
</tr>
</tbody>
</table>

### Table 7.2: Participants' assessment of who worked on Project B

<table>
<thead>
<tr>
<th>Assessment</th>
<th>Emma</th>
<th>Shirley</th>
<th>Lauren</th>
<th>Ben</th>
<th>Helen</th>
<th>Gavin</th>
<th>Add-ins</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emma (PL)</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>Other</td>
</tr>
<tr>
<td>Shirley</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lauren</td>
<td>✓</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>1</td>
</tr>
<tr>
<td>Ben (PC)</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>1</td>
</tr>
<tr>
<td>Helen</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Gavin</td>
<td></td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
</tbody>
</table>

\textsuperscript{27} These tables only take account of the people interviewed in this research. They do not contain sessional staff or anyone on leave at the time of data collection.
### Table 7.3: Participants' assessment of who worked on Project C

<table>
<thead>
<tr>
<th>Assessment</th>
<th>Karen</th>
<th>Michelle</th>
<th>Diana</th>
<th>Robyn</th>
<th>Peter</th>
<th>Cate</th>
<th>Jack</th>
</tr>
</thead>
<tbody>
<tr>
<td>Karen (PC)/(PL)</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Michelle</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>SX</td>
<td>SX</td>
<td></td>
</tr>
<tr>
<td>Diana</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td>Graphics</td>
</tr>
<tr>
<td>Robyn</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td>Frank's group</td>
</tr>
<tr>
<td>Peter (Team-1)</td>
<td>✓</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cate (PC, Team-2)</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Jack (Team-2)</td>
<td></td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Affective patterns underpin ingroup and outgroup memberships and, in turn, they are influenced by the permeability of group boundaries and relative power differences. As in Mortensen's studies (Mortensen, 2008, 2010; Mortensen & Hinds, 2002), there were team boundary disagreements in all the projects teams, with team members both omitted and added. In his studies, Mortensen found the average level of agreement on team membership was roughly 75% and 72% respectively. In these projects, team boundary disagreement was 75% in Project A (with two people added to the team), roughly 72% in Project B (with four people added to the team), and in Project C, it was about 84% in Team-1, while only 72% in Team-2, but there were no additional people added to either team in Project C.  

A quick scan of the tables shows that all the LTG project leaders (PL), except Karen, included SX as team members, and the SX project coordinators (PC), except Lauren, identified all the clients. SX—as a group—failed to identify Andrew, the client, in Project A. Karen also failed to identify SX in any capacity in either Team-1 or Team-2 in Project C, as did Shirley in Project B, although both women were explicitly asked if there was

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28 These percentages have been calculated by dividing the number of people identified as working on the team, by the total number of possible responses. Thus, in relation to Table 7.1, there were four team members, and if all team members identified each team member there would be a total of 16 responses. However, while there was a total of 16 possible responses, only 12 responses were recorded. Add-ins were not included in the tallies. In relation to Project C, percentages for Team-1 and Team-2 are based on the official team members as detailed in section 6.2 The project teams. Diana is not included as a team member in Team-2.
anyone else who worked on the projects. In terms of physical locations (boundaries), SX, Emma and Shirley and V-group were each collocated across the university in respective buildings and campuses. Team members in each group had worked together for a number of years, and thus they had common shared histories and experiences.

In relation to SX, there were different types of interactions in different phases of the projects. In general, people who worked in more third space capacities—that is Ben, Lauren and Cate—in either the pre-production planning phases, or as project coordinators, included the clients as team members more so than the other SX team members, Jack, Helen and Gavin who worked solely in the production stages of the projects. As for Peter, he only included Karen and Robyn as team members in Team-1, Project C, as he only interacted with them.

As an observation, crossing disciplinary boundaries can help to break down ingroup and outgroup memberships and increase the likelihood of people being recognised as team members. In these projects, Ben, Lauren and Cate worked in the interdisciplinary third space with teaching staff as unbounded and blended professionals. In this space, they contributed their professional expertise to scope, manage and build projects. The increasing use of project-based work in universities enhances opportunities for teaching and professional staff to work collaboratively in interdisciplinary, third space capacities, and thus to be legitimately recognised as team members in these spaces. (This is further explored in the following section, 7.2.4, Cognitive formations).

As for the academics, Andrew only identified the SX team members with whom he worked in the production stage of the project. Emma identified everyone by name with whom she had face-to-face contact. All communication with Gavin was done electronically, and while she did mention him by name as a team member, she denoted him as ‘other’. Robyn, identified everyone in Team-1 in Project C, including Peter, but she referred to the SX production team members as ‘Frank’s group’ in Team-2, but felt ‘they weren’t part of the team, really’. Shirley only identified herself, Emma and an un-named research assistant as team members in Project B.

In relation to V-group, Karen only acknowledged the female team members in Team-1, and no-one from SX in either Team-1 or Team-2. Michelle identified the female team members in Team-1, omitting Peter, but acknowledged SX as a group in Team-2. Diana acknowledged everyone, and specifically mentioned Jack by name. In this case, she also
had web development skills, but she denoted Cate under the title of ‘graphics’.

From these projects, there are some observations that support Mortensen’s team boundary disagreements:

- People are more likely to include people as team members if they share a geographic location.
- People are more likely to identify others as team members if they share social identities (as ingroup members) and have common shared experiences (transactive memories).
- People are more likely to include others as team members if they work on the production stage of a project where there are greater levels of task interdependence and task distinctiveness.
- All team members had multiple team memberships in that this was only one of their responsibilities. Thus, multiple team memberships appear to affect team boundary disagreement.

However, a final observation can be made:

- Professional staff are more likely to include clients as team members if they work in third space capacities in either the pre-production planning stages or as project coordinators.

Finally, my own interactions with the academic staff as a PhD candidate produced ingroup responses. EIRT recognises that researchers affect intergroup relations in context, as the very act of studying groups in context affects those relations and dynamics accordingly. Thus EIRT is equally applicable to researchers as to respondents (Alderfer, 1987, 2011; Alderfer & Smith, 1982; van Knippenberg, 2003).

In this research, two of the academic staff were PhD candidates themselves, one was an early career academic, and the other was a long term career academic. In each of these interviews, ingroup membership became apparent as each academic used academic Discourses and initiated theoretical discussions. For example, both Andrew and Emma brought Latour, Actor Network Theory and black boxes into the discussions, and thus they assumed I knew what they were talking about (which at first I didn’t). Robyn made frequent references to ‘the literature’ and ‘collegiate relationships’ and Shirley made
reference to Discourse theory in relation to the mix of groups dimension in the group boundary property of EIRT. None of the other groups discussed any theoretical aspects of their related Discourses. I assume therefore, that because of my identity as a research student, the academics considered me an ingroup member and they thus felt comfortable engaging in these Discourses.

In universities, affective patterns are complex given the many different identity and organisational groups involved. In this study, affective patterns, as demonstrated by identifying who were and who were not considered team members, did not adversely affect collaboration, but there were levels of team boundary disagreement in each project.

The increasing fluidity of work practices and work organisation in project-based teams has changed the ways teams and team memberships are viewed. However, while ingroup and outgroup memberships may not necessarily account for all the factors associated with team boundary disagreements, affective patterns are underpinned by the permeability of group boundaries and reflect relative power differences, and they are further influenced by cognitive formations, or Discourses, which are discussed next.

### 7.2.4 Discourses (cognitive formations)

Discourses, or cognitive formations, (see section 2.4.6, *Discourses as cognitive formations*) is the fourth property of EIRT. To recap, “Discourses” […] are ways in which people coordinate and are coordinated by language, other people, objects, times, and places so as to take on particular socially recognizable identities’ (Gee, 1993, p. 3). Discourses reflect the views, values and orientations of group members and include conscious and unconscious perceptions, ideologies, thoughts and behaviours. Discourses affect group memberships, underpin affective patterns and they have inherent power relations, based on power differences due to access to scarce resources. Discourses are extremely powerful, and within universities, some Discourses are privileged, while others are marginalised.
According to Alderfer (1987), cognitive formations (Discourses) tend to develop as a result of power differences and affective patterns between groups embedded in their contexts. In universities, there is widespread and unequal access to scarce resources across many dimensions, such as status, hierarchy, job type and level, expertise and remuneration. These power differences extend across all levels and functions in universities and they are generally determined by organisational group memberships—both task and hierarchical—which therefore creates ingroups and outgroups, that is, those who have access to scarce resources and those that don’t.

Theoretical frameworks—as manifestations of Discourses—have been discussed (see section 7.2.1.3, Theoretical frameworks). Thus, this section explores how the different organisational groups—academic, professional and vocational teaching staff—felt that their Discourses were viewed and valued both within the project teams and the university more broadly.

In the project teams, people felt that their skills, disciplines and Discourses were highly valued, as epitomised by comments such as: ‘I definitely always felt that it was valued’ (Jack, Project A); ‘it’s certainly generally valued very well’ (Ben, Project B); and ‘very much well viewed and highly respected in the team’ (Robyn, Project C). There was only one exception, Michelle—worker bee in Project C—who stated ‘it’s hard to say, I don’t know’. However, all acknowledged that this was not the case in the broader university context, especially for the professional and vocational support/service staff.

Within the broader university context, all participants identified status as a scarce resource, and status is important as it helps to determine both the visibility of groups and the legitimacy of their Discourses. Research was seen has having the highest status, followed by academic, professional and finally vocational roles. According to Emma (Project B):

*I think the academic role is more highly valued than the service role in this particular case. But I think there’s another sub-category within that, the research role is valued more highly than the teaching role.*

This privileging of research over academic teaching results from parallel processes. Over the past 15 years or so, government funding policies have decoupled research and teaching funding in universities.
Dedicated funding for research has risen significantly while resources for teaching have been reduced on a per student basis. This decoupling and growth of research funding has had several consequences. Most noticeably it has divided the academic community into those who attract competitive research funds and those who do not (Coadrake & Stedman, 1999, p. 19).

While there was a divide noted between the status afforded to research activities and academic teaching, there was consensus that academics (and their associated Discourses) are viewed and valued more highly in the university than those of their professional and vocational staff colleagues. For example 'I think in the university, the academics are the ones that are viewed highly. People like myself are probably lower down on the scale of things' (Diana, Project C).

This divide between the status afforded to academic and professional staff has long been noted, but it would appear that not much has changed. In 1995, the *Higher Education Management Review* found:

> It is also the case that, in a number of areas of university activity, the boundary lines between academic and general [as they were then called] staff are becoming increasingly blurred. This is occurring in both directions, as academic staff perform a range of administrative duties and general staff – through their areas of expertise – play a key role in “academic” areas such as the use of multimedia in course delivery and design. This blurring of boundary lines underlines the importance of teamwork between academic and non-academic staff. However, the development of such teamwork is not likely to be assisted if the non-academic staff do not perceive their role as being valued as highly as that of their academic colleagues (Hoare et al., 1995, pp. 76-77).

In general, the professional and vocational staff in this study felt that there was little recognition and respect shown for their professional skills, expertise and associated Discourses in relation to:

- the status and acknowledgement of professional staff's areas of specialisation and expertise
- the invisibility of professional staff's work and their contributions to student (learning) outcomes
- the status and legitimacy of different types of knowledge in universities.
1. The status and acknowledgement of professional staff’s areas of specialisation and expertise.

Much of the work conducted by SX requires high levels of technical and professional expertise. Returning to Andrew’s comment (Project A) regarding the perception of technicians in Actor Network Theory (ANT):

> It is interesting what Latour says about the technician and the role of the technical within the socio-technical processes and how it’s generally regarded as lesser.

Historically, technical roles have been relegated subordinate status because technicians have been seen as operators at ‘empirical interfaces’ that is, they transform routine inputs into standardised representations (outputs) using sophisticated technologies, techniques and bodies of knowledge (Barley, 1996, p. 418). However, while it is acknowledged that they often have high levels of professional expertise, they are not seen as ‘artisan[s] involved in the design of things…[they merely provide]…standardized solutions to a finite set of puzzles’ (Nespor, 2012, p. 5). Thus, this produces ambivalence as to whether technicians are servants or experts (Barley, 1996). However, Emma (Project B), offered an alternative explanation of the role of the technician in ANT, and referred to technicians as ‘gatekeepers’:

> Because they hold this knowledge that other people don’t hold and therefore if unless they share that knowledge, they can be a barrier to the use of the technical network.

Regardless of whether technicians are perceived as servants, experts or gatekeepers, they do wield significant power through the mobilisation of their networks as previously discussed (see sections 7.2.1.3, Theoretical frameworks and 7.2.2, Power differences).

In general the SX production staff felt that their professional Discourses and practices were lower in status than those their academic colleagues, despite significant areas of specialisation. As Ben stated (Project B), ‘technical roles are not viewed—not respected—to the extent that they should be, and this group has people who have very high technical skills’. However, there is a further status divide identified between web’s ‘hard’ technical skills and graphics’ ‘soft’ design skills, as web developers are viewed ‘way higher than designers’ (Lauren, Project B). This, once again, may reflect broader parallel processes in which ‘hard’ major professions, that is those that are based on positivist epistemologies...
and ‘technical rationality’, such as Engineering, are afforded more power and status than the more constructivist ‘soft’ minor professions like teaching (Schön, 1983).

Thus, it was felt that professional areas of technical specialisations—and their associated Discourses and practices—were not viewed and valued as highly as academic and research areas of specialisations, and they lacked status as well. As mentioned above, technical roles have traditionally been seen as merely translating inputs into outputs through technical processes, and they are not actively involved in the design and development of things (or objects) (Nespor, 2012). However, this was not the case in Projects A and B, as SX were responsible for the design and development of the online learning resources, which the academics could not do. This was evident as both LTG project leaders had previously tried to create the resources, but they lacked the capabilities and acknowledged their own limitations. Thus, this leads to the second point, the lack of equality and visibility that service/support staff have in universities, including in having their contributions to student learning outcomes, for example as third space professionals, acknowledged.

2. The invisibility of professional staff’s work and their contributions to student (learning) outcomes.

The divide between academic and professional staff, and the invisibility of professional staff’s work in relation university outcomes, has previously been mentioned (see section 2.3.1.1, Professional and academic staff groups in universities), and these themes did arise in this research. Firstly, there was consensus among the participants that support/service roles were regarded as ‘very low status…and that’s what you fight with all the time…I think all the people in the non-academic and teaching areas fight overall for everything’ (Karen, Project C). Cate (Project C) similarly described these sentiments:

I think any support service in the university gets treated as a bit – not as a second rate citizen, but very much you know, I don’t think an academic would regard them as equal.

However, while support/service roles in universities may not be regarded as equal, they were also seen to be hampered by a lack of visibility. As previously mentioned, professional staff often feel that their work is invisible, and they are only perceived as working in administration or management (Dobson, 2000; Dobson & Conway, 2003; Szekeres, 2004, 2006). In this research, Cate (Project C) commented that professional support services are ‘invisible in the sense of – in terms of outcomes, particularly positive
outcomes’. Support services like SX often work in the third space in unbounded and blended capacities, creating online learning objects and resources for students in interdisciplinary project-based teams with academic colleagues. However, it is often the case that academics do not feel the need to acknowledge or attribute work done by professional staff, nor give kudos for it. Once again, according to Cate:

*And that’s happened on multiple times where someone has been openly opened-mouthed that we would deserve to get kudos. You know, even though, we had to build something for them that was actually very, very complicated and there’s no way they could’ve done it themselves. But their attitude was well – yeah, but if I had an afternoon with the software, I could. Well, like no you couldn’t.*

As previously mentioned (see section 7.2.2, Power differences), power in non-academic areas is based on hierarchy, recognition and kudos, and there is little respect for ownership. Cate highlights these points above, and this makes it difficult for professional staff contributions to student learning outcomes—especially when working in third space interdisciplinary collaborations—to be recognised or acknowledged.

While this may be a reflection of the status afforded to technical roles and their associated Discourses and disciplinary practices in universities as discussed above, it may also reflect the ambivalence as to whether ‘technicians’ are servants or experts (Barley, 1996). However, while these roles do have high levels of technical specialisation, they also have high levels of professional skills, and these types of projects are still third space interdisciplinary collaborations. Moreover, with the continuing investment in eLearning systems, and the need for online learning resources, these types of projects will continue to rise. This supports Graham’s contention (2012, 2013), that there needs to be greater acknowledgement of the positive contributions third space professional staff make to student learning outcomes. However, this is unlikely to happen unless there is greater institutional respect for the Discourses, skills and professional practices of these staff. This therefore leads to the third factor, the status and legitimacy of different types of knowledge, and their associated Discourses, in university contexts.

3. The status and legitimacy of different types of knowledge in universities.

The Discourses (and Discourse practices) of academic groups were seen as having higher status in the university, and this was particularly evident in Project C. This was the only project that contained all three organisational groups—professional, vocational and academic—and it was plagued by levels of organisational complexity. Michelle
commented on the importance of Robyn’s role on the team, and that her Discourses and organizational group memberships gave ‘her some authority that perhaps we wouldn’t have, because we are only shit-kickers from the Students’ Division’. Along with V-group’s status as ‘shit-kickers’, Michelle also commented on the status afforded to Robyn’s theoretical/academic Discourses in the university compared to V-group’s, and thus Robyn’s role on the team was:

*Michelle:* To bring an academic presence and knowledge—her knowledge, her expert knowledge—which she does have in this area. Because she’s done years of research in this area so it was useful...But we knew the stuff from our own experience, the same stuff in a different way.

*Interviewer:* Which one do you think the university values more?

*Michelle:* Hers. That’s why we needed her.

In universities, Discourses that produce (and re-produce) theoretical knowledge—and publish (and re-publish) it as research outputs—are privileged over those that are based on applied knowledge, which is often produced in the context of application. This is what Gibbons et al. (1994), refer to as Mode 2 knowledge as previously mentioned (see section 2.2.3, *The restructuring of academic work*). However, while Mode 2 knowledge production may be the basis for transdisciplinary industry ventures (as revenue generating partnerships), this has not trickled down within universities to recognise other types of knowledge produced in the context of application, for example, in the process of working with students.

Both the professional and the vocational staff groups in this research felt that their Discourses, and related Discourse practices, were not viewed and valued as highly as those of their academic colleagues, even though they were working in interdisciplinary project-based teams to develop online learning resources. Overall, they felt there was very little recognition of the positive contributions they make to student learning outcomes.

Universities comprise people from different identity, organisational and Discourse groups. Often these Discourses, and ways of thinking, have been tightly held and fiercely contested (Becher, 1994; Becher & Trowler, 2001). However, Paul Trowler (2013, p. 1), has recently suggested there needs to be a reassessment of the approaches previously used to understand disciplines, as it ‘exaggerates the homogeneity of specific
disciplinary features...[and]...closes down the appreciation of the heterogeneity within disciplines'. This helps to create ingroups and outgroups as previously discussed (see section 7.2.3, Affective patterns), and does little to promote interdisciplinary collaborations. Successful interdisciplinary collaborations are based on mutual recognition of people's Discourses, along with their levels of professional expertise.

In these projects, people felt their disciplines and associated Discourses were highly valued in the teams. However, this was not always the case in the broader organisational environment, particularly for professional and vocational staff. This has the ability to hinder effective collaboration if different types of knowledge are privileged over others, which thus reinforces group boundaries, power differences and affective patterns. Different Discourses and areas of specialisation need to be respected not only within a team, but within the broader organisation contexts in which they are embedded. This provides legitimacy for the work of all groups, not just those who represent higher status groups.

### 7.2.5 Leadership behaviour

Leadership behaviour is the final property of EIRT. According to Alderfer, the behaviour of group leaders—or individual group representatives as de facto leaders, for example when working as part of an interdisciplinary project-based team—can positively or negatively affect intergroup relations. Leadership behaviours encompass boundary permeability, power differences, affective patterns and Discourses as people represent their groups in relation to other groups. Thus, how leaders—or people representing their groups in intergroup exchanges—behave, reflects their relationships with ingroups and outgroups, how they value other groups’ Discourses, and their relative power differences based on access to scarce resources, all of which are underpinned by the permeability of each group's boundaries (Botterill & de la Harpe, 2010).

However, according to Alderfer (1987), relationships between and among groups are also affected by parallel processes, that is the unconscious phenomenon whereby the dynamics found in any system will reflect those of the macro or suprasystem above, as well as the subsystems below. Therefore, if leadership behaviours—or people acting as
group leaders—privilege some forms of knowledge or practices over others, they can restrict effective interdisciplinary collaboration (Botterill & de la Harpe, 2010). Thus, leadership behaviours, reflects the total pattern of intergroup relations in any situation or context (Alderfer, 1987).

Once again, the two factors found to have the greatest effect on leadership behaviours in the projects were:

- the ability to defer to other people’s expert knowledge
- the amount of interdisciplinary overlap between different task group functions in the teams.

Across all teams, leadership behaviours were generally viewed positively and were based on professional expertise and horizontal authority. People’s roles were generally very task focused and everyone felt they took leadership positions in relation to their Discourses and professional practices. In the projects, people tended to have discrete areas of specialisation and thus discrete levels of professional autonomy. Thus, where there was little, if any, interdisciplinary overlap between different task group functions, people did not have to defer to other people’s areas of expertise, and collaboration was good. However, when there were interdisciplinary overlaps between different task group functions, what were generally collaborative spaces became contested spaces.

In both Projects B and C, issues arose when there were interdisciplinary overlaps between different task group functions. In Project B, this occurred in the interdisciplinary overlap between web and design, and in Project C, it occurred in the overlap between V-group’s and SX’s theoretical frameworks and Discourse practices in relation to eLearning design. In both instances, web development tightened its group boundaries, and this created power differences based on who controlled the production processes. This was most evident in Project C, and it highlights how leadership behaviours can adversely affect collaboration in project teams when there are interdisciplinary overlaps.

In Project C, the main issues between the two groups in Team-2 were based on different theoretical frameworks and Discourse. While the V-group members compromised their practices in order to accommodate Robyn’s academic writing style and voice, SX did not compromise their practices to accommodate V-group’s eLearning design principles.
According to Alderfer, leadership behaviours reflect the total pattern of intergroup relations in any situation or context, so in relation to this case: the SX production team showed overbounded responses that were dominated by group think (we are right) and elitism (we know best), and once again they controlled the production processes. There were power differences based on access to scarce resources; Team-1 lacked a web developer, and the SX supplied one. SX was an overbounded ingroup, and V-group was an underbounded outgroup. SX’s Discourses and Discourse practices dominated, in part because they controlled the processes (power differences), and when these were contested, they mobilised their networks of actants which included a powerful alignment of black boxes such as university policies, usability and accessibility to justify their actions, thus supporting Emma’s previous contention that technicians in ANT can be gatekeepers. These black boxes were used by the SX production team to dismiss V-group’s practices as ‘personal opinions and desires’ (Jack, Project C). Thus, SX’s leadership behaviours were overbounded, as they dominated team decision making processes and marginalised V-group’s inputs. SX did not defer to, or accommodate, any of V-group’s professional expertise in relation to eLearning theoretical frameworks. Ultimately the SX production team finished the project, but it was not what the clients wanted or expected.

Leadership behaviours reflect the total pattern of intergroup relations in any situation or context. In these projects, leadership behaviours were generally collaborative and displayed mutual respect for other people’s areas of professional expertise. However, leadership behaviours became overbounded when there were interdisciplinary overlaps between different task group functions and this hindered effective interdisciplinary collaboration in the project teams, as some forms of knowledge and practices were privileged over others.
7.2.6 Conclusions of the cross-case analysis

This research explores what helps, hinders and facilitates collaboration in university-based, cross-organisational, interdisciplinary teams through a collective case study of three online resource development projects at Public University (PU).

Using Embedded Intergroup Relations Theory (EIRT) as the central organising theoretical and analytical framework, this research explores the lived experiences of people working in a university. As complex organisations, universities contain many identity and organisational groups. How these groups collaborate and interact in interdisciplinary project-based teams in developing online learning resources is the central focus of this research. In relation to intergroup relations, most of these are experienced through interpersonal transactions and relationships, as people from different groups work together to achieve project goals or outcomes. Thus, the findings of this research are:

1. **The quality of the startup processes in each project either enhanced or exacerbated interdisciplinary collaboration in the teams.**

   Startup processes are important because they define project goals and determine the scope of the project within time and budget constraints. Good startup processes help to place boundaries around the project management dimensions of the group boundary property. In these projects, the more consensus there was around project goals, the more optimally bounded the other project management dimensions appeared to be, and this was also reflected in the psychological dimensions.

2. **Projects became contested spaces when there was an inability to defer to other people’s horizontal expert authority, which was also affected by the amount of interdisciplinary overlap between different task group functions in the teams.**

   An inability to defer to other people’s horizontal expert authority—especially when there are interdisciplinary overlaps in task group functions—exacerbated power differences and affective patterns in the teams, and thus limited people's capacity to accommodate different theoretical frameworks and Discourses. This
was exacerbated with greater levels of divergence across the continuums from the overbounded to the underbounded extremes of the project management dimensions of the group boundary property in each project.

3. **Interdisciplinary collaboration was affected by levels of complexity, especially organisational complexity, in the projects.**

There were various levels of process, product and organisational complexity in these projects. While good startup processes helped to minimise levels of process (technical) and product complexity, organisational complexity—as a by-product of parallel processes—had the most negative effects on overall team effectiveness. Groups are always embedded in their contexts, and the messier the workplace, the more unconscious emotional responses affected team members working in interdisciplinary project-based teams.

While some may feel that these findings are not surprising, they are important in understanding interdisciplinary collaboration in the emerging *third space* project domain. In this space, professional staff increasingly work in unbounded and blended capacities to develop online student learning resources, as was the case in this research. Most of these staff will have had no formal project management training, and working in teams is just something that they do. Thus, this research offers insights into what helps, hinders and facilitates collaboration in university-based, interdisciplinary project-based teams. At a personal level, these findings have helped to solve my personal question, *Why it is so easy to work with people from some groups and so hard to work with others?* It is because there have been insufficient processes, and interdisciplinary overlaps have caused conflict when people have not been able to defer to other people’s expert knowledge.

The changing nature of work in universities has resulted in some blurring of the boundaries between academic and professional staff and given rise to a new group, *third space* professionals (Whitchurch, 2008, 2009, 2010, 2012, 2013). *Third space* professionals span organisational boundaries and often work in interdisciplinary project-based teams, as was the case in this research. As areas of specialisation increase—and knowledge continues to be distributed across networks that comprise both human and non-human actants—understanding what helps, hinders and facilitates
interdisciplinary collaboration can help to improve project outcomes from interdisciplinary project-based teams in university contexts.

What is unique about this research is that it uses an organisational development theory, EIRT, to explore a university as a workplace for staff working in the interdisciplinary third space project domain. The insights gained through this multi-faceted analysis of three online resource development projects using EIRT, along with contributions from ANT, can assist our understanding of these complex contexts. Moreover, as HE continues to expand in global terms, these types of third space projects will also continue to rise. Thus understanding the dynamics that operate in these types of teams is of increasing importance.

However, this is an emerging space, and one that has highly skilled professional (and at PU vocational staff) working in these spaces. So, from an organisational perspective, there needs to be greater acknowledgement of the ways in which these staff contribute to successful student learning outcomes (Graham, 2012, 2013). This will be hard to achieve unless there is greater institutional recognition and respect for the Discourses, skills and professional practices these staff contribute. Returning to the Higher Education Management Review:

This blurring of boundary lines underlines the importance of teamwork between academic and non-academic staff [now called professional staff]. However, the development of such teamwork is not likely to be assisted if the non-academic staff do not perceive their role as being valued as highly as that of their academic colleagues (Hoare et al., 1995, pp. 76-77).

This concludes the cross-case analysis through the lens of EIRT. However, successful project outcomes are also influenced by team effectiveness, that is, how well teams work as performing units. The following section assesses levels of team effectiveness in each of the projects.
7.3 Assessing team effectiveness

These three projects were all Learning and Teaching Grant (LTG) projects. LTG applications are assessed against institutional strategic criteria and have mandatory reporting processes to monitor progress, such as regular reviews of expenditure against budget, as well as mid-project and final project reports. However, from an organisational learning perspective, there are no formal processes to evaluate the effectiveness of the projects in terms of whether the intended project outcomes were achieved and have met client expectations, as well as ways to assess overall team experiences. The lack of this type of evaluation can limit organisational learning, and hence hinder ongoing improvements in project-based teamwork and performance in university contexts.

This research uses Hackman's normative model of group effectiveness, as previously discussed (see section 2.5.5, Assessing team effectiveness), to assess each project team as a performing unit. Briefly, team performance can affect team effectiveness, that is, what goes on inside a team can impact on a team's ability to accomplish desired outcomes (Essens et al., 2005; Hackman, 1987). This research focuses on the process component of the Input-Process-Output (IPO) framework (McGrath, 1964). To recount, this is how well teams utilise various individual, team and organisational resources (inputs), manage and maintain internal processes (such as social practices, task behaviours and performance strategies) to produce outcomes (outputs) (Guzzo & Dickson, 1996; Hackman, 1987; Kozlowski & Bell, 2001; McGrath, 1964; Mickan & Rodger, 2000). The focus of this study is on what occurred behind the screen in the process of developing the online learning resources, to highlight what helps, hinders and facilitates interdisciplinary collaboration in online learning resource project teams.

According to Hackman (1987), team effectiveness is a multi-dimensional process and is affected by three factors: the design of the group; the organisational context; and group synergy. Table 7.1 presents an assessment of each project against Hackman's three 'modest standards' (p. 323) of team effectiveness (criteria 1-3), along with his process criteria of effectiveness (criteria 4-6).
Table 7.4: Assessing team effectiveness in the three project teams

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Project A</th>
<th>Project B</th>
<th>Project C</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Team-1</td>
<td>Team-2</td>
<td></td>
</tr>
<tr>
<td>1 Product meets clients' standards</td>
<td>✓</td>
<td>✓</td>
<td>X</td>
</tr>
<tr>
<td>2 Social processes support future team work</td>
<td>✓</td>
<td>♦</td>
<td>♦</td>
</tr>
<tr>
<td>3 Group experience should satisfy, not frustrate, the personal needs of team members</td>
<td>✓</td>
<td>✓</td>
<td>♦</td>
</tr>
<tr>
<td>4 Individual effort</td>
<td>✓</td>
<td>✓</td>
<td>♦</td>
</tr>
<tr>
<td>5 Appropriate knowledge and skills</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>6 Appropriateness of task performing strategies</td>
<td>✓</td>
<td>♦</td>
<td>♦</td>
</tr>
</tbody>
</table>

Legend

- Fully meets the criteria ✓
- Partially meets the criteria ♦
- Does not meet the criteria X

7.3.1 Project A

As can be seen in Table 7.1, Project A met all the criteria and thus the team can be considered an effective team. In relation to the first three criteria, the final product met—in fact exceeded—the client’s expectations, the social processes in the team were good and the team worked well as a performing unit. Everyone stated that this project was a positive experience. As for the process criteria for effectiveness (criteria 4-6), everyone put effort into working on this project, they all had the requisite knowledge and skills needed to build this technically complex online learning resource, and their performance strategies, that is how they went about planning and organising their tasks and duties, were appropriate. This last criterion was highlighted by Andrew, the client, who stated:
What was good [about] working with that group, is that they were very experienced with project briefs. So that we spent a number of meetings clarifying those goals and reflecting on – and having some clearly set milestones within it.

The startup processes, once again, underpinned this project’s success. As previously stated, startup processes are very important in Type 3 projects (see 2.5.5.2, Project uncertainty) where the methods are known, but the goals are generally vague and need to be clarified. Once defined, these projects then use a milestone approach to planning, as was the case in this project. The assessment of this team as an effective team is also supported by the overall assessment of the project as optimally bounded in the analysis of the group boundary property of EIRT.

7.3.2 Project B

Team effectiveness was not as good in Project B. In relation to the first three criteria, the online learning resource met the clients’ (amended) expectations. As previously mentioned, the original LTG application was for three Problem Based Learning (PBL) scenarios to be developed in the year. However, the explosion of the project’s scope meant that the deliverables needed to be renegotiated with the university’s LTG manager, and as a result, SX changed their own processes and introduced a cap of up to 350 hours for all future projects. Thus the aim of the amended LTG application was to build an immersive, technologically rich, online learning environment for second year students, and this was achieved.

However, the social processes in the team were not optimal. The issues in the interdisciplinary overlap space between web and design—due largely to the explosion of the project’s scope and the short timelines—changed the intergroup dynamics in SX. Helen explained this as ‘[i]t was a very weird project. And a lot of the time it was very dif... [deliberate break]. The teams didn’t really feel like they were working together’. Hackman (1987, p. 323) argues that the group social processes should enable a team to finish ‘its work at least as healthy as when it started’ and this was not the case in relation to two of the groups in this project. However, in relation to the final standard, criterion three, the
group experience did satisfy the personal needs of team members. Everyone described the project as creative and fun, and it was intrinsically interesting. As Gavin commented:

*I think that most of the staff involved in the project did step up and they kind of enjoyed that they got something out of it...* [W]e all had something that pushed us a bit further than we’d been required to in the past. And, professionally, that’s a great thing to do.

In relation to the second set of criteria, the process criteria of effectiveness, everyone put a great deal of effort into working on this project, as summed up by Emma who said ‘everybody put in 110%. It was amazing’. All team members had appropriate skills and knowledge and there were generally appropriate amounts of expert authority in terms of professional expertise, although there were some issues in relation to web and design.

However, SX’s task performing strategies were problematic. The major issues were the explosion of the project’s scope in the startup processes, and the lack of appropriate documentation to manage the different components, tasks and processes within the project. Helen therefore created the design schedule checklist which caused initial conflict between web and design, but it subsequently became a project management tool. However, other task performing strategies, such as the decision to introduce a staggered/just-in-time production strategy, saved the project.

Overall, this project was successful although there were some issues. Team effectiveness was not optimal, as there were issues in the project management dimensions of the group boundary property of EIRT. These resulted from SX’s task performing strategies, particularly the startup processes. However, the overall team experience—albeit stressful on occasions—was positive. This is supported by the overall assessment of the psychological dimensions of the group boundary property of EIRT as being (mostly) optimally bounded.
7.3.3 Project C

Team effectiveness was problematic in both Team-1 (the original project team) and Team-2 (the revised project team after the inclusion of the SX production team) in Project C. In relation to Team-1, the product—an online learning resource that would live inside an existing website—was never developed, as Diana, the web developer, left the team. In Team-2, the final product was not what the clients wanted or expected, so it did not meet their expectations.

The second criterion, that group social processes support future team work, was also problematic in both teams. Neither team finished ‘at least as healthy as when it started’ (Hackman, 1987, p. 323), and the project was dominated by organisational complexity, such as parallel processes and changes to organisational policies. In Team-1, after Diana left the team, the other team members continued developing content, which included the videos that Peter, from SX, produced. Overall, the integrity of the group as a performing unit was compromised by Karen’s inability to make decisions without Robyn’s auspice which, in part, was an effect of group level parallel processes in the university.

In Team-2, the social processes between the two groups—the content development team and the SX production team—were hampered because SX did not deliver what the clients wanted. In good faith—and based on their own expertise in eLearning design, understandings of the target student audience and their previous online learning resources—the V-group team members had ‘gone to the trouble of making a plan, and kind of everything from giving it to them and saying “This is the kind of layout that we had in mind”’ (Michelle). However, this was not followed, and V-group were powerless to influence or change the final resource. It became a matter of cut your losses in order to maintain (future) professional relationships with SX. This was not optimal.

The third criterion, that the group experiences satisfy the personal needs of team members was only partially met. In relation to Team-1, the underpinning emotional climate affected the team. Robyn, as the external academic on the content development team, commented that the politics of the Students’ Division (SD)—and the impact it had on V-group—were very time consuming and ‘it was emotionally draining’ (Robyn), and:

There were times when I could’ve done with less V-group politics, you know, I just sort of got a bit sick of hearing about it. But every time I have anything to do with anybody from there, I hear the same thing.
Another factor that impacted on Team-1’s ability to satisfy the personal needs of team members was the deference shown to Robyn—as the academic on the team—by Karen. This slowed down the content development process and ultimately affected productivity in Team-1. This frustrated Diana—who was not able to do her work as she had no content—and thus she felt that her time could be used more productively elsewhere. However, overall in Team-1, people were generally positive about the team experience, with Karen stating ‘it was very positive’, and Robyn concluding ‘we worked together fabulously’.

The SX production team members in Team-2 were not immune from the politics and emotional climate emanating from the V-group team members. Cate said ‘there was a lot of negativity affecting the clients…and I think there was a lot of stuff going on over there which was quite distressing’. However, the main issue that frustrated the personal needs of team members in Team-2, was that the SX production team members did not do, or deliver, what the clients wanted, and V-group were powerless to do anything about it.

In relation to the second set of criteria, everyone, except Diana, felt people put effort into working on this project, but ‘they sort of reinvented the wheel quite a lot’ (Diana, Team-1). All team members had appropriate knowledge and skills and there were good levels of autonomy and horizontal expert authority. However, the appropriateness of the task performing strategies used in both teams affected the outcomes.

In Team-1, there were no formal project scoping processes, but this was not considered problematic, as it was a familiar way of working and Robyn was happy as ‘we wanted to have the capacity to scope it out and change it as we learnt more and as we developed it’. However, the issues caused by Karen’s need to wait for Robyn’s auspice on decisions, hampered decision making processes in general. Furthermore, according to Diana ‘they kept going over old ground, so it was a very slow process because there wasn’t a very clear...editing process sorted out’. This project would have benefited from better task performing strategies in relation to both these factors. Had they been in place, Diana may not have left the team.

However, SX’s task performing strategies in Team-2 were also sub-optimal. As has been explained, the startup processes failed to properly identify and define what the V-group team members wanted in terms of the final deliverable, even though V-group had given them a plan. SX also failed to adequately communicate the overall structural and
navigation changes they made to the host site, and finally, they did not follow their own processes – as the clients did not receive any wireframes. Overall, they completed the project as they saw fit, not as the clients wanted.

As previously stated, it would be hard to argue that this was a successful project, although from the university's perspective, the LTG project was completed on time and within budget. Team effectiveness was problematic in both teams, but more so in Team-2, due largely to the SX production team's task performing strategies. While these worked for one group (SX) they did not work for the clients, as the deliverable was not what they wanted. While the SX pre-production processes helped to structure the project management dimensions of the group boundary property, there were roughly equal amounts of overboundedness and underboundedness across all the dimensions of the group boundary property of EIRT. It would therefore appear that there were overbounded and underbounded responses and behaviours among and between the different groups involved in this project, and these affected overall team performance and effectiveness.

7.3.4 Team effectiveness conclusions

The levels of team effectiveness in this research support the main research findings in that:

- the quality of the startup processes affected the overall levels of team effectiveness
- team effectiveness suffered when there was an inability to defer to (or acknowledge) other people's horizontal expert authority when there were interdisciplinary overlaps between different task group functions in the teams
- levels of complexity, especially organisational complexity, and unconscious emotional responses can affect team effectiveness.

Once again, Project A was easy, Project B was stressed and Project C was chaotic.
Hackman’s framework (1987) acknowledges the often overlooked importance of social processes and personal experiences when working in teams. In Hackman’s words ‘[t]he social processes used in carrying out the work [that is the integrity of the group as a performing unit] should maintain or enhance the capability of members to work together on subsequent team tasks’ (p. 324, original emphasis). In these projects, this integrity appeared to align with: the quality of the startup processes to adequately scope the projects; the ability to collaborate effectively in the interdisciplinary overlap between different task group functions; and the levels of complexity, especially organisational complexity, besetting the teams. Returning to the psychological dimensions of the group boundary property of EIRT, see Figures 4.2, 5.2 and 6.3, and comparing them to Table 7.4 above, there appears to be a correlation between the two. The psychological dimensions of Project A were all optimally bounded as was team effectiveness. In Project B, there was more divergence across the psychological dimensions, and overall team effectiveness was not as good. Finally, Project C had the most variance in the psychological dimensions across both the overbounded and underbounded extremes, and neither team could be considered effective.

Social processes and personal experiences underpin our relationships with other people, whether at work or not. Thus, if team effectiveness is in part a measure of tasks, task performing strategies and social processes, understanding possible factors that help, hinder and facilitate collaboration in interdisciplinary project-based teams can improve team effectiveness because these insights give us ways of understanding—and possibly taming—‘the wild beast of the social’ (Latour, 2005, p. 21).

7.4 Summary of findings

This research explores what helps, hinders and facilitates collaboration in interdisciplinary teams in developing online learning resources working in the third space project domain. This chapter presents a cross-case analysis of three online resource development projects using the multi-faceted lenses of Alderfer’s Embedded Intergroup Relations Theory (EIRT) (1987), along with an assessment of overall team effectiveness based on Hackman’s (1987) normative model of team effectiveness.
The research findings are:

1. The quality of the startup processes in each project either enhanced or exacerbated interdisciplinary collaboration in the teams.
2. Projects became contested spaces when there was an inability to defer to other people's horizontal expert authority, which was also affected by the amount of interdisciplinary overlap between different task group functions in the teams.
3. Interdisciplinary collaboration was affected by levels of complexity, especially organisational complexity, in the projects.

The assessment of team effectiveness supports these findings in that:

- Project A was easy and team effectiveness was optimal
- Project B was stressed and team effectiveness suffered
- Project C was chaotic and team effectiveness was poor.

Intergroup relations had both positive and negative effects on interdisciplinary collaboration in each project. As Alderfer suggests, group boundaries—and the permeability of those boundaries—underpin power differences, affective patterns, Discourses (cognitive formations) and leadership behaviours. The more optimally bounded the 11 dimension of the group boundary property of EIRT were, the better both interdisciplinary collaboration and team effectiveness were.

However, there was no interdisciplinary overlap in task group functions in Project A, and in Project B, the interdisciplinary overlap was contained within an established—and overbounded—group. Thus Project C offers the most in regards to organisational learning. This project was fraught with organisational complexity, which was invisible, yet tangible, as the relationships within and between the groups disintegrated. Groups are never isolated, they are always embedded in their contexts, and Project C became a microcosm of the dynamics at play in PU as a workplace.

This research has used EIRT as its primary theoretical and analytical framework. As previously stated (see section 2.3.2, *Universities as complex systems*), EIRT is an open systems theory, which allows:
[B]road generalisations to be made about the character of an organization or a worker and his or her activities. It avoids some of the problems of localized, disconnected attention to subproblems. By providing a broad-brush picture of what is happening and why, it directs our attention to essential elements that are stable and to those whose relationships to one another are changing (Bess & Dee, 2008, p. 93).

EIRT has provided a set of lenses to better understand changing relationships between teaching and professional staff in the third space project domain in the Enterprise University. The interplay between group boundaries, power differences, affective patterns, Discourses (cognitive formations) and leadership behaviours affects us all as we go about our daily work. Thus, EIRT directs our attention to those factors that affect relationships between groups embedded in organisational contexts so as to better recognise and understand what is happening, how we are positioned and why.

However, while EIRT has enabled a rich, multi-faceted analysis of a complex context, the use of Actor Network Theory (ANT) has helped us gain a better theoretical understanding of the complexities affecting these cases. ANT opens up possibilities to explore both human and non-human factors, such as black boxes, that EIRT by itself did not allow. Thus, ANT enables us to follow the networks of actants and how they are mobilised and removes the interpersonal. More was understood about the complexities of the workplace as people mobilised their networks of allied actants in their everyday activities. Thus the use of these two theories together has enabled a rich analysis of a university as a workplace as people from different organisational groups—both task and hierarchical—work together in project-based teams. This has been a novel approach that could be used by other researchers as a way to explore changing relationships in complex contexts.
Chapter 8
Conclusions

8.1 Key findings and significance of the study

This collective case study has explored what helps, hinders and facilitates intergroup collaboration in interdisciplinary project-based teams. It used an organisational development theory—Embedded Intergroup Relations Theory (EIRT)—as the central theoretical and analytical framework. The research provides a rich, multi-faceted analysis of the ways in which group boundaries, power differences, affective patterns, Discourses (cognitive formations) and leadership behaviours affect collaboration between different organisational groups. It is unique as no previous research has been found that explores intergroup collaboration in online learning resource development projects in university contexts through the lens of EIRT.

Universities are complex organisations and this research highlights factors that help, hinder and facilitate intergroup collaboration between teaching and third space professional staff working together in unbounded and blended capacities. Overall, and in keeping with Alderfer’s theory (1987, 2011), group boundaries—and the permeability of those boundaries—underpinned the success (or not) of both interdisciplinary collaboration and team effectiveness in each project. In this research, successful interdisciplinary collaboration was a measure of processes and relationships, both internal and external to the teams.
From this research, three key contributions to knowledge can be drawn:

Firstly, startup processes impact significantly on effective collaboration in interdisciplinary project-based teams. Good startup processes enhance collaboration across disciplines, while poor startup processes hinder it. The startup processes in each case followed SX's standardised project management processes, but the outcomes in each project were very different. Startup processes were a significant factor in successful interdisciplinary collaboration and project outcomes.

In my experience of working in universities and other educational settings, I have observed a lack of formal project processes. Projects, whether formal or informal, are assumed to be just something you do. Thus, this research highlights the importance of the quality of the startup processes and ultimately how these impact on team effectiveness and project outcomes. This insight can contribute to better project outcomes by adding more explicit criteria to formal (or informal) project documentation during startup processes.

Secondly, this research has found that overlaps between different task group functions can lead to conflict in project groups and this can be exacerbated by team members’ inability to defer to other team members’ horizontal expert authority. Returning to the 20 factors critical to successful collaboration (Mattessich et al., 2001) (see section 2.5.2, Collaboration in interdisciplinary teams), the ability to compromise was identified only in six of the 40 studies, and was listed in the bottom three factors. However, this research demonstrates a more complex picture. There were interdisciplinary overlaps between different task group functions in two of the three projects, and conflict occurred in both. In short, where people did not compromise, or defer to other peoples’ horizontal expert authority, what should have been collaborative spaces became contested spaces. It was therefore in this space that group boundary responses became overbounded, and this exacerbated power differences, affective patterns, Discourses and leadership behaviours between the different groups in the teams and these ultimately impacted on team effectiveness.

Thirdly, this research highlights the significance of organisational complexity on collaboration in interdisciplinary project-based teams. Organisational complexity is generally beyond our control, invisible and unrecognised, but on occasions it becomes overt and tangible. In this research, organisational complexity, as a by-product of
parallel processes, became evident when there were high levels of overboundedness and/or underboundedness being experienced by staff in relation to their own and other organisational groups. Both of these produced unconscious emotional responses and behaviours that affected interdisciplinary relationships in the project teams. While we all work in and with organisational complexity, it does not always become apparent. Groups are always embedded in their contexts, and the messier the workplace, the more unconscious emotional responses affect team members working in interdisciplinary project-based teams.

These three research findings contribute to a better understanding of the factors that help, hinder and facilitate interdisciplinary collaboration. In addition, this research also contributes new knowledge to the emerging field of research in relation to third space professional staff, and their contributions to student learning outcomes.

Third space professionals span organisational boundaries and often work in interdisciplinary project-based teams, as was the case in this research. Each of these projects contained professional and/or vocational staff who actively worked in the third space project domain with teaching staff from different groups, to produce online student learning resources. However, as has been shown here, they feel that their contributions are often invisible and there is little institutional respect afforded to the Discourses, professional skills and practices these staff bring to interdisciplinary project-based teams. As areas of specialisation increase—and knowledge continues to be distributed across networks that comprise both human and non-human actants—third space professionals will increasingly work in these project spaces, in unbounded and blended capacities, to produce online learning resources that engage students and support their learning outcomes. It follows that their important contributions are acknowledged and rewarded.

8.2 Provisos

There are several provisos to this research. First, the research is a qualitative, collective case study of three online resource development projects, conducted at a single university, at a single point in time, with 14 participants and comprising 17 interviews.
Although this exceeds the requirements of theoretical saturation in purposeful samples—which has been estimated to be 12 interviews (Guest et al., 2006)—it cannot claim to be a definitive study of online resource development projects and intergroup collaboration in interdisciplinary project-based teams in universities. While collective case studies do allow for greater generalisations of results to be made (Stake, 2000), it does not mean there is universal application of the insights gained in this research.

Qualitative research has been plagued by issues of validity, trustworthiness, reliability and replicability (Lincoln & Guba, 1985; Merriam, 1995; Yin, 2011). I have tried to address these through the research design, but it is not known whether these results could be replicated in another study, at another institution, addressing the same research question, using the same tools, theoretical framework and research design. Nonetheless, this research provides general insights and a useful model to improve our understandings of how intergroup relations affect collaboration in university-based, cross-organisational interdisciplinary project-based teams in developing online learning resources.

### 8.3 Further research

This research is unique as no previous research has been found that explores universities as workplaces for professional and teaching staff working in the *third space* project domain in developing online learning resources through the lens of EIRT. Further avenues for research include:

- Replication of this research at other universities to ascertain whether the same factors arise, which would help to confirm or contest the findings. Additional research following this same research design could help deepen our understandings of universities as workplaces and the factors that help, hinder and facilitate collaboration in university-based, cross-organisational interdisciplinary project-based teams, in developing online learning resources.
Dedicated research into *third space* eLearning design and development projects that interview all participants in project teams to assess the contributions professional staff make to positive student learning outcomes. This research did not set out to expressly explore *third space* professionals in universities, although it has coincided with the rise of the *third space* professional research domain. This is an important field of research, especially as online learning resource development projects will continue to expand in line with eLearning delivery. This research domain provides frameworks and discourses that can help to redress power differences and affective patterns, and enhance understandings of how different organisational groups contribute to learning and teaching outcomes.

Team boundary disagreements in interdisciplinary project-based teams. The changing nature of teams and teamwork in knowledge-intensive organisations, such as in the use of project-based teams, has led to more fluid organisational work practices and collaborations that span organisational boundaries, as was the case in this research. Team boundary disagreements were evident in all teams, so further research into the effects that team boundary disagreements have on collaboration and professional identities can further improve our understandings of collaboration in interdisciplinary project-based teams.

Interdisciplinary overlaps in inter-organisational projects. Conflict between the different groups in this study resulted from an inability to defer to other people’s expert authority which was also affected by amounts of interdisciplinary overlap between different task group functions in the teams. This study was conducted in a single organisation that had a common belief and value system. Further research into inter-organisation projects, such as eLearning partnerships with private providers, such as Open Universities Australia (OUA), could enhance our understandings of collaboration in broader industry partnerships where there are interdisciplinary overlaps between different task group functions.
8.4 Concluding comments

This research has been a long journey which has had its ups and downs. I have grown as a person—and as a third space professional—as I have explored collaboration in interdisciplinary project-based teams in complex and changing contexts.

The increasing need to provide knowledge workers to satisfy future workforce demands in global settings, combined with ongoing advancements in Information and Communication Technologies, will continue to drive eLearning uptake and delivery. However, to remain competitive in this space, the eLearning experience, including the resources that support student learning outcomes, need to engage students and help them to develop their potential. This study's primary contribution to knowledge has been to promote organisational learning in relation to what helps, hinders and facilitates collaboration in interdisciplinary teams working in the third space project domain in developing online learning resources.

This research set out to answer a personal question: Why is it so easy to work with people from some groups, and so difficult to work with others? And so, to return to the beginning:

Like all sciences, sociology begins in wonder. The commotion might be registered in many different ways, but it is always the same paradoxical presence of something at once invisible yet tangible, taken for granted yet surprising, mundane but of baffling subtlety that triggers a passionate attempt to tame the wild beast of the social (Latour, 2005, p. 21).

This has been my attempt to 'tame the wild beast of the social'.
References


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Appendices

Appendix 1: Interview schedule

Appendix 2: ABC's 7.30 interview transcript: Annabel Crabb and Al Gore, 23/10/13

Appendix 3: Plain Language Statement

Appendix 4: Ethics consent form

Appendix 5: Group boundaries sheet

Appendix 6: Team member identification sheet

Appendix 7: Ethics approval

Appendix 8: Figure 5.4 enlarged

Appendix 9: Figure 6.4 enlarged
Appendix 1: Interview schedule

Greetings

1. Present hard copy of the Plain Language Statement (see Appendix 3) and get participants to sign the Ethics Sub-Committee consent form (see Appendix 4).
2. Ask participant’s permission to record the interview.

Opening:

Thank participant for agreeing to the interview.

Inform participant that:

- The purpose of the research is to gain insights into the organisational factors, both positive and negative, affecting the design and development of online learning resources in interdisciplinary teams within the workplace.
- I am interested in their views from three perspectives: firstly as an individual, that is their personal views, secondly as a team member and finally how they think things are viewed from an organisational perspective.
- Their thoughts, observations and perceptions are very valued and much appreciated.
- All data will be confidential and no names will be used.

Set 1: Background questions

- Can you tell me a bit about yourself and your position here at PU?
- What would you say are your main roles and responsibilities?
- What is your discipline / professional background?
- What do you think about the use of online learning resources in teaching and learning in general?
- What do you think PU’s directions and goals are for online resource development in teaching and learning?

You have been asked to be part of this research because you were part of an LTG project in (year omitted) that as an outcome had an online resource. Can you tell me what your role was in the project and how you came to be involved in it?

Now I would like to ask you some specific questions around the LTG project.
Hand participants a copy of Alderfer’s Properties of overbounded and underbounded systems sheet (see Appendix 5). Ask participants mark how they rate each variable along the continuum.

**Group boundaries**

1) Goals (Project goals)
   a) Were the goals of the project clearly defined?
   b) Was there consensus among the team members re goals?
   c) Do you think that the project goals were achieved?
   d) Did the project goals affect the team’s ability to work productively together, if so in what ways?

2) Authority relations
   a) Was there a designated leader in the team or were there multiple leaders?
   b) What was the leadership style like in the team?
   c) Did all team members know who to report to?
   d) Did leadership affect the team’s ability to work productively together, if so in what ways?

3) Economic conditions (budget)
   a) Was the budget appropriate for the project, i.e. was it sufficient to resource the project properly so that there was minimal stress, or insufficient so that it created problems?
   b) Was the budget relevant to you at all?
   c) Did the budget affect the team’s ability to work productively together, if so in what ways?

4) Role definitions
   a) Was everyone’s role in the team clearly defined?
   b) Would you count yourself as a core member of the team?
   c) Were there clear expectations and responsibilities attached to people’s roles?
   d) Were people’s roles generally tightly constrained leaving no flexibility or were they imprecise and overlap?
   e) Did role definitions affect the team’s ability to work productively together, if so in what ways?

Hand people the team role member identification sheet and get them to fill out the team roles and importance on team for each team member (see Appendix 6).
5) Communication patterns
   a) How was communication managed across the team?
   b) What were the main communication mechanisms?
   c) How regularly did the team, as a whole or in part, meet?
   d) Were there problems in determining who needed to meet and when?
   e) Were people open and honest when they met, e.g. about their work, issues, timelines etc.
   f) Did communication affect the team’s ability to work productively together, if so in what ways?

6) Human energy (Individual effort)
   a) Did people put effort into working on this project?
   b) Were people’s efforts maximised or directed appropriately?
   c) Did people think that their efforts made a difference?
   d) Did people’s efforts, or lack thereof, affect the team’s ability to work productively together, if so in what ways?

7) Affect distribution (Emotional climate)
   a) What was the emotional climate of the team like, e.g. positive or negative?
   b) Did the emotional climate reflect a broader emotional climate in the university?
   c) Did the emotional climate affect the team’s ability to work productively together, if so in what ways?

8) Intergroup dynamics (Mix of groups)
   a) How would you describe the mix of people in the group?
      • Were they generally of similar ages, language/cultural backgrounds, gender etc.?
      • Do you think they were generally from the same hierarchical levels in the university?
   b) Did the mix of different groups / levels affect the team’s ability to work productively together, if so in what ways?

9) Unconscious basic assumptions (Underlying team feeling)
   a) What did it feel like the team came together, e.g. did it feel as if people were happy to be together and work productively, or was it more fight or flight, people avoided each other or engaged in conflict?
   b) Did this affect the team’s ability to work productively together, if so in what ways?

10) Time spans (Time lines)
    a) Were the timelines appropriate for the project?
    b) If not, why not?
c) Did timelines affect the team’s ability to work productively together, if so in what ways?

11) Cognitive work (Discipline / theoretical frameworks)
   a) Were the team able to share their different intellectual frameworks / discipline theories, or did you all have to agree on one?
   b) Did this affect the team’s ability to work productively together, if so in what ways?

Now I would like to ask you some specific questions in relation the project.

Power relations
   a) How would you define the term power?
   b) How would you define it in relation to the project team?
   c) Did everyone in the team have equal power? If not, how was power exercised in the team?
   d) Did power affect the team’s ability to work productively together, if so in what ways?

Cognitive formations
   a) How do you think your discipline / professional background was viewed and valued within the team?
   b) Do you think that this changed over the course of the project?
   c) How do you think your discipline / professional background is generally viewed and valued within:
      • your college or service area?
      • the university?
   d) Did different theoretical frameworks affect the team’s ability to work productively together, if so in what ways?

Affective patterns
   a) Were there other people with your discipline / professional background on the team?
      • If so, did you find it easier to collaborate with people from your own professional / discipline backgrounds than with people from other backgrounds? Why / why not?
      • If not, did you find it easy to collaborate with people from different professional / discipline backgrounds? Why / why not?
   b) If there were issues, were people in general more tolerant of people from within
their own areas / discipline than others? Were there any examples of this? 

c) Did this affect the team’s ability to work productively together, if so in what ways?

**Leadership**

a) How would you define the term leadership? 
b) How would you define it in relation to the project team? 
c) How was leadership exercised in the team? 
d) Within the team, did you ever need to take a leadership position to represent your discipline areas practices, theoretical frameworks etc? Do you have any examples of this? 
e) Did leadership affect the team’s ability to work productively together, if so in what ways?

**Set 3: wrap up**

Finally, some wrap up questions.

1) What do you think the term interdisciplinary team means? 
2) Do you consider the group of people you worked with on the project were one? 
3) From your experiences working on this project, what do you think is required for a team to successfully develop online learning resources? 
4) Can you describe this project in three adjectives? 
5) Would you like to add any further comments?

Thank you for your time.

Meaghan.

Australian Broadcasting Corporation

Broadcast: 23/10/2013
Reporter: Annabel Crabb
Former US Vice President Al Gore suggests those doubting the link between climate change and extreme fire events are like politicians who supported the tobacco industry, and explains why he thinks that.

Transcript

Transcript has been removed for Copyright purposes. Please see http://www.abc.net.au/7.30/content/2013/s3875600.htm for video interview and transcript.
Appendix 3: Plain Language Statement

Design and Social Context Portfolio
School of Education

Project Title: Behind the screen: A collective case study of online resource development in interdisciplinary teams.

Investigator(s): Meaghan Botterill, (PhD student – School of Education, DSC Portfolio)
A/P Barbara de la Harpe (Senior supervisor: Dean, Academic Development, Academic Services – DSC Portfolio)

Dear ……………………………………………

My name is Meaghan Botterill. I am a PhD student in the School of Education in the Design and Social Context portfolio. I am inviting you to participate in a PhD study being conducted at Public University (PU). Please read this letter carefully and be confident that you understand its contents before deciding whether you wish to participate in this research. If you have any questions regarding the research or relating to the nature or consequences of your participation in this study, please do not hesitate to phone myself (Meaghan Botterill on 9925 XXXX) or A/P Barbara de la Harpe (9925 XXXX) and we will do our best to answer any questions that you might have about the research.

The focus of this research is to explore and gain a deeper understanding of the most critical issues affecting online learning resource development in interdisciplinary teams. It acknowledges the complexity of relationships and interactions often found in interdisciplinary teams, and seeks to explore how these affect online learning resource development. There is interest in this topic because of the increasing use of eLearning and online resources as part of student learning programs and curriculum development, and also because interdisciplinary teams are becoming more common in work organisation within universities.

You have been especially selected as a potential participant because in the course of your work duties here at PU, you have been involved in the development of an online resource as part of the Learning and Teaching Grant program. I am interested in your thoughts and perceptions regarding the development of this resource, particularly around working in an interdisciplinary team. This is very relevant as Information and Communication Technologies (ICT) and interdisciplinary team-based work are becoming more prevalent in both the design and delivery of education, and you are best placed to give feedback and observations about resource development.

I have obtained approval to conduct this research and approach online project teams from the Deputy Vice-Chancellor at PU. I am sourcing projects from the [date omitted] LTG projects that had an online resource as one of the outcomes. I will ensure that any information you provide in this study will remain strictly confidential. All participants will be allocated pseudonyms and no real names will be used in either collecting data, or in any subsequent write-up of the research.

I am hoping that you will help by agreeing to be part of this research. You will be requested to participate in a semi-structured, confidential interview of at least an hour to an hour and a half’s duration, and additional interviews may be requested if required. I would also like access to documents and other artefacts, e.g. appropriate working documents, conversations, rough drafts and emails if required, and the final LTG project report.

During the interviews, your thoughts and perceptions will be digitally recorded with your permission. Transcripts of relevant sections will be sent to you for checking and validation to ensure they are an accurate record of the interview. If you do not wish to be recorded, written notes will be taken through the interview and once again sent to you for checking and validation. No-one will see any other person’s transcripts or any notes recorded by the researcher. Pseudonyms will be used in any write-up of the data/research to guarantee confidentiality. The digital recordings will be stored on the researcher’s H drive and a backup copy will be stored on compact disc (CD) that only the researcher will be able to access. At the conclusion of the study, the recordings will be retained for 5 years after which they will be destroyed.

There are no perceived risks involved in participating in this research outside the risks connected with your normal day-to-day work activities. I have no direct connection with any of the online teams. I am very aware of the small potential for feelings of vulnerability in participating in a workplace study, but I will make sure that confidentiality is maintained at all times and no one will be identifiable through the research, e.g. through the use of pseudonyms during the data collection and write-up. In the event that you may feel that your confidentiality has been breached,
e.g. through observations of team meetings, please come and talk to me or my supervisor A/P Barbara de la Harpe. All efforts will be made to minimise any perceived vulnerability or confidentiality issues.

The benefits of this research are that it seeks to determine what is required in an interdisciplinary team to develop quality, online learning resources. Information gathered may be disseminated through the following avenues: publications, Professional Development sessions, professional journals, conferences and the thesis itself.

As a participant, your rights include:
- The right to withdraw your participation at any time, without prejudice
- The right to have any unprocessed data withdrawn and destroyed, provided it can be reliably identified, and providing that in so doing, it does not increase any risk on your part
- The right to have any questions answered at any time

Yours sincerely,

Meaghan Botterill

Any complaints about your participation in this project may be directed to the Secretary, RMIT Human Research Ethics Committee, University Secretariat, RMIT, GPO Box 2476V, Melbourne, 3001. The telephone number is (03) 9925 1745. Details of the complaints procedure are available from: www.rmit.edu.au/council/hrec
Appendix 4: Ethics consent form

RMIT HUMAN RESEARCH ETHICS COMMITTEE

Prescribed Consent Form for Persons Participating In Research Projects Involving Interviews. Questionnaires, Focus Groups or Disclosure of Personal Information

PORTFOLIO OF
SCHOOL/CENTRE OF
Design & Social Context
Education

Name of participant:  
Project Title:  *Behind the screen: A collective case study of online resource development in interdisciplinary teams.*

Name(s) of investigators:  (1)  Meaghan Botterill  Phone:  9925-XXXX

1. I have received a statement explaining the interview/questionnaire involved in this project.
2. I consent to participate in the above project, the particulars of which - including details of the interviews or questionnaires - have been explained to me.
3. I authorise the investigator or his or her assistant to interview me or administer a questionnaire.
4. I give my permission to be audio taped  [ ] Yes  [ ] No
5. I give my permission for my name or identity to be used  [ ] Yes  [ ] No
6. I acknowledge that:
   (a) Having read the Plain Language Statement, I agree to the general purpose, methods and demands of the study.
   (b) I have been informed that I am free to withdraw from the project at any time and to withdraw any unprocessed data previously supplied.
   (c) The project is for the purpose of research and/or teaching. It may not be of direct benefit to me.
   (d) The privacy of the information I provide will be safeguarded. However should information of a private nature need to be disclosed for moral, clinical or legal reasons, I will be given an opportunity to negotiate the terms of this disclosure.
   (e) The security of the research data is assured during and after completion of the study. The data collected during the study will be published in report form and available on the DSC Portfolio website at http://www.rmit.edu.au/dsc, and a report of the project outcomes will be provided to RMIT Student Services. Any information which may be used to identify me will not be used unless I have given my permission (see point 5).

Participant’s Consent

Name: ___________________________ Date: ___________________________

(Participant)

Name: ___________________________ Date: ___________________________

(Witness to signature)

Participants should be given a photocopy of this consent form after it has been signed.

Any complaints about your participation in this project may be directed to the Secretary, RMIT Human Research Ethics Committee, University Secretariat, RMIT, GPO Box 2476V, Melbourne, 3001. The telephone number is (03) 9925 1745.

Details of the complaints procedure are available from: www.rmit.edu.au/council/hrec

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Appendix 5: Group boundaries sheet
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HRESC
HF: HP
Building 220.4.5
Bundoora West Campus
HRESC-B: 855-07/06

20/10/2006
Meaghan Botterill

Dear Meaghan Botterill

Re: Human Research Ethics Application Approval

The Design and Social Context Human Research Ethics Sub-Committee received your amended ethics application entitled: “Overcoming the tyranny of ownership: a collective case study of collaborative, interdisciplinary team-based, online resource development”.

I am pleased to advise that the Chair has now approved your application as level 2-risk classification.

This now completes the Ethics procedures.
Approval is valid to three (3) years and expires: September 2009

You are reminded that you are required to complete an Annual/Final report, which should be forwarded to the Secretary of the DSC HRESC – B at the above address not more than 12 months from date of this letter.

Should you have any queries regarding your ethics application please seek advice from the Chair of the sub-committee Assoc. Prof. Heather Fehring on 9925 7840, heather.fehring@rmit.edu.au or contact me on (03) 9925 7877 or email heather.porter@rmit.edu.au

I wish you well in your research.

Yours sincerely

Heather Porter
Secretary
Design and Social Context
Human Research Ethics Sub-Committee
Operational Unit - Bundoora
Appendix 9: Figure 6.5 enlarged