Blunt Ambition:
Stakeholder social groups and participation in the Victorian education department’s Ultranet learning platform technology, 2003 to 2013

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ABSTRACT

This research was an archetypal case study of power relations between the Victorian Government, industry and society over 2003—2013, in the specific context of top-down initiatives to integrate information and communication technology (ICT) into education. I examined how a new kind of initiative—the Ultranet learning platform technology—was intended, perceived and appropriated by five different groups: state and education department officials, school leaders, teachers, students and parents representative of, or associated with, the Department of Education and Early Childhood Development (DEECD). Much of the literature on learning platforms is government sponsored or based on official government data and, broadly speaking, uncritical. There is little independent empirical evidence to show whether, and how, they influence the local participation practices of user groups inside and outside of school settings. My study addressed this shortfall. I employed two theories to interpret my findings: the Social Construction of Technology theory, which sees technology emerging out of conflict and the purposes of different groups; and Carole Pateman’s Participatory Theory of Democracy, which assumes groups have unequal power in shaping participation processes. I challenge a reductionist view that perceives technology as a stand-alone, value-free driver of progress, instead theorising that it is constructed, developed or sometimes rejected through multiple overlapping processes embedded in social practices. Using a qualitative, multi-group, multi-sited ethnographic approach, I collected and analysed empirical data in order to understand the “inside” perspectives and experiences of the different groups involved.

Through their specialised roles and high decision-making capacity, state and education department officials were pre-eminently influential in shaping the Ultranet’s design and therefore the kinds of web 2.0-enabled teacher, student and parent participation that emerged. School leaders’ strategies failed to effectively engage their communities with the Ultranet or develop enhanced communication and collaboration practices. Teachers’ experiences with the politically-imposed change and non-performing software led them to resist and subsequently reject the Ultranet. Student Ultranet use was sporadic and determined by their teachers. When given the choice, they invariably preferred to use dominant commercial media. Parents supported aspects of the closed platform because of the legal and safety protections it provided for their children. The uncertain and piecemeal nature of schools’ Ultranet implementation, however, rendered consistent parent involvement problematic at best. I show that the Ultranet failed because of seven factors: hierarchical power relations between stakeholder groups; conflicts of purpose between these groups;
differing expertise across and within the groups; lack of a sense of ownership leading to a negative exercise of agency (non-cooperation) of Ultranet User Groups; technical problems embedded in the materiality of the Ultranet; cumbersome legal strictures; and rigid, rule-based administrative structures. Overall, the utopian belief in the potential of the Ultranet to bring about a transformation in ICT-enabled participation was unrealistic, and its implementation failed to achieve the government’s or citizens’ desired outcomes. This research confirmed that individuals and groups adapt technologies as part of a social process to fit their purposes and cultures and recommends that governments design educational technology that allows for different forms of participatory democracy to emerge.
DECLARATION

This is to certify that:

(i) the thesis comprises only my original work towards the PhD except where indicated in the Preface;

(ii) due acknowledgement has been made in the text to all other material used; and

(iii) the thesis is fewer than 100,000 words in length, exclusive of tables, maps, bibliographies and appendices.

Veronica Fitzgerald
PREFACE

My PhD research was made possible through an Australian Postgraduate Award (APA) and an Institute for a Broadband-Enabled Society PhD Top-Up Scholarship.

Dr Campbell Aitken provided professional editing services in accordance with the Institute of Professional Editors’ Guidelines for editing research theses.
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Finally, I am indebted to my family and friends who encouraged me to enrol in a longer research project, and who continue to support my academic work.
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<th>Description</th>
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<td>AEU</td>
<td>Australian Education Union</td>
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<tr>
<td>AUA</td>
<td>Acceptable Use Agreement</td>
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<td>AusVELS</td>
<td>Australian Curriculum/Victorian Essential Learning Standards</td>
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<tr>
<td>BBC</td>
<td>British Broadcasting Corporation</td>
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<td>BECTA</td>
<td>British Educational Communications and Technology Agency</td>
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<td>Blog</td>
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<td>CASES21</td>
<td>Computerised Administrative System Environment in Schools</td>
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<td>CSG</td>
<td>CSG Services Pty Ltd</td>
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<tr>
<td>CSS</td>
<td>cascading style sheets</td>
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<tr>
<td>DEEWR</td>
<td>Department of Education, Employment and Workplace Relations (Australia)</td>
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<tr>
<td>DER</td>
<td>Digital Education Revolution</td>
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<tr>
<td>DET</td>
<td>Department of Education and Training (2014–) (Victoria)</td>
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<tr>
<td>DoE</td>
<td>Department of Education (2006–2007) (Victoria)</td>
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<tr>
<td>EAL</td>
<td>English as an Additional Language</td>
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<td>East PS</td>
<td>East Primary School</td>
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<td>EBA</td>
<td>Enterprise Bargaining Agreement</td>
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<td>FPS</td>
<td>Future Problem Solvers</td>
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<td>FUSE</td>
<td>Find, Use and Share quality Education</td>
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IBAC Independent Broad-based Anti-corruption Commission (Victoria)
ICT information and communication technology
IDAM Identity and Access Management
IT information technology
LBOTE Language Background Other than English
Lead User Ultranet Lead User
LNC Liberal–National Coalition
MCEECDA Ministerial Council of Education, Early Childhood Development and Youth Affairs (Commonwealth)
Melbourne Declaration Melbourne Declaration on Educational Goals for Young Australians
NAPLAN National Assessment Program—Literacy and Numeracy
North SS North Secondary School
OSL Oracle Student Learning
P&D performance and development
Parent “a biological parent, step-parent, adoptive parent, foster parent, legal guardian or anyone with custodial or carer responsibilities towards a child” (DEECD, 2011g, p. 5).
PD professional development
PDF Portable Document Format
PFA Parents and Friends’ Association
PMP Pedagogical Master Plan
PS Primary School
PTD Participatory Theory of Democracy
PV Parents Victoria
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<td>Regional Network Ultranet Coach</td>
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<td>Relevant social group</td>
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<td>RUC</td>
<td>Regional Ultranet Coach</td>
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<td>Social Construction of Technology</td>
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<td>South PS</td>
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<td>Science and Technology Studies</td>
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<td>UUG</td>
<td>Ultranet User Group</td>
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<td>VLEs</td>
<td>Virtual Learning Environments</td>
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<td>WAP</td>
<td>Wireless Access Point</td>
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<td>West PS</td>
<td>West Primary School</td>
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CHAPTER 1: INTRODUCTION

It is available. It’s just that many people aren’t using it.1

This research is an archetypal case study of power relations between the Victorian Government, industry and society over 2003–2013. It examines the emergence of the Ultranet integrated learning platform technology, a state-of-the-art Victorian Department of Education and Early Childhood Development2 (DEECD) initiative, from the perspective of five different groups—state and education department officials, school leaders, teachers, students and parents—representative of, or associated with, the DEECD system. I trace the Ultranet project over 10 years from its early beginnings in 2003, to the awarding of the tender in 2009, through to the end of 2013 when it was decommissioned as a fully funded DEECD program.

As the quotation above confirms, the Ultranet system “worked” in that it was accessible in all government schools via state-funded infrastructure. The initiative, however, generated considerable political and financial turmoil: 60.5 million dollars was allocated to the project in the 2007–08 Victorian state government budget, but expenditure was estimated to have increased almost three-fold, to 180 million dollars, by June 2013 (State of Victoria, 2007; Victorian Auditor-General’s Office, 2012).3 This cost was in addition to the 1.6 billion dollars DEECD spent on the provision of information and communication technology (ICT) in schools between 2003 and 2012 (Victorian Auditor-General’s Office, 2012, p. 2). Moreover, the Ultranet was intended to be an online learning, teaching and administration system that would integrate education services across government schools and homes but DEECD’s data from February 2011 to September 2012 reveals that, at its peak, just 10% of students and 27% of teachers logged into it. This equates to just 4.2% of the anticipated audience of over 1.5 million users. Further, from November 2010 to August 2012, in over half of Victoria’s 1,587 schools fewer than 5% of students logged in, and this percentage reduced over time (Victorian Auditor-General’s Office, 2012). Making the Ultranet available had not automatically resulted in its widespread adoption. Parents constituted the largest potential group of Ultranet users, with over one million eligible to register, but DEECD declined to provide any parent usage data

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1 Aly, central DEECD official, interview, January 30, 2013.
2 The Victorian education department underwent a series of name changes from 2003 to 2013, the dates of interest in this particular study: Department of Education & Training (DE&T) (2002–2006), Department of Education (DoE) (2006–07) and Department of Education and Early Childhood Development (DEECD) (2007–2013). In 2014 it was renamed as the Department of Education and Training (DET). Throughout the thesis I use the terms Department of Education and Early Childhood Development (DEECD) and the education department interchangeably.
3 The total Ultranet investment may have been as high as 240 million dollars (IBAC, 2016).
to Victoria’s Auditor-General. My empirical findings suggest that the fraction of parents who were given some opportunities to use the Ultranet welcomed the opportunity to be more involved in their children’s learning. In assessing outcomes against targets, only one of the six DEECD government commitments relating to the Ultranet had been met by the end of 2012 (Victorian Auditor-General’s Office, 2012). The Ultranet’s impact can also be evaluated through scrutinising public policy, where a distinct pattern of short-termism is evident in the history of ICT adoption by both Labor and Liberal–National Coalition (LNC) Victorian state governments (DEECD, 2008; State Government Victoria, 2013).

Statistical reports showing average annual and monthly numbers of individual or school logins, public spending on ICT and summaries of achievement of performance targets are all useful tools to inform future education policy development. We can also benefit, however, from qualitative approaches that produce data that is closer to lived experience in order to understand the Ultranet’s significance in the everyday lives of individuals and groups; that is what I set out to do in this research. A major and costly public initiative such as the Ultranet requires a thorough evaluation of whether the aims of the initiative were achieved, what problems were encountered, and how mistakes might have been avoided.

Changing dynamics of interaction between governments, public officials, associations, pressure groups, school leaders, teachers, students and parents are shifting the role of schools within society. As with other public service institutions, Internet-based connectivity significantly changes the way citizens access information. Government departments, like most commercial, industrial and societal organisations, are migrating from paper-based systems operating out of physical buildings to electronic files and documents accessible via the Internet through personal digital devices, enabling information and services to be retrieved from different locations. In the same way, communication and learning can take place almost anywhere, anytime, with online technology allowing the user to obtain services remotely and out of hours. This extends the formal structure of schooling, and in effect makes at least some resources continuously available to students, teachers and parents. These examples are consistent with the Victorian Labor Government’s 2010 Government 2.0 policy framework to drive changes in citizens’ behaviour and attitudes toward use of new communication technologies. Its action plan stated:

The application of the underlying principles and approaches of Web 2.0 are redefining how people communicate and are transforming the web into a platform of participation and co-production. This transformation extends to the public sector
where Web 2.0 tools can deepen democratic processes through participation; support policy development through open consultation; and tailor the delivery of services to meet citizens’ needs for personalisation and choice (State Government Victoria, 2010, p. n.p.).

This redundant web 2.0 policy agenda reminds us that new forms of social and technological web-based applications are deeply interrelated with government objectives of their time.

Features of modern communication—continuous connection, the increasing irrelevance of physical buildings, and increased access to ever-more information—can also be seen in education settings. For example, universities have embraced remote delivery for many of their undergraduate and postgraduate courses, rendering their program less bound by space, place, time or people (Kennedy, Judd, Dalgarno, & Waycott, 2010). Indeed, entire units of curriculum and assessment are accessible asynchronously, with students able to log into personal eLearning spaces and open up an information hub hosting the full curriculum needed to complete their qualifications (Empson, 2013). In competitive global higher education environments, attracting, retaining and successfully producing lifelong learners in this way translates into new university funding models, as students are increasingly required to pay for their degree or further professional training.

Global education technologies have grown quickly as governments search for new ways to reform the education system. Whilst technology adoption has been very significant at a tertiary level, school students are also experiencing greater uses of education technologies. Between 2009 and 2012, an increasing number of technologies became available in Victorian primary and secondary schools, including free Internet, desktop, laptop and tablet devices, digital cameras, recorders and sound equipment, electronic whiteboards, data loggers and even tabletop computer displays. Children could access a range of hardware from transnational corporations including Apple, Microsoft, Intel, Lenovo, Sony and Hitachi. Moreover, content was available in two forms: commercial licensed software applications available on DEECD devices through eduSTAR, a standardised technology platform (DEECD, 2011a), or web-based services and applications, such as Google, YouTube and other web 2.0 programs. Local intranets also acted as school-based resource repositories for lessons and assessment tasks.

European governments introduced extensions to localised school intranets, in the form of more ambitious learning platform technologies, in the early 2000s (European Schoolnet, 2010;
Office for Standards in Education Children’s Services and Skills (Ofsted), 2009. Jewitt, Hadjithoma-Garstka, Clark, Banaji, and Selwyn (2010) define a learning platform as “an integrated set of interactive online services that provide teachers, learners, parents and others involved in education with information, tools and resources to support and enhance educational delivery and management” (p. 4). What is new is that these technologies are not localised but web-based, integrating previously separate modules such as Virtual Learning Environments (VLEs), management information systems, information repositories and word processing tools, into one online secure space (Jewitt et al., 2010). VLEs are used extensively by students in other institutions, such as universities, and more recently their communication potential for school students has also been recognised (Burnett, 2011; Condie, Munro, Seagraves, & Kenesson, 2007, pp. 52-54; Coopman, 2009; Younie & Leask, 2013).

The introduction of the Ultranet into the Victorian public school sector is an example of a government intervention to move a part of society in a particular direction. Because the Ultranet was new for everyone in Victorian school communities, there was a unique opportunity to study its adoption from the beginning. My research began shortly after the Ultranet’s initial roll-out. I wanted to determine if, and how, DEECD policymakers’ vision for the Ultranet cohered with the actuality of its implementation, and to understand the perspectives and experiences of the different groups involved. I anticipated that the Ultranet’s role and meaning would vary across locations and schools depending on how different groups saw its value and purpose and managed issues associated with its implementation and use. I was aware from my own experiences of working in education support that a range of technology was already being used in schools and that those participating in the system had diverse skills and experiences. I wanted to understand the processes involved in participation and the decisions of individuals and groups in their response to, and embrace or rejection of, the Ultranet. I reasoned that tracing the Ultranet’s genealogy from multiple actor perspectives would show how it was constructed and shaped by the complex interrelationships between technology, users and society, and was therefore a key aspect of this project’s design.

Clarification of terms

As formal processes of education are widened to include new communicative spaces providing different forms of interaction, I approached technologies as part of the material and social contexts of classrooms and homes, not as separate from the everyday lives of people. Throughout the thesis, I adopt the definition that technologies are “a member of a class of
objects designed for specific purposes” (Gee Bush, 2009 [1983], p. 115). I chose to adopt this particular definition because it challenges a commonly held view that technologies are mere tools (Gee Bush, 2009 [1983]). While technologies allow people to construct their work and pastimes in meaningful ways and are a part of human intelligence, they also have a life of their own within environments, and are experienced by individuals within these life contexts as part of a given, cultural facticity. This especially applies to children, for whom digital technologies are not new but simply taken for granted. I chose to see the Ultranet as part of their environment, not as something abstracted from the broader social and cultural contexts or existing in opposition to concrete practices.

Mid-20th-century accounts that viewed culture as internally homogenous, and in which actors participated in institutional processes in set ways each and every time, have since been discredited within anthropology (Geismar, 2012, p. 15; Ginsburg, Abu-Lughod, & Larkin, 2002). I define culture as an ongoing process of interrelation, impacted by external processes and constantly negotiated by participating actors through their practices (Bourdieu, 1990 [1980]; Grenfell et al., 2012). More specifically in the context of schools, I suggest that the concept of culture has broadened to include wider social structures and participation practices involving technologies.

The meaning of “participate” provided in a standard dictionary definition is to “take a part or share (in)” (Concise Oxford Dictionary, 1991, p. 867), but the concept of participation in social theory is complicated by power, context and intra-relationship dynamics. With changes to formal education, in part seen through the development of educational technologies and online learning materials, I argue that the term “participation” could be broadened to include the communicative processes between people, practices and technologies. Further, participation is framed and reframed in different ways to meet the specific purposes and positioning of interest groups with differing power (European Schoolnet, 2010; Ito et al., 2010; Livingstone, 2010). For instance, the push for a participatory learning culture in education through technology intervention is a political initiative. Turned into a generic product, technology can be distributed across the school sector, with principals given the authority and responsibility to implement it for less powerful groups. I thus note that some conditions may restrict or limit active participation—defined here as participation capable of eliciting a systemic change—for some groups. But the web of relations in the social field of education is nevertheless dynamic and changeable, including and especially the space that the system makes available for the active participation of less powerful groups of agents.
Schools have an important role in the social construction of human relations. I conceptualise school participation through analysing the practices that individuals and groups engage in and by paying close attention to their experiences, choices and decisions in and out of physical school settings. In classrooms and homes, sets of relations are continuously constructed and performed. The idea that individuals (including children) have freedom to act at all times without others having influence over their actions accounts for only one side of the dialectic. By ‘dialectical’ I mean the idea that a process has two independent and seemingly contradictory principles operating at the same time and in the same system that are inextricably and dynamically linked. In discussing the digital, anthropologists Miller and Horst (2012) draw on Hegelian philosophy and the principle of the dialectic to argue that “it is an intrinsic condition of digital technologies to expand both [abstraction and differentiation], and the impact is also intrinsically contradictory, producing both positive and negative effects” (p. 11).

I place individuals in a dynamic relationship, in which both sides interact with one another and the technology. For example, students gain voice by using technology independently and interdependently to build their knowledge and through learning how to critically evaluate the information they find. Simultaneously, teachers and parents build technology skills and knowledge through working with children and share a goal to develop deeper relationships with each child in their care. This is a multi-dimensional view of what is possible through active engagement in shared participation practices that support individual empowerment.

Participation is political in an information society that promotes the “age of technology” as necessary and as vital evidence of human progress (Garnham, 2000). Throughout this thesis, I therefore define participation as a cultural process that generates and reflects human intention and the social structures in, and through, which human action takes place. Thus, a dialectical concept of participation is applied to the empirical data to explain how, and in what ways, Ultranet practices are influenced by those who constitute the local school community, while also taking into account the wider social space that shapes these practices.

For the purposes of my study, I approached Ultranet users as workers and interpreted the school and the Ultranet as a workplace. The concepts of worker and workplace are relevant to new media environments and web 2.0 platforms in which actors—in this case teachers, students and parents—produce, consume and circulate knowledge and make the decentralised infrastructure that they participate in rather than being passive recipients of technological inventions (Bruns, 2008; Fuchs, 2010). Further, recent ethnographic research
argues persuasively that the online is just as much a place as the offline (Boellstorff, 2012; Miller, 2012b) and reveals increasing integration between the home and workplace, especially with regard to accessing work anywhere, anytime (Horst, 2012). Similarly, workplaces and work practices have changed with the widespread use of personal technologies (Broadbent, 2012). These notions of ICT-enabled participation are helpful in analysing the adoption of specialised digital technologies and practices into locations such as schools, homes and online places.

**1.1: THE “BIG IDEA” OF THE ULTRANET**

The DEECD promoted the Ultranet as a technology to transform and reinvigorate Victoria’s public education system and add value to the already considerable infrastructure funding and resources committed to digital technologies in schools (DEECD, 2010d). It intended the Ultranet to:

(i) improve education, communication and administrative management;

(ii) engage a growing and diverse range of actors in using web 2.0 technologies in a protected and secure interface; and

(iii) provide a single online space to aid teacher planning and collaboration and enable individual student data tracking and reporting (DEECD, 2009, 2010k; Victorian Auditor-General’s Office, 2012).

The Ultranet’s virtual classroom environment was signalled as “the classroom without walls” in the e5 Instructional Model teacher journal and as “The Big Idea” connecting or linking people, ideas, places and spaces across Victoria in a multimedia online interactive video (DEECD, 2010j, p. 7; 2011f, p. n.p.). Along with two other major ICT initiatives DEECD delivered in 2010—Find, Use and Share quality Education (FUSE), a content repository and the Ultranet’s library, and the Identity and Access Management (IDAM) system, for users to securely register and activate their Ultranet account—it was championed as a “new reality” (DEECD, 2010j, p. 5). This framing builds on the claim that new eras arise as technical innovations advance (Wajcman & Jones, 2012).

The accountability of governments to deliver on election promises forms a key plank in transparent democratic processes (Dunleavy & Carrera, 2013; Victorian Auditor-General’s Office, 2012). A commitment of the Victorian Labor government in 2006, the Ultranet was expected to be simultaneously operational in every government school by term three (July—
September) 2010, a critical time as a state election was due in November 2010. For the Ultranet to work optimally, DEECD had to install high-capacity broadband and a free, centralised Internet service in every school. For many, this required wireless upgrades and the installation of DEECD’s eduSTAR software and the Ultranet-compatible Internet Explorer browser on school servers and computers (DEECD, 2010f, n.d.). Further, DEECD provided every school with access to Ultranet coaches and teacher training opportunities to “ensure that the full benefit of the Ultranet would be realised for every user” (DEECD, 2010f, p. 2). Once in place, DEECD officials hoped all these components would support their Ultranet vision (as outlined in Chapter 4), but they did not guarantee a problem-free outcome. Indeed, a crisis occurred at the Ultranet’s symbolic launch on August 9, 2010, a statewide pupil-free teacher professional learning day, when it would not load on school networks due to technical problems.

CSG Services Pty Ltd (hereafter CSG), a Northern Territory-based business software developer and the successful Ultranet tenderer, claimed it to be "the first true enterprise solution deployed in P-12 education in Australia, and is one of the first systems in the world to offer such a high level of functionality to students, teachers, parents and administrators" (CSG Services Pty. Ltd., 2011, p. n.p.). The Ultranet software was hosted centrally on DEECD’s server and managed in conjunction with CSG. It included three modules: “Content Management”, “Collaboration” and “Teaching and Learning” (see Figure 1). Content Management and Collaboration formed Ultranet Release 1 and included web 2.0 technologies, seen to encourage system-wide collaboration. The Teaching and Learning component was added in Ultranet Release 2 and included prescribed Oracle Student Learning (OSL) technologies, designed to provide sophisticated data sets to improve planning for, and tracking of, individual student progress. Minor upgrades, modifications to functionality and bug fixes continued to be released to meet the terms of DEECD’s contract with CSG until the Ultranet project lapsed.

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4 As outlined in Chapter 4, an investigation found the evaluation and awarding of the tender to be a corrupt process (IBAC, 2016).
Release 1 promoted the Ultranet’s compatibility with web 2.0 type applications as a way to enable greater sharing of information and ideas between teachers, students and parents across different places and contexts and help teachers support students in their “communicating, sharing and reflecting” on learning (DEECD, 2010f, p. 16). It featured a range of multimedia communication applications including web logs (blogs), wikis, slide shows and image galleries. These were envisaged to facilitate changes in classroom practices and were seen by DEECD officials as adding a different, beneficial dimension to existing teaching and learning activities. In particular, blogs could be integrated into existing classroom settings and teaching activities, especially in schools that already used ICT extensively in their curricula. Blogs and wikis were seen as enabling “more active participation and questioning by students, and deeper understanding of topics as a result of sharing facts and dialogues” (DEECD, 2010k, p. 18). Release 1 was designed to promote the idea of users’ agency over their choice of communication media.
CHAPTER 1: Introduction

Release 2 offered a highly developed capacity for data analytics. Over time, DEECD officials envisaged that the Ultranet would provide comprehensive insight into a range of measurable variables across, and within, all Victorian schools that would confirm improvements in teaching and learning system-wide and reinforce Victoria’s global reputation in education. Through the OSL module, it was claimed, school leaders could collect and analyse data to plan for school improvement and teachers could continually monitor student learning (DEECD, 2011b). Because much of the existing data was aggregated and generalised, the more sophisticated individualised data available through the Ultranet had greater advantages; through it, teachers could link curriculum standards to learning items, helping them to assess a student’s progress against each curriculum level (DEECD, 2010g). A central DEECD official, Tori, explained the advantage of being able to track individual student learning more effectively:

> We are putting the student at the centre of the technology so we wanted an enterprise-based system so that information about a student would follow them from year level to year level, from school to school, so we actually start to paint a picture for every student of a learning journey over time.5

As it was deemed important for those in the system to understand learning from a student’s perspective, student-centredness was at the heart of the Ultranet’s “Big Idea”. Release 2 highlighted the dual purpose and flexibility of the Ultranet to support both teaching and learning and provide higher quality data for schools and the system. Paradoxically, however, as I will illustrate further in Chapter 6, teachers came to see these Ultranet features as a threat as more information about student achievement, teachers’ professional development and teachers’ patterns of ICT use became available to central and regional DEECD, networks and school leaders.

Central DEECD officials strategically managed Ultranet releases, using different justifications for each, but with the overall goal to change the way in which people participated in the education system. The Ultranet project highlights the complex relationship between the bureaucratic requirements of transparency, accountability and privacy and the professional values and practices of teachers.

Potentially, Ultranet citizens included all members of the Victorian school community—over a million parents, 540,000 students and 54,500 teachers—automatically linked because of their affiliation with DEECD (DEECD, 2011c, p. 21; 2011f; Salinger Privacy, 2010). Ultranet users were

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5 Tori, central DEECD official, interview, December 9, 2011.
able to use a range of interactive collaborative and community spaces depending on their membership status. The Ultranet site was password protected, with every user, even the youngest children at Foundation level, requiring individual login information. Because membership of Ultranet spaces was regulated, users and their transactions were personally identifiable by an administrator, although lateral visibility was limited for privacy reasons. For example, parents could not be members of any Ultranet spaces allocated to children. Teachers were required to moderate any collaborative or community learning spaces students created, but students of any age could join, or request to join, these spaces. Ultranet spaces could be set up as “Open”, “Restricted” or “Private”, with each type of space designed for specific audiences and selected by teachers to effect particular strategies (DEECD, 2010). Open collaborative learning spaces enabled users to create, retrieve and access learning resources and provided the broadest form of participation.

In this section I have unpacked DEECD’s “Big Idea”. Fundamentally, it was to embed the Ultranet learning platform and personalised learning in flexible and open classroom spaces as part of a globalised 21st-century teaching and learning reform agenda striving for system-wide improvement through pedagogical change. To play their part, schools were required to meet government and system demands and develop locally-based Ultranet responses in their communities. Within this idealised scenario, however, some groups had more power to act than others. I analyse this issue throughout the thesis to explain how five distinct groups of Victoria’s DEECD stakeholders constructed the Ultranet.

1.2: THESIS OUTLINE

Chapter 2 sheds light on the broader problem of governments’ attempts to integrate technology into education and the ways in which different groups participate in technology development and with what outcomes. In Part 1 I review three distinct literatures—education, social science, and media and communication—to evaluate the power relations between technology, users and society as they relate to the Ultranet case study. Part 2 introduces and clarifies the two theoretical frameworks selected—the Social Construction of Technology (SCOT) theory and Carole Pateman’s Participatory Theory of Democracy (PTD)—that allowed me to focus on the process of participation and differential power of groups and the conflicts between them, and helped to explain the Ultranet failure I subsequently encountered. For each theory, I emphasise the protagonists’ main arguments, identify the critical elements of discussion and conclude by indicating what these theories contribute to our understanding of
the moral, social, political and technical aspects of the construction of the Ultranet, and the role of individuals and groups as they acted in particular ways and in particular contexts to meet their interests and goals.

Chapter 3 presents a description and justification of the research design and methodological approach selected to answer this problem. I conducted a qualitative, multi-sited, multi-group and long-term ethnographical study to determine how five groups—state and education department officials, school leaders, teachers, students and parents—constructed the Ultranet technology. Over an 18-month period in the field, I combined participant observation with other qualitative data collection methods including fieldnotes, open-ended interviews, focus groups, documents and material artefacts in online and offline sites that included schools and homes.

Chapter 4 is the first of the empirical chapters and is concerned with those individuals and groups who had high-level decision-making and policy development roles in the Ultranet project. It illustrates the connections between government policy, central DEECD officials’ Ultranet goals, and the problem-solving strategies these officials adopted in response to four key issues. Although the Ultranet project sought to change the way school communities participated in education, I argue that the nature of such participation was heavily aligned to institutional goals formed of bureaucratic and technocratic mindsets. Using the SCOT and PTD frameworks, I show how individuals and groups operating at state, education department and commercial levels were driven by their own particular concerns. The challenges central DEECD officials faced and managed during the Ultranet design process highlight how their problem-solving strategies and decisions were made within a complex hierarchy of social groups.

In Chapter 5 I explain how the Ultranet was implemented by school leaders in two similar primary school communities and how their beliefs, perceptions, goals and practices influenced subsequent Ultranet participation. I show how school leaders’ decision-making approaches shaped the Ultranet’s construction in their schools. Both schools’ leadership teams were adopting and using the learning platform in ways consistent with official DEECD Ultranet aims but also in order to fulfil their own goals. I further show how school leaders viewed the Ultranet as a technology to more easily manage, organise and update school documents, improve home–school communication practices and as a common space where teachers could share teaching plans with colleagues. I synthesise the empirical data analyses with the SCOT and PTD frameworks to illustrate how the convoluted trajectory of the Ultranet deployment resulted in only minimal increases in participation in local school communities.
Chapter 6 directs attention to teachers’ implementation of the Ultranet. Teachers were central to the Ultranet’s construction and the most important group to convince of the Ultranet’s efficacy if DEECD was ever to realise its goal of transformational social and educational change. In this chapter I examine the ways in which teachers in two primary schools and one secondary school responded to the Ultranet intervention and show how teachers’ experiences, beliefs and decisions shaped their social, institutional and professional uses of the Ultranet. I conclude that teachers elected not to use the Ultranet unless school leaders required it or they saw it as important in their personal professional practice. Again, I draw on the theoretical perspectives of the SCOT and PTD frameworks to show that teachers’ construction of the Ultranet was a contested process. Their choices were influenced by political, professional, social, ethical and technical factors, highlighting the contingent nature of the Ultranet.

In Chapter 7 I expand my argument through an analysis of how students aged between eight and 14, from three different schools, used and responded to the Ultranet. I address two important questions: to what extent did use of the Ultranet help students achieve their individual and group goals, and what new social structures did they develop through their Ultranet use (if any) that helped broaden their participation and citizenship? I argue that the Ultranet supported a model of participation based on hierarchical power relations, legal strictures and technical problems embedded within its materiality that worked against allowing students to drive the change. Finally, I interrogate the findings through the SCOT and PTD frameworks to show how social factors—including how their peers and other social groups, especially teachers, used it, and what they said about it—influenced students’ interpretations of the Ultranet.

Chapter 8 is the final chapter of empirical findings. It details parents’ response to, and uptake of, the Ultranet, predominantly focusing on parent Ultranet uses in two primary schools. DEECD strongly promoted the idea that the Ultranet would support parents to develop new skills and participate in a statewide Victorian school community, but to little avail. Schools did not invite their input into decisions about its use nor make relevant content available through it. In some cases their participation was denied. In the last section of the chapter, I analyse the empirical data through the SCOT and PTD frameworks to explain why the Ultranet’s design, together with the minimal parent involvement in decision-making around its use in schools, acted against parents becoming more knowledgeable about the issues shaping their children’s education.
Chapter 9 presents the findings of my research, showing how multiple stakeholder groups intended, perceived and appropriated the Ultranet in public education. Briefly in advance, I conclude that main reasons for its failure were: hierarchical power relations between stakeholder groups; conflicts of purpose between these groups; differing expertise across the groups; lack of a sense of ownership leading to a negative exercise of agency (non-cooperation) of Ultranet User Groups; technical problems embedded in its materiality; cumbersome legal strictures; and rigid, rule-based administrative structures. Flawed implementation strategies, together with the platform’s inherent shortcomings, meant that the major relevant stakeholder groups of school leaders, teachers, students and parents were not convinced of the Ultranet’s educational or social value. I reflect on the theoretical approaches adopted, provide recommendations to system leaders from lessons learnt, and finally explore some ideas on future education technology developments.

In the following chapter I review the literature and theory relevant to my study of the Ultranet.
CHAPTER 2: LITERATURE REVIEW AND THEORETICAL FRAMEWORKS

In this chapter I introduce and discuss literature and theory that sheds light on the problem of power relations between the state, industry and society as they play out in the specific context of top-down initiatives to integrate technology into education. This problem has three key dimensions: the sometimes competing and sometimes overlapping interests of state and industry in shaping society, the special significance of education in the making of citizens and consumers, and the active role of society—in this case teachers, parents and students—in the conception and the success or failure of such initiatives. In Part 1 of this chapter I discuss a range of interdisciplinary literature relevant to this topic. Part 2 introduces the two theoretical frameworks used in this study, starting with the Social Construction of Technology (SCOT) theory and then Carole Pateman’s Participatory Theory of Democracy (PTD). For each theory, I emphasise its proponent’s main arguments, identify the critical elements of discussion, and conclude by indicating how these theories enhance our understanding of how learning platform technology influences hierarchical relationships, communication and participatory opportunities for those involved in the Victorian education system.

2.1: LITERATURE REVIEW

I have reviewed three distinct literatures—education, social science and media and communication—to evaluate the power relations between technology, users and society as they relate to the Ultranet case study. The problem of how citizens can increase their participation in the digital age is complex because of the number of competing disciplines and interdisciplinary questions. First I outline a key debate questioning the use and purpose of technology in education. Second I discuss technology from a social science perspective, describing the interrelationships and power struggles between groups. Third, I focus on the media and communication literature, particularly in relation to a debate in youth studies about including web 2.0 technologies into young people’s formal education environments.

Digital technology uses and new forms of participation in education

An ongoing debate dividing educationalists concerns the position of participatory education technology in a democratic society. Is it a new medium teachers, parents and students can use to meet their goals or do governments employ it to set agendas and to shape institutional relationships and its citizenry in particular ways?
CHAPTER 2: Literature Review and Theoretical Frameworks

Recent research has examined the strategies governments have adopted in their attempts to integrate information and communication technology (ICT) into teaching and learning. The “new” learning promoted in the literature is personalised, flexible and adaptable, with emerging knowledge seen as dynamic and highly relevant to 21st-century educative contexts (Carrington & Marsh, 2008; Cisco Systems Inc., 2008; Howard & Maton, 2011). Such environments are also seen as conducive to technology practices that support children to develop into active citizens (Buckingham, 2007b; Drotner, 2008; Mitra, 2003). A recurrent theme promotes educational technology as a “silver bullet” or the “missing piece of the puzzle” that will solve the problems faced by a rapidly changing society that requires ICT skills, networked computing and associated scientific knowledge (Facer, 2011; Facer, Furlong, Furlong, & Sutherland, 2001a; Selwyn, Potter, & Cranmer, 2010).

Government-funded digital technologies are also framed in the knowledge economy policy discourse and in closely related national and state education agendas as having the capacity to transform education and meet these “new” social, educative and economic needs (Dunleavy & Carrera, 2013; Gonski et al., 2011; Hammond, 2014; Marginson, 2011; Office for Standards in Education Children’s Services and Skills (Ofsted), 2009). A characteristic of the knowledge economy is a shift from a society focused on material production, to one concerned with what, and how, knowledge is produced (Fuchs, 2010; Garnham, 2000). How consistently this discourse has been promoted can be seen from the increased use of Internet-enabled digital technologies in classrooms and homes over recent years and the growth of global education technology businesses and software companies (BECTA, 2006; Condie et al., 2007; DeNicola, 2012; Horst, 2011). For example, in Australia in 2009, access to computers and the Internet at school and at home was very common and continues to grow, although varying relative to socio-economic background (Thomson & De Bortoli, 2012).

Integrating newer technologies into teaching and learning is a major challenge for governments, not least because of infrastructure and resource issues. As Internet-based technologies utilising web applications have become more common in schools, so improvements in the speed and capacity of infrastructure have been required to meet growing demand. This is an iterative process, embedding technology into systems in complex ways to improve organisational efficiency (Arthur, 2009). Whatever the desirable social and economic outcomes, the overall aim should be to use technology to improve teaching and learning. At a national level, the Australian Government is investing heavily in broadband capacity to homes and schools to support social equity and enable citizens to better participate and compete in
emerging knowledge economies (Department of Broadband Communications and the Digital Economy (DBCDE), 2011; Marginson, 2011; Nansen, Arnold, Wilken, & Gibbs, 2013). Inherent in the government’s belief is that the success or failure of a technology is shaped by technical and economic factors.

Some technologies are seen as more easily embedded into education than others. Learning platforms are in the early stages of development and have been specifically encouraged by governments to overcome persistent problems in the integration of ICT into schools and homes. Part of the practical appeal of centralised learning platform software for governments is uniformity; it operates within an existing set of standards, rules and control mechanisms, as distinct from individually-managed server-based infrastructures such as school intranets. Much of the literature on learning platforms is government sponsored or based on official government data and is descriptive and uncritical, promising new forms of participation for the various key actors in schools (European Schoolnet, 2010; Jewitt, Clark, & Hadjithoma-Garstka, 2011; Jewitt et al., 2010; Office for Standards in Education Children's Services and Skills (Ofsted), 2009; Selwyn, Banaji, Hadjithoma-Garstka, & Clark, 2011; Younie & Leask, 2013).

There is little independent evidence, however, to suggest that centrally-managed education department learning platforms improve the local participation practices of teachers, students and parents inside and outside of school settings. With learning platform technology conceptually combining school and home, integration problems arise in both spaces.

A study that did find a positive correlation between uses of a government learning platform and improved student, staff and parent participation was undertaken by Jewitt et al. (2010). The UK government’s advisory body on ICT and e-strategy in schools, the British Educational Communications and Technology Agency (BECTA, 2011) evaluated learning platforms’ adoption and use, from their introduction in 2005, in 12 award-winning ICT-rich schools (Jewitt et al., 2010). Researchers found that each school had developed their learning platforms from a “bottom-up” rather than a “top-down” perspective, resulting in considerable variation in how they applied the technology to learning and school management tasks (Jewitt et al., 2010). More specifically, learning platforms were seen to support collaborative learning and provide increased opportunities for professional discourse, sharing of information and planning and monitoring of learning (Jewitt et al., 2010). The authors explain, however, that learning platforms were a central part of schools’ ICT use because of the UK government’s mandatory policy that required them to be introduced within a specific time frame (Jewitt et al., 2010), suggesting a stronger political than pedagogical motive.
Part of the difficulty in measuring the impact and overall effectiveness of learning platforms relates to the complex nature of learning platform activities and a lack of evaluation criteria. In questioning the aspirations and the inevitability of the assumptions of ICT policy in UK schools, Hammond (2014) explains the difficulty in rigorously testing and gaining evidence on learning platform efficacy when social networking activities are an object of study (Hammond, 2014). Moreover, the complexity of learning platform design, which combines multiple strategies across convergent learning environments, makes it difficult to critically analyse the value of individual modules within the whole software or in particular contexts (Passey & Higgins, 2011). Even so, governments continue to design learning platform technologies to reinforce institutional hierarchies and to control and manage information and curriculum resources linearly, by teacher position of responsibility or student age, for example (European Schoolnet, 2010). Indeed, such instrumental uses of technology appear to be a key motivation for governments in Western education systems, rather than promoting ICT to build more equal partnerships between educators and families. What we do not yet know is how (or if) increased ICT use shapes the democratic participation of students, parents, teachers and the wider community. While we do live in a society heavily influenced by media technology, the origins, usage and destiny of such technology is contingent upon the active aspirations, expectations, needs and responses of governments and citizens (Facer, 2011; Geismar, 2012; Grenfell et al., 2012; Passey, 2013; Selwyn et al., 2010; Somekh, 2004).

Observations that technology has more impact on young people’s lives at home than at school have led some education researchers to suggest radical changes to encourage more meaningful ICT participation at school (Facer, 2011; Somekh, 2004). Although Somekh is optimistic about the capacity of individuals to participate more in learning through technology in their homes, she argues that schools need to make a fundamental break from their established practices and value systems. Her analysis of school-based social relations is that they act to reinforce an institutional system with large-scale resistance to change. Somekh comments that the nature of ICTs, and the Internet in particular, work against their integration in teaching because they are interpreted by schools as destabilising to existing routines and control mechanisms (Somekh, 2004). Reflecting on what she sees as the lack of impact of educational technologies in the UK and US over the past 20 years, Somekh’s pessimism comes from a synthesis of theories on institutional functioning that she adapts to analyse the pattern of institutional barriers in a digital age. From a public value-for-money perspective, she suggests that multiple and deeply interrelated factors will continue to contribute to the non-impact of ICTs in schools and the ongoing reproduction of chronic conditions as newer
technology is introduced. She argues that these dynamics, defined as “mechanisms of mutual constraint”, disadvantage all individuals from participating fully in schools (Somekh, 2004, p. 168). Others have raised similar qualms about the purpose and effectiveness of ICT in contemporary education (Apple, 1997; Hammond, 2014; Oliver, 2013; Selwyn, 2010; Selwyn, Johnson, Bulfin, & Henderson, 2013). These views raise significant questions about the wisdom of further public investment in technology. Further, it cannot be assumed that all technologies are equal or that they can enable equivalent or significant transformations in social relations if the right conditions in schools were present. Even if particular technologies enable users to enact their agency positively, individuals’ and groups’ resistance to change may preclude improvements in the way in which people participate in new communication media platforms.

In summary, I have argued in this section that governments actively promote education technologies as ways to improve education. The inability of the system to successfully integrate ICT into the institution of the school, however, together with the hierarchical and political design of learning platform technology, has hindered progress toward this goal and highlighted a division between home and school participation rates. This literature shows that social structures such as authority, legitimacy and culture strongly affect technology uptake.

_A debate in social science about how groups participate in technology construction_

In the social science literature, participation is framed as an interdependent process affecting how society works. Here, governments and citizens are seen as having obligations toward one another, expressed through individual and group social relations and based on ideals, values and regulated behaviours. An unresolved debate, however, revolves around two questions: whose interests or ends are being pursued through the adoption of new technologies such as learning platforms in education and does participation in learning platforms benefit all individuals or groups or act to reproduce existing hierarchical relations in education?

Governments encourage parental involvement in their children’s education, as reflected in the creation of public policies that promote home access to technologies. For example, the Australian government’s _Digital Education Revolution_ (DER) “parent portal initiative” advocates that parents ought to be able to access and monitor their children’s online learning via interactive portals or “windows” in its “anywhere, anytime” access strategy (Ministerial Council on Education, 2008b; The Commonwealth of Australia, 2009). In government literature, new technologies such as learning platforms are strongly linked with the goal of increasing parent voice in schools and in their children’s learning (BECTA, 2009). Indeed,
learning platforms are promoted as dynamic forms of learning and communication media that enable more direct engagement by parents and broaden home school relationships. Research shows, however, that they have been predominantly used as content repositories for storing and preserving captured data or to reinforce existing channels of communication for parents to interact with schools (Grant, 2009; Selwyn et al., 2011; Tatnall & Dakich, 2011). Further, Selwyn et al. are critical in their assessment of learning platforms, revealing that their uses have had minimal impact on parent engagement, even excluding them from professional conversations about their children (Selwyn et al., 2011). They argue that in order to achieve an organisational cultural shift in power relations, schools need to adopt more parent-centric methods in their uses of learning platform technologies (Selwyn et al., 2011). There is clearly support for more technology resources in schools, but, despite the lack of evidence of how learning platforms are actually used in practice, policy makers seem convinced that they will achieve positive outcomes. A difficulty here is that parents’ social construction of new technologies and their free negotiation in the context of family life is challenged by the introduction of a state-initiated learning technology platform. How schools can adapt learning platform technology to optimally engage with parents and families is a question yet to be answered.

As a social group, parents rely on teachers to share information with them about their children’s learning and school processes. Even though social policy views parental engagement as desirable, it is unclear if those inside schools see parents as a local group with their own particular set of concerns or as part of the education system and partners in learning (Facer & Thomas, 2012). Either way, parents are often seen as content to operate within existing frameworks so long as their core concerns about safety, privacy and the education of their children are addressed. Grant (2009) framed parents as, paradoxically, having a direct interest in their children’s education yet operating indirectly in schools. She points to the value of encouraging parents to share their skills and different experiences with the school community, warning of negative effects if power relationships are unequal (Grant, 2009). We need to find out whether learning platforms are a useful way for parents to communicate more effectively with schools and help overcome some of these identified constraints.

Previous ethnographic research suggests the importance of media processes in families’ everyday lives that shape the social construction and negotiation of technologies and technological practices. Rather than generalising that all families are empowered through their uses of technology, this literature shows differential uptake and use of new digital media
Researchers have investigated assumptions that using Internet media is risky and unsafe for children, especially away from formal school settings (de Zwart, Lindsay, Henderson, & Phillips, 2011; Hope, 2007; Livingstone, Haddon, & Görzig, 2012); the impact of the convergence of structural factors—social, cultural, economic, technological and personal (affect)—on the mediating process of communication (Madianou & Miller, 2013); families’ negotiation of new media (Schofield Clark, 2013); the impact of education policy on participation in homes and family life (Stevenson, 2011); the social, economic, and cultural costs to youth of hardware, software and bandwidth (Seiter, 2008); and the role of parental attitudes and anxieties in shaping young people’s media experiences (Horst, 2010). This research helps us to understand the social impact of new media and new technology participation on families.

While families are adopting creative ways to use new media, the home remains a dynamic space in the construction of these technologies. For example, negotiating access and permissions to use new technologies within families and learning new social skills in order to participate in learning are seen in this literature as constantly evolving processes. More nuanced accounts, which use participant observation and “thick description” (Geertz, 1973, p. 6) to analyse the wider social impact of new technologies in the home, reveal that macro structures, such as class (Valentine, 2008) and privacy (Horst, 2010), also shape knowledge and techno-social practices. These researchers support the idea that parents and children are continually negotiating the introduction of new technologies into the home and recalibrating their knowledge and practices around older technologies in a dynamic process. Moreover, the extent to which these technologies are shaped in the home environment suggests that participation is not an objective term. Rather, participation is a dynamic social process shaped by multiple factors, including power relations.

As selected critical theory has shown, governments and school institutions seek to influence technology take-up in the private sphere through their ideology and design of particular technologies. However, such theory does not consider how parents in less structured home environments might respond to the idea of using a highly structured learning platform technology aimed at boosting their involvement in their children’s learning. Certainly, schools making information about their children more accessible through digital media could assist parents who are seeking more active participation. What we now need to consider is whether learning platform technology challenges existing social structures in ways that promote wider participation in decision-making.
Socio-cultural literature sees parents’ attitudes, values and knowledge construction as grounded in their everyday experiences. Parents question who, other than themselves, should have a voice in the design of their family life. Further, they construct different narratives and shape technologies to maximise their own needs. This explains how parents exercise power over their children, with ICT participation contingent on parental authority, rules and values (Herring, 2008; Livingstone, 2009; Schofield Clark, 2013). It suggests there is no automatic transference of education policy ideals into homes; rather, that parents accept, reject or modify policy ideals. Integrating research findings on home participation with those from a broader environmental perspective challenges the technologically determinist position that sees newer technologies as inevitably positive in people’s lives. Drawing on ethnographic perspectives in social science to highlight the multifaceted response of parents to government and school-based official information can provide some answers (Clinton, Hattie, & Dixon, 2007; Stevenson, 2011). Research on the impact of parents’ attitudes and beliefs about government promotion of ICT use in the home, however, remains insufficient, especially given that ICT is expected to play such a pivotal role in their children’s learning.

Some literature sees the relationship parents have with governments as shaping technology use in homes and suggests that political ideologies, in some cases grounded in commercial principles, influence parents’ technology activities and practices (Facer et al., 2001a; Facer, Furlong, Furlong, & Sutherland, 2001b; Stevenson, 2011). Their research suggests that increased ICT use in school curricula, promoted as a classroom without walls, extends government influence into homes. Stevenson (2011) goes further, proposing that ICT is an external structure and that its expansion into the home is a new form of government colonisation into domestic spaces. Far from following a set script that drives the way technologies are used, I argue instead that they are shaped and constructed socially by people and their actions.

Participation modes that facilitate conversation and joint decision-making in families’ mediated lives have been subject to much research over the past 10 years (Drotner, 2008; Livingstone et al., 2012; Madianou & Miller, 2012; Rideout, Foehr, & Roberts, 2010; Schofield Clark, 2013; Seiter, 2008). This research challenges the critical view that sees ICT as a vehicle through which government discourses and ideological values can penetrate the home. Rather, it interprets technology as flexible and assumes its uses will instigate a move toward more open sharing of information, knowledge, resources and digital skills between schools and homes, the lack of which has hindered parent participation in the past. In these models,
parents are seen as having rights to more information and resources and as being able to share authorship and editing rights with teachers. Passey (2013) notes how early school data management systems—predominantly designed to manage administration and student records—have changed, and how the newer technology allows schools to record, report and use information differently (Passey, 2013). He concludes that parents and students need to have access to this type of information if they are to have input into decision-making on issues that affect them. Some research suggests that positive outcomes can occur when parents are actively involved in online planning and monitoring of their children’s curriculum and progress (Lewin & Luckin, 2010; Selwyn et al., 2011; Tatnall & Davey, 2013). The newer technologies require a reconsideration of how each group can participate in ways that promote their individual and group agendas (Passey, 2013). What we do not know yet is the extent to which this kind of integration can overcome differences between home and school and simultaneously meet the educational and political priorities of government. Some conflicts of interest may not be resolvable at a technical level.

Other research has led to calls for more active and creative teaching and learning and increased participation in home—school relationships. For example, the Flaxmere Project shows how structured technology home interventions met with some success in reducing socio-economic disadvantage by using qualified Teacher Home School Liaison Persons, a “Computers in Homes” initiative and a homework club to support at-risk students at home (Clinton et al., 2007). Through this project, part of a New Zealand Education Department evaluation of low socio-economic networks and low-performing schools, parents felt they learnt a “language of schooling” and teachers were able to empathise with the language of home life. The research team found that the use of computers in homes benefited more than the child, with some parents learning computer skills that were transferable and thus increased their work opportunities (Clinton et al., 2007). Home influences are highly relevant to principals and teachers who seek to improve home–school links based around a shared language of schooling that is dialectical.

In a similar vein, empirical research on the UK’s Harnessing Technology policy compared and contrasted two intervention programs. It showed that families could use tablet technology to access and use school websites and email to communicate with schools in a cost-effective way. The research also found that easy-to-use interactive resources, such as videos and web telephony, could be advantageous in dealing with parents’ complex needs (Lewin & Luckin, 2010). Clearly, ICTs can advantage parents and students if they are designed to increase
participation and allow for diverse views, rather than promoting only those views that further an institution’s goals or the political goals of governments. These findings call for a policy debate over the wider social and environmental factors that shape home school participation through new technology uses.

A different perspective shows how parents can be complicit in reinforcing public policy discourses. Drawing on post-structuralist theories on how power shapes modes of participation, this research highlights both the power of government to influence parents and of parents in turn to influence and change their children’s participatory practices. For instance, Stevenson (2011) notes the changing role and status for parents as “equal” decision-makers in their children’s education (Stevenson, 2011). Because she sees them as active in their children’s learning at the same time as reinforcing dominant state ideologies, she discounts their ability to make independent choices. By adopting the rhetoric of politicians about home uses of technology and technological practices, parents reinforce dominant narratives and place the interests of policymakers above their own decision-making at home. For example, from analysis of in-depth home interviews, Facer et al. (2001a) and Stevenson (2011) found that parents felt their children needed computers and the Internet at home to give them a competitive advantage over their peers, but simultaneously believed their children lacked critical skills in media production (Facer et al., 2001a). Technologies in homes are at the heart of a political discourse that promotes increased participation, but ignores individual intentions. The literature suggests that people act habitually and are socialised by the institutions with which they interact, but it does not adequately explain the actions parents may independently adopt to increase their participation in their children’s learning.

In summary, the social science literature shows that different groups position their interests in relation to the use of technology artefacts in various ways affecting their participation. Sometimes these multiple interests diverge or overlap, and conflicts emerge from different individual and group interpretations of the artefacts’ usefulness in everyday life. This selected social science literature raises questions about the extent to which government’s role in education should extend beyond school to the home in order to meet the political and economic aspects of the educational priorities of government. School–home integration should seek to support family life in ways that promote their wider and more active participation in online activities and communities.
CHAPTER 2: Literature Review and Theoretical Frameworks

A Media and Communication debate about using web 2.0 to improve youth participation

The selected media literature relevant to technology in education focuses on issues of empowerment and disempowerment with the relationship between youth and policymakers’ ideas of media technologies’ use framed as oppositional. The discursive construction of young people has come under scrutiny, with advocates arguing youth should be more visible in society and included in decision-making to improve their social welfare. Indeed, researchers see large-scale participation, in which governments encourage individuals to take part in civil society, as a form of empowerment, but note that most often young people are excluded (Buckingham, 2008a; Burnett, 2011; Facer et al., 2001a). Paradoxically, Facer et al. (2001a) suggest that government policy disregards the important role and capacity of young people in society at the same time as seeing them as central to the success of the so-called knowledge economy (Facer et al., 2001a). If, as a result of education policy interventions, children and young people are unable to experience technology on their own terms, and experiment with it to create, produce and publish information, then they will find ways to breach the system and operate “under the radar” (Facer et al., 2001a; Livingstone, 2009). Children will not adopt adult-sanctioned practices just because they are told to do so. Indeed, the idea that young people will use technology or develop computer skills, simply because a policy has been introduced that follows a certain normative view, is misguided. Policy needs to be grounded in the ways young people actually use or want to use technology.

The objectives, values and discourses that operate in school, home and peer group networks provide a window on young people’s life experiences. It is a fiction to view all young people as part of a mass society and as sharing the same unifying experiences (Facer et al., 2001a). Categorising young people into a single, homogenous group and labelling them as “Digital Natives”, Prensky (2001a, p. 2); 2001b) ignores a discussion of the environmental structures that differentially shape youth knowledge and practices. Facer et al. (2001a) argue that, wherever individuals have the capacity to reconstruct the role of technology (by producing and owning resources, as distinct from reproducing capitalist patterns of production), social participation expands. Further, Facer et al. (2001a) advocate for children to fully and meaningfully participate in society in ways that extends their communication and creative activity production (Facer et al., 2001a). Research has confirmed the benefits of widening young people’s ability to participate in society as fully as possible (Herring, 2008; Livingstone, 2009; Willett, 2008; Wyn, 2009). Hence, the notion of participation prevalent in prescriptive education policy goals is actually at odds with young people’s immediate and nuanced uses of technology.
technology. As Livingstone argues, a lack of clarity around the citizenship rights of young people under the age of 18, together with few authentic participation opportunities, have indeed shaped their uses of the Internet (Livingstone, 2009). The strong implication is that young people’s successful participation is critical to building inclusive societies in the present as well as the future, but only if they can participate in shaping Internet-mediated environments.

Use of web 2.0 technology in education is seen as one solution to issues around civil society participation. In media and communications literature, the concept of the “user” has been adopted to explain the role individuals play in the creation of web 2.0 content. Users are characterised as acting in ways that position them at the centre of their practices and driving change, rather than change being driven top-down by technology developments and media products (Friesen, 2010; Ito et al., 2010; Jenkins, 2006; Warnke, 2013). Widespread access to personal devices, such as mobile phones and tablet devices, combined with the technical skills and knowledge needed to use these devices, structure the user as a key part of any media theorisation. Rather than being passive recipients of technology, an “effect” of the media or part of an audience, individuals are seen as actively engaged in practical understanding and in making content for their own benefit, in contrast to producing it at the behest of institutions or authority figures, such as principals or teachers (Drotner, 2008; Rowsell, 2012). The user as a “produser” of knowledge and technology through their active creation of blogs and wikis has gained legitimacy within education literature (Bruns, 2008, p. 29). There has been a sustained movement in the US to encourage participatory technologies, such as blogs, in students’ informal learning, with academic research highlighting the advantages of social over traditional forms of media (Ito et al., 2010). Use of web 2.0 technologies, however, can disadvantage students who make and distribute content through their practices in education spaces that are tied to profitability in the commercial market (Fuchs, 2010). Whilst web 2.0 has been found to be successful in enabling greater participation in informal spaces (Ito et al., 2010; Jenkins, Clinton, Purushotma, Robison, & Weigel, 2009), when used in more formal settings, such as schools, its efficacy for improved participation is less clear.

Young people’s avid use of social networking practices outside school is sometimes noted as an example of what full participation in private and public settings for youth could look like. UK-based media theorist and educator David Buckingham (2008a) suggests a new digital divide is evident. He points to a significant and growing gap between what young people do with technology at home and what they do with it at school, despite the growing access and use of
technologies in both places (Buckingham, 2008a). Furthermore, ethnographic research shows that interest-driven activities play an important role in allowing young people with cognitive differences to explore and craft new and deeper social opportunities in informal spaces and places (Ito et al., 2010). Importantly, the findings from extensive research projects under the umbrella of the private and independent John D. and Catherine T. MacArthur Foundation, based in Chicago, foreshadow the potential of new technologies and new media in youth-dominated settings (Buckingham, 2008b; Ito et al., 2010; Metzger & Flanagin, 2008). They present an interesting comparison between private and government-initiated technology changes, and challenge behaviourist assumptions that full participation will emerge from young people’s web 2.0 practices in schools.

The idea of web 2.0 as a successful participatory medium assumes that media practices operate independently of other factors—education policy, the environment, resources, funding and access—and that combinations of various kinds of web 2.0 media, such as blogs and wikis, will be scaffolded in particular ways by young people to construct media-rich, visual and auditory online spaces for cultural production in any and all contexts. For instance, newer technologies in schools are seen to support multimodal practices and more expressive digital content, with students able to choose from a variety of print and image forms to assist their learning (Carrington & Marsh, 2008; Grenfell et al., 2012). Further, Jewitt et al. (2010) found that students in half of the primary schools they studied demonstrated improvements in technical capacity, interactive and collaborative learning and critical appraisal of personal ICT use through their exposure to web 2.0 technologies in safe spaces. The authors found, however, that enhanced participation only occurred in schools where teachers actively moderated learning spaces and developed students’ digital literacies and where leadership teams strategically implemented learning platform technology, embedding it into everyday school practices rather than it being an add-on feature (Jewitt et al., 2010).

Others question the proposition that all young people use digital technologies in the same way and with the same ease. In their study of university student groups’ diverse uses of web 2.0 to access information and engage in peer-to-peer collaboration, Kennedy et al. (2010) argue that cultural and social differences, in variables such as place, age, gender, institutions and socio-economic status, shape young people’s technology experiences (Kennedy et al., 2010). Whilst the rhetoric of learning platform technology in formal settings position individual users at the centre of their practices, we do not know if a more participatory culture—in which horizontal forms of participation lead to new possibilities for exchange of information and where creative
content is collaboratively produced—is taking place. The concepts of “user” and “produser” (Bruns, 2008), prompt us to question the centrality or marginality of individuals in a participatory process, even where a platform technology is constructed predominantly through user actions. The concept of “user”, however, fails to account for the role of user groups in education participation practices, particularly when these groups share goals, educational perspectives and accumulate knowledge as co-producers. New media research shows the value of including non-obvious groups in an analysis, as in a case in which non-technology users were found to be fully immersed and active in society even when they were seemingly not participating (Horst, 2011). Thus, how different groups appropriate technology is a further consideration when analysing the extent to which learning platforms enable or constrain participation in school communities.

The debates described here, about what an integrated and democratic education society should look like, help us to question more deeply how particular types of Internet-based ICTs influence opportunities for increased participation in society, and hence, why they fail or succeed. In synthesising three independent perspectives on the relationship between governments, citizens, schools, homes, parents, youth and technologies detailed above, and applying them to the focus of my own research, a multi-disciplinary question emerges: why and how did the Ultranet learning platform fail to be adopted by individuals and social groups involved in the Victorian education system despite significant social and political impetus for it to succeed? In Part 2 of this chapter, I turn to theories of technology and democracy to further explore the necessary conditions for successful (participatory) technology use in education.

2.2: THEORETICAL FRAMEWORKS

Intense periods of social, technological, economic, cultural, educational and political change illustrate the power of ideas, values and belief systems, challenged and reconfigured within socio-political processes, to create new definitions and understandings of forms of participation, democracy and technology. The nature of participation in schools is at an interesting juncture, impacted by the adoption of a growing range of new digital communications technologies into already complex school and home media environments. Multiple individuals and groups influence this scenario, each with different attitudes, goals, strategies and levels of power. In the remainder of this chapter, I will interrogate the core idea that conflict between different groups/purposes/technologies emerges through technology
development from the perspectives of the Social Construction of Technology (SCOT) theory and Pateman’s Participatory Theory of Democracy (PTD).

The Social Construction of Technology (SCOT) approach

Social constructivists argue that technology is a humanly-constructed artefact formed through social interactions and see the whole social system as relevant in shaping a technology (Bijker, 2010). The human ends that a technology meets and the technical character of a technology are part of a dialectical process that unfolds interdependently within an emergent social structure. Technology arises from within human actions and interactions at certain points in particular contexts, expressing human interests, values, beliefs, hopes, knowledge and practices (Bijker & Law, 1992; Kaplan, 2009). In other words, technology is constructed according to its socio-cultural fit rather than having any intrinsic properties or essentialist logic and cannot be theorised as separate from its social and cultural uses just because it appears sometimes to have control over human action (Feenberg, 1999). The external environment imposes no criteria on meaning, as this would contradict the “principle of symmetry” that seeks to eliminate structure and rebuff the idea that some criteria may have the potential to create “truer” knowledge than others (Bijker & Law, 1992, p. 290).

The SCOT perspective sees factors such as technology, participation, economics, politics and learning as enabling interaction and shaping emergent practices whilst not determining human behaviour and social actions. This perspective on forms of power sees large-scale micro-participation as inherently more influential in the development of new technologies than political and economic factors (Klein & Kleinman, 2002). The core methodological approach of SCOT is to produce detailed descriptions to explain the interactions and associations among actors (Bijker, 1995, 2010). SCOT analysts do not see technology innovation as following a fixed, linear, abstract or determinist historical path that brings about a desired outcome in a predetermined way. Rather, social constructivists seek to develop non-linear and multi-linear causal analyses that are constructed in and through heterogeneous accounts (Pinch & Bijker, 1984).

In my research I adopted a particular social realist constructivist approach, more aligned to that proposed in the earliest version of SCOT by Trevor Pinch and Wiebe Bijker, who argue that scientific development has an unknown and ambiguous character that is socially interpreted (Bijker, 1995, 2010; Bijker, Hughes, & Pinch, 1987; Bijker & Law, 1992; Pinch & Bijker, 1984). Following these authors, I considered technology as embedded in human activity and part of a
holistic system. I aimed to develop a social constructivist model of participation that considers the role of hierarchical relations in order to explain the positioning and influence of social groups in the development and demise of the Ultranet initiative.

Defining the concepts used in SCOT

The SCOT descriptive approach analyses the socio-technical character of artefacts using concepts of relevant social group, focus on controversy, interpretative flexibility, stabilisation and closure in order to explain how technology develops within society. More broadly, these concepts provide insight into the structural factors that influence socio-technical activity and stress the heterogeneity of socially contingent processes. I explain the SCOT concepts relevant to my study in turn.

Relevant social group

Relevant social groups (RSGs) develop their own meanings and goals to strategically design and shape an artefact through action. It is through their actions and interactions, shaped by individualist and competitive values, that technologies are developed. In simple terms, SCOT analysts concentrate on groups rather than following the object of the research (Bijker, 1995; Bijker & Law, 1992; Bourdieu, 1990 [1980]; Hammersley & Atkinson, 2007).

Focus on controversy

Relevant social groups develop an artefact through a dynamic process that presumes conflict. Overt or covert conflict is always present in the determination of an artefact, and intra-group dynamics emerge from different interests, resources, purposes and technical expertise. As problems arise and solutions emerge, a process of negotiation and consensus-making takes place that shapes the artefact. Ensuing sub-problems and their respective solutions, even when they are dead ends, increase the possibility for different developments to emerge that further shape the artefact. Thus, until an artefact reaches a stable state, it is fluid and undergoes constant iteration (Bijker, 1995).

Interpretative flexibility

The interaction around problems and solutions that occurs within RSGs is called “interpretative flexibility”. SCOT’s collectivist interpretation suggests that RSGs interpret the meaning of technologies differently, depending on their interests and cultural frameworks, until an outcome is reached by the set of all groups. A flexible process of innovation and design occurs,
CHAPTER 2: Literature Review and Theoretical Frameworks

not limited to experts with technical knowledge. This highlights the contingent nature of technological development within, and between, RSGs and suggests there are no boundaries to technological designs (Baym, 2010; Bijker, 1992; Bijker et al., 1987). Each group’s actions and interactions bring a particular example of the artefact into being that is different to that constructed by other relevant social groups (Bijker & Law, 1992). Interpretative flexibility assumes that scientific facts and artefacts are unstable and always new, at least up to a point when closure or stabilisation of the artefact is reached (Bijker, 1992, 2010; Klein & Kleinman, 2002; Misa, 1992; Pinch & Bijker, 1984).

**Stabilisation**

SCOT theorists describe the dynamics that take place within inter-related social and technical relationships as “stabilisation”. The SCOT view contends that social groups adopt technology firstly according to their beliefs, values and interests, and that these then inform the subsequent strategies they adopt to accept or resist the technology (Bijker, 1995). Over time, and through its uses, the artefact’s meaning becomes clearer and more ordered than the original “unformed” state assumed by the group. Stabilisation “occurs when and if a social group and an artifact meld together” (Misa, 1992, p. 110).

**Closure**

Closure is a mechanism that results from stabilisation and ends the interpretative flexibility of an artefact as meanings converge and users select one version above others (Bijker, 1995, 2010). The arguments and negotiations around the design and uses of an artefact that have shaped the technology up to this point cool and give way to consensus amongst actors and between the RSGs (Klein & Kleinman, 2002; Misa, 1992). The sharp boundaries of the new technology are erased as the broader society constructs it to fit the social practices within a particular environment. Thus, closure brings the possible choices around an artefact to rest in a dominant model that has been developed by, and through, interpretive social action, an outcome that assumes all groups agree and are no longer pursuing their particular interests or purposes.

**Critiques of the SCOT framework**

Debates about SCOT’s approach to analysing how technology is made have taken place in the cross-disciplinary intersection between three related fields: Critical Theory, Science and Technology Studies (STS) and Philosophy of Technology. In this section I draw on these fields to
contrast three discussions of power and its role in shaping social structures, ideology and digital materiality.

A criticism of the SCOT theory is that it is concerned only with the agency side of the structure–agency dialectic: a subjective focus on human values, meanings and feelings. Critical theorists point out that the basic social structures operating in society are historical, shaped by vested interests and ideology, and thus necessary in helping to explain technology implementation in political, social, economic and educational contexts. Although there are a variety of approaches, intellectual positions and schools of thought within critical theory, there is some agreement that objective structures have consequences for social relations. Macro-social structures, such as class, gender and power, antagonistically operating within legal and economic institutions, are key factors in shaping human interactions and consequent social actions (Fuchs, 2010; Hassan, 2008; Klein & Kleinman, 2002). Critical theorists also see the organisation of various groups and sub-groups in society as a complex, often exclusionary, process shaped by wider social structuring influences such as family, economic markets, legal, political, economic or cultural institutions that are not easily separated or knowable (Hearn, 2012). Integrating social structure and intention into an overall explanation of the case study is therefore necessary to explain what was happening in practice at a particular time in education when the means of communication were expanding through social and political applications of learning platforms.

Critical theorists also challenge a contentious idea in SCOT’s ontology, that power is a social process relativised through balanced social relationships. They question whether individual or group participation in social relations can be equally situated or relatively balanced between groups and whether there is an exploitative or authoritative aspect to participation that is masked or augmented by political, economic and cultural structures that shape people’s offline and online technology experiences. Moreover, some detect an ideological slant in liberal market economies that seeks to maximise the goals of an information economy through the strategic adoption of technologies in education (Facer, 2011; Feenberg, 1999; Garnham, 2000; Mansell, 2012). Clearly, if we are to understand how power is distributed between different groups, all of whom are invested in creating a technology for different purposes, we need to investigate what kinds of power relationships actors engage in to gain an advantage.

In an STS approach, SCOT’s perspective on the social impact of the design of technologies is further questioned in relation to ideology. STS researchers see technology and its social uses as interdependent and continually shaping one another, believing that what is constructed
socially is a reflection of how society already works. STS scholars argue that asymmetry is
evident in the culture, class or politics of social relations, and see elite state and commercial
leaders as having more power and particular intention than everyday users in designing,
implementing and shaping a technology (Baym, 2010; Brey, 2009 [1997]; Feenberg, 1999; Klein
& Kleinman, 2002). An ideological drive to further government or commercial ends is seen to
overpower the conflicting designs and recommendations that other groups and individuals
may produce in a range of human activities (MacKenzie & Wajcman, 1999; Malaby, 2012). This
dynamic suggests that specialised technologies are shaped and controlled by powerful
individuals, groups or institutions in ways acceptable to them. In this case, institutional goals
and personal interests may be conflicting and irreconcilable.

The SCOT premise acknowledges societies, states and institutions, but excludes technology per
se as a significant factor in effecting social change from the start, arguing it cannot be
theorised apart from the social dimension of its uses. Both STS and digital anthropology hold
positions that question this view. STS authors promote the idea that technologies make a
material difference to people’s lives and should be analysed in their own right, in contrast to
being seen as an outcome of social relations (Baym, 2010; Malaby, 2012; Wajcman & Jones,
2012). Digital anthropologists Horst and Miller extend these ideas by putting technologies
front and centre of material culture analyses. They theorise that the materiality of digital
infrastructure and technology, digital content and digital context provide a setting for human
activities, are part and parcel of everyday social worlds, and should be examined accordingly
(Miller, 2010; Miller & Horst, 2012).

In a similar vein, a theoretical explanation that has been used to explain the effect of new
technologies and their content on society involves the notion that particular technologies are
characterised by “natural propensities” and “concrete attributes”. Such attributes or
“affordances” are defined by communication scholar Nancy Baym (2010) as “packages of
potentials and constraints, for communication” (p. 17). In recent media and education
research, these properties are claimed to influence material possibilities of communication
(Madianou & Miller, 2012), and form part of a complex negotiation between users, contexts
and technical capacities (Hammond, 2014). Such studies are designed to answer questions
about frequency and patterns of technology use. But affordance theory is too limiting to
answer socio-technical questions on the problem of power relations between different groups.
Focusing on how much a medium is used, and in what ways, does not fully account for the
dynamics of conflict and negotiation, interpretive differences or how culture, beliefs and

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values affect technological choices. Because my study concentrated on such topics, I required a less deterministic frame in order to analyse the inside perspective of user groups involved in the development of the Ultranet. I analysed material artefacts as part of human society and built on SCOT’s idealist standpoint to help explain the variety of ways in which individuals and groups, with differing values and beliefs, sought to negotiate particular responses to the Ultranet.

Drawing on these potential explanations for the ways in which different groups participated in developing the Ultranet was expected to reveal if, and how, designers exert more influence than users, and the kinds of participation activities, such as the creation and sharing of content, that emerge for different groups in newer kinds of closed online spaces. It shows that technical progress is not wholly determined through structure, leaving open to question the role of groups and their often unequal social relations in such processes. While technology is experienced as a material reality by end users, it is much more a social product to the inventors, designers and owners of the same technology who are the ones creating, circulating and appropriating meaning through the cultural material (Wajcman & Jones, 2012). In short, participation in the social design of technology is hierarchical.

Adapting SCOT for the purposes of this study

As the SCOT approach suggests, new technologies are made, not born. Seen in this light, they are developed by people and become part of complex, multifaceted frameworks of existing technological, social, political and educational value controversies. The particular technical and social choices each group makes in their engagement with a new technology like the Ultranet must be explained in order to understand the impact of the existing social structure on the design, development and transformation of that technology. Moreover, to understand how the Ultranet was embedded in social actions, we need to know to what extent particular individuals and groups used (or failed to use) it to expand their participation and engagement in education. In examining the concept of participation, technology needs to be seen as part of people’s social practices, not as separate from them, as this would be subscribing to an erroneous view that technology is neutral and value-free.

By applying a modified version of SCOT to the analysis of data in this case study of the Ultranet, I aimed to answer the more general questions: what can the SCOT model tell us 1) of how each social group participates in the construction of an interactive platform (such as the Ultranet) and 2) about the processes through which technology is socially produced? In
addition, in the concluding chapter, I reflect on 3) the value and limitations of using SCOT as a possible theoretical explanation for different groups’ Ultranet participation outcomes.

SCOT provides a means to compare how each of the social groups—officials, leaders, teachers, students and parents—interpreted and dynamically constructed the Ultranet within their existing values and belief-sets. I felt it was vital to develop an integrated picture of Ultranet technology co-design from the inside perspective of these user groups, something essential to the ethnographic methodology of anthropology. In articulating SCOT in a practical and multi-group context, we are able to trace the everyday knowledge and subjective perceptions that inform the social actions of diverse groups to explain complex socio-technical phenomena. We can predict with a degree of confidence that technologies are transformed through their uses and that the sets of relationships involved in this process create alternative perspectives and technology uses, but we do not yet know if, and how, political reasons and ideological power shapes user “designs”. Therefore, the SCOT approach needs to be supplemented with a second theory to better explain how individuals act within particular social and institutional contexts at a particular time. For instance, how materiality and “objective” phenomena related to power, such as ideology, organisational structures and authority, shape and in turn are reshaped, by intention and different groups’ capacity for action.

In order to overcome such limitations and capture a system-wide perspective, I selected a theory that is supported by empirical evidence and has been successfully used to explore structural relations: Carole Pateman’s Participatory Theory of Democracy (PTD). In contrast to the SCOT approach, which considers interpreted meanings as most significant, material-realists, such as Pateman, explain how social relations are constituted in the real world through the architecture of decision-making in the workplace. Combining PTD and SCOT theories, which have different views of human society and general analytic concepts, enabled a broader analysis of the empirical data and allowed me to develop a more interdependent and critical explanation of the Ultranet phenomenon than would have been possible using a single dominant theory emanating from one paradigm. The interrelationship and layering between social structure and agency is also useful in explaining power in human processes, with Hearn arguing that power is social and operates through the formal and informal ways in which people relate to one another in everyday situations (Hearn, 2012).
The Pateman Participatory Theory of Democracy (PTD)

Pateman is a US-based political scientist whose academic work in the 1970s continues to have resonance in democratic theory. Her view of participation is that it manifests in the interrelationships between authority structures and individual action in relations that are evolving historically. She believes that equality can only arise when established hierarchical organisational structures are changed through the wider participation of individuals, resulting in a rebalancing of uneven power structures (UCLA Political Science Department, 2014).

Pateman suggests that a participatory society can be created through democratised management structures that enable greater worker independence in everyday work practices, and that such a “participatory industrial sphere” is a necessary condition for democracy (Pateman, 1970, p. 60). She maintains that the potential exists for people to become more democratic citizens if workplaces are reformed to enable greater levels of worker participation. Pateman (1970) sees this integrated form of democracy to be advantageous to both organisations and individuals, as it would improve worker satisfaction and lead to increased production. The transformation of authority structures is seen as achievable through the associations that workers can form, or are part of.

To Pateman, participation should be a balanced, two-sided form of power, not a one-sided, unequal process (Pateman, 1970). This definition sees participation as communicative and embedded in social relations. Pateman argues that the development of a participatory society—in which workers have sufficient opportunity to participate in decision-making that directly affects their lives and work environments—is limited when two or more sides are in opposition. In a complex social system such as the industrial workplace, Pateman sees that participation can come through workers having more control over decisions that directly affect them and their work. The extent of their control relates to their level of participation. She believes that increased levels of participation would benefit society as people would be educated and socialised at the institutional level before they participated in wider society (Pateman, 1970). This idea is implicit in phrases such as the “general will of the people” and “the common good”, in which a particular outcome is seen as just and equal for all (Barry, 1967). An effect of this interdependent model of participatory decision-making is that common rules and understandings arise and are valued from within, rather than being externally imposed by elite leaders drawing on their own sets of theories, agendas and actions.

Pateman has suggested that the participatory theory of democracy can be applied within non-industrial contexts, such as the higher education sector, to enhance and develop the next
generation of citizens. She also suggests that her approach can benefit private home spheres and impact their authority structures (Pateman, 1970). Presciently, she unpacks a generational consideration: that there may be differences in how adults, young people and children (distinguished by age levels) learn to be politically efficacious and that this could influence their participation. She also touches on the under-theorised roles children play in participatory democracies in what has become a substantive topic in academic and governmental research and practice. Some analyses on the role of children and youth in political and education systems have critiqued the exclusion of their voices in their own lives and environments, suggesting a denial of their normative rights, to the detriment of society as a whole (Buckingham, 2008a; Facer et al., 2001a; James & Christensen, 2008; Livingstone, 2009). However, since Pateman’s writing, there have been fundamental media-related changes and rapid developments in technology systems and infrastructure. These converging trends have significantly expanded information and communication forms and modes and highlighted the importance of participation in democratic institutions (Hearn, 2012). Such factors need to be considered in my study.

**Defining the concepts used in PTD**

Pateman explains that decision-making takes different forms and is not a universal concept that can be applied to all situations equally, resulting in predictable outcomes. Pateman contends, however, that appropriate decision-making is the most important factor in increasing participation. She defines three types of participatory decision-making as relevant in the workplace; pseudo, partial and full (Pateman, 1970). An underlying principle in these definitions is that the closer participation is to the optimum state of full participation, the more participatory and thus democratic are the authority structures. The relevance of Pateman’s work to my study is that it provides some lenses through which to consider the different forms of decision-making and participation evident in groups’ response to, and uptake of, the Ultranet.
CHAPTER 2: Literature Review and Theoretical Frameworks

**Pseudo participation**

Pseudo participation is a state of powerlessness and highlights the persuasive element in decision-making. The concept draws on political scientist Sidney Verba’s work on political attitudes in civic participation. Pateman (1970) defines pseudo participation in decision-making as a “situation where participation (in decision making) took place, but to create a feeling [original emphasis] of participation through the adoption by the leader (supervisor) of a certain approach or style” (p. 69). Pseudo-participation draws on psychological and management theories that define human decision-making as predominantly subjective, and thus intuitive. This view proposes that employee commitment is based on various forms of affect and personal identification with a higher or lower-level manager. Managers can act in this way to construct a situation that has the appearance of openness, trust and flexibility. By voluntarily participating in such a compliant exercise, employees legitimise decisions by effectively making no decision at all (Pateman, 1970). Pseudo participation is a reaction against the psychological theories and social categorisation of positivism and effects theory.

**Partial participation**

Partial participation is defined as “a process in which two or more parties influence each other in the making of decisions but the final power to decide rests with one party only” (Pateman, 1970, p. 70). According to Pateman, partial participation is biased because workers do not traditionally have equal power in organisational decision-making. The lower level of partial participation develops the skills individuals require to participate in local and national political contexts (Pateman, 1970).

**Full participation**

Described by Pateman as “a process where each individual member of a decision-making body has equal power to determine the outcome of decisions” (Pateman, 1970, p. 71), full participation is about mutuality, where all sides have agency. It promotes the idea that workers can self-manage their work away from the control and power of management in a democratised system. According to Pateman, workers who are self-disciplined and have direct control and influence over their work practices are exemplars of what a democratic participatory society could look like; one where forms of industrial participation afford workers greater autonomy.
CHAPTER 2: Literature Review and Theoretical Frameworks

Critiques of the PTD framework

One critique of the PTD framework, and more specifically of its use in analysing the development of a technology, relates to the relationship between democratisation and technology. Pateman does not consider the role of technology in her construction of what a participatory society should look like. This raises a challenge for the application of PTD theory to my study of the Ultranet, which was set up to examine different groups’ involvement in a technology development. Analysing technologies as socio-political material artefacts that shape the human experience is important to fully comprehend their impact on participation in institutions. Technological objects, such as computers and software, are central to modern social systems and part of the contemporary material and cultural conditions of teachers’, students’ and parents’ work and lives. The context in which Pateman (1970) was writing—a time of social challenges to the increasing powers of corporate and state agency—was one in which new definitions and understandings of technology and power were emerging. Public bureaucracies and the design and uses of rule-bound computerised communication systems have extended techno-social relations in institutions in significant ways (Dunleavy & Carrera, 2013; Feenberg, 1999). An understanding of social power as taking place interpersonally, as well as within institutional forms, is more helpful for analysing forms of group participation on technological development.

Adapting PTD for the purposes of this study

My research interrogated the decision-making processes engaged in by individuals and groups associated with a government department, DEECD, (as distinct from a private institution) through their involvement with the Ultranet. My contention was that the types of participation individuals engage in influences their capacity to pursue their political and social goals and their ability for wider citizenship engagement. Unlike Pateman, I approached technology as intrinsically political, often adopted in ways that reflect specific interests. With hierarchy significant in the authority structures of schools and homes, I aimed to find out how the structure and practice of decision-making processes within DEECD and schools impacted differentially on Ultranet user participation. I utilised Pateman’s typology to question the role of decision-making styles by different stakeholders and query how such decisions affected the development of individuals’ and groups’ political and social capacity. Specifically, I drew on Pateman’s exposition of the PTD to examine how different levels of participation across and within the school system affected the Ultranet’s design and uses for five social groups: state and education department officials, school leaders, teachers, students and parents. I noted
that, from the start, individuals and groups had differential capacity to act independently or be considered as part of participatory frameworks. For example, teachers work mainly as part of semi-autonomous, small-scale teams with some potential to innovate and control their environment, while DEECD and schools operate within complex legal, regulatory and organisational hierarchies that impact on opportunities for wider participation by individuals and groups. Such institutional forms of authority and hierarchy can affect the purpose and context of individuals’ work and communication environments. Moreover, ideological interests and/or value controversies may adversely affect the participation of some individuals and groups in education, a phenomenon made clearer as more participatory educational technologies are added into schools and homes.

Finally, in Pateman’s analysis, the home is seen as private and separate from national or institutional society. Women’s representation in the workplace was low in the mid-20th century, although she saw possibilities for women to become involved in public political life (1970). Views that public life and family are separate entities remain common in theorisations of contemporary civil society (Hearn, 2012). In the early 21st century, however, a greater reciprocity exists, with families important in school institutions and schools in turn important for families and for building cohesion. I aimed to establish what Pateman’s different forms of participation could tell us about different groups’ capacities to shape the construction of the Ultranet and develop a more participatory society.

Conclusions

The preceding overview of relevant literature and the two theoretical models used in this study sets the scene for the analysis of case study material pertaining to the Ultranet in subsequent chapters. Integrating learning technologies into education is a key policy aim of governments and education departments that has direct consequences for people’s everyday lives. The critique has shown that, while governments generally have assumed specialised learning platform technologies would maximise participation of independent user groups, the introduction of such platforms has not always resulted in the outcomes anticipated, raising questions about their efficacy and purpose in education.

The SCOT approach explains how technology is connected to everyday life and constructed by different groups to fit their human values, beliefs, interests and goals, predominantly focusing on subjective and phenomenological levels of human cognition. Adopting such a viewpoint enables us to consider the cultural influences shaping people’s experiences and to explain how
they constructed particular artefacts. We can also analyse how competition between human interpretations plays out through the co-production of cultural products. Using SCOT, we can identify how technologies emerge as designers and users balance out their interests through dynamic technical, ideological, governance, economic, commercial, political, environmental, pedagogical and social processes.

Pateman’s PTD has benefits for my study for different reasons. Analysing the empirical data using this theory helped me to identify the complex phenomena of individual and group decision-making processes and the consequences these structures have in shaping political and social action. In examining the extent to which hierarchical authority structures shape social engagement in the Ultranet’s development, we can question the extent to which ordinary citizens gain learning opportunities that encourage their participation in democratic processes.

When combined, SCOT and Pateman improved my explanation of the social, political and technical aspects of the construction of the Ultranet, and my analysis of the role of individuals and groups as they acted in particular ways and in particular contexts to meet their interests and goals. In relation to this research’s context in public sector and school organisation, combining these theories allowed me to ask significant questions about the ways in which different groups participated in the Ultranet and with what outcomes. Moreover, I evaluated whether, and to what extent, the empirical evidence supports 1) SCOT’s tenet that different groups construct the technology through conflict, and 2) Pateman’s general statements that hierarchical and organisational decision-making structures have more influence on who participates and thus what is constructed. SCOT is forward-looking, supporting the argument that technology is a co-created product of a dynamic process. In contrast, Pateman’s PTD prompts questions about whether historically specific situations have a significant role in shaping and reshaping the way individuals and groups act in particular contexts. Together, they remind us of the value of analysing social problems from multiple sites and perspectives and provide a theoretical background to inform future social action. Nevertheless, a combination of two theories, however relevant, is not yet a method. In the next chapter, I operationalise the theories already discussed as part of a concrete methodology for my study.
CHAPTER 3: RESEARCH DESIGN AND METHODOLOGY

This chapter presents a description and justification of the research design and methodology. The first section sets out the rationale for an interpretive study understood within an ethnographic approach. The second section justifies the data collection methods and reviews the data analysis. The third section outlines the main research design decisions and ethical framework. The final section provides a breakdown of the key groups and number of participants in the study.

3.1: RESEARCH STRATEGIES

Anthropology’s key concern is understanding humanity (Eriksen, 2016 [2004]), a purpose shared with other social sciences, such as educational sociology, sociology, political science, psychology, media and communication and cultural studies (The University of Queensland, 2012). Anthropologists have in common a desire to understand what it means for people to live in society and participate in institutions such as family, school and state. According to social anthropologist Thomas Hylland Eriksen, anthropology specifically highlights “the comparative study of culture and society, with a focus on local life” and interrogates “human lives under different conditions” (Eriksen, 2016 [2004], p. n.p.). He argues that anthropology creates rich knowledge about human society that can be used to insightfully address a wide range of contemporary local and global social and political problems (Eriksen, 2016 [2004]).

What anthropologists bring to the field is also described by media anthropologist Heather Horst as “the attention to change over time, relationships and relationality and a broad sense of commitment to a site, place, people or practice” (Horst, 2012, p. 72). As both these anthropologists illustrate, an important aim of anthropology is to understand culture, what it means to be human and to contrast differences in human relations.

I have positioned this research epistemologically within anthropology and used its principles as my overarching methodology because of its valuable comparative approach and observation of social and technological change grounded in local practice. In the last chapter, I showed how the Social Construction of Theory (SCOT) perspective relates to an anthropological methodology in that both construct systematic empirical investigations to explain a holistic social structure. In particular, both use comparative research methods to gain perspective on socio-cultural differences. Consistent with these traditions, I adopted a comparative approach to analyse the practices and policies that operated across four different local school settings. I
was trying to gain insight into how social actions played out in local environments in the context of wider, more generalised, social or organisational phenomena (Hammersley & Atkinson, 2007). In particular, my research required that I pay close attention to the similarities and differences in Ultranet uptake and use over time, with the aim of identifying key factors influencing its development. I compared the espoused DEECD Ultranet policies and strategies for implementation with what was locally adopted and understood. Because new technologies bring into focus different ways of interacting that extend communication, I also considered how each school’s “new” or planned online practices reflected their existing “old” structures.

To interrogate the Ultranet in a social context, I needed to understand the existing communication practices of teachers, students and principals and how parents connected and built relationships with their school community within a broader framework of bureaucracy, communication and culture.

My study examined the quality of human interactions and experiences. Therefore, confirming knowledge of the social world through quantitative techniques, such as asking fixed-choice (closed) questions via formalised surveys or constructing a theory of culture from laboratory observations to explain human interaction, would have been an inappropriate approach. Technologies are intended, perceived and appropriated by people, so I required multiple qualitative tools to better understand technological change from an inside perspective that considers different socio-cultural contexts (Hammersley & Atkinson, 2007; Lobe, Livingstone, & Haddon, 2007). Adopting an ethnographic approach, a key principle of anthropology, gave me the opportunity to analyse participant uses of the Ultranet first-hand and to consider how such uses challenged and/or extended existing social contexts, knowledge construction and participation. Being part of the everyday interactions between different groups in schools allowed me to critique theoretical arguments with data. For example, I could see to what degree technologies, including notebooks, netbooks, personal devices and the Ultranet, were integrated into teachers’, students’ and parents’ lives as part of a wider, complex social system. I could then analyse the relationships between groups and technology to challenge a determinist view that promotes technical factors and decisions as preceding and trumping all other factors and decisions. Adopting an ethnographic approach to this study made it possible to tease apart this system and make the connections visible.

I drew on successful past naturalistic inquires to determine what strategies, collection methods and analytical approaches might best guide my research on the Ultranet phenomenon holistically and from the perspectives of individuals and groups within DEECD.
For example, sociologist Annette Lareau (1989); (2003) undertook two major ethnographic studies in the United States in the 1980s and 1990s into the effects of parents’ social class on their children’s education. Whilst she does not consider the consequences of technology in her participants’ lives, her extensive use of an observation and interview-based ethnographic approach highlighted the importance of parents’ role in shaping their children’s education and pointed to a shared culture between school and home. Anthropologist Heather Horst (2010) also used an ethnographic study methodology in researching the consequences of new media uses for American families living in Silicon Valley. Her study illustrates how parent influences shape family uses of new media such as MySpace, a social network site, and computer gaming. She argues that the home is a rich environment in which to analyse social uses of media in contemporary society (Horst, 2010). Horst’s research valuably illustrates that parents’ attitudes, perceptions and values are shaped by both home and work experiences and practices. Both these studies focus on families and their relationship to broader social structures, a concern similar to my own. Using participant observation and striving for “thick” and rich description (Geertz, 1973, p. 6) allowed me to analyse the similarities and differences between home and school attitudes when a new technology was introduced. These qualitative methods helped me to see home and school as separate spaces, not as one blurred space operating within the same sets of values and discourses (Boellstorff, 2012; Stevenson, 2011).

Researchers in childhood studies position children as “active”, “having a voice” and “key informants” in their local contexts, emphasising their experiences and perceptions of events as significant and the meanings they give to events in their “life-worlds” as central to the quality and validity of the research findings (James & Christensen, 2008; Valentine, 2008). Informing my research design was such a “child-centred” position, as adopted by Livingstone and Bovill (2001) in an industry-funded study in which they directly observed children using computers and the Internet in home and school contexts (Livingstone & Bovill, 2001). Such qualitative methods have proven particularly helpful in examining young peoples’ adoption and use of technologies into their everyday lives (Buckingham & Willett, 2006; Horst, 2010; Livingstone, 2002). Generally, these researchers choose qualitative methods—those that seek a more in-depth understanding of children’s experiences, and where the effect of the researcher is made transparent—over positivist methods (Lobe et al., 2007).

In order to better analyse the range of interpretations and meanings arising from participants’ Ultranet uses, I was also guided by recent digital anthropology research that suggests global structures and local practices are interconnected (Madianou & Miller, 2012). In developing a
“theory of relationships”, Madianou and Miller (2012) identify the convergence of structural factors—social, cultural, economic, technological and personal—as equally influencing the mediating process of communication (p. 14). As they state, media convergence—the combination of different forms of media, technologies and telecommunications—challenges the notion that technologies are separated from people’s everyday lives (Madianou & Miller, 2012). Rather, they extend the arguments of others (Baym, 2010; Gershon, 2010) to suggest that the digital, new media communication environment is organised horizontally, adapting to an expanding range of multiple and expanding media; a process they label “polymedia” (Madianou & Miller, 2012, p. 124). These recent developments in digital anthropology question how we study and understand socialisation in digitally-rich media environments. Moreover, these types of questions and theory development inform my fieldwork, conducted online and offline, because they originate from ethnographic analyses of interpersonal interactions and first-hand observations of activities in media-rich environments.

**Ethnography and participant observation**

A core methodological perspective in ethnography, and one I adopted as my central research approach, is a focus on description to explain social action. A major idea about using ethnography to research social action and social order focuses on the dialectical relationship between the two extremes of universality and particularity that shape how we think about the modern world (Miller, 2010). As authors in a seminal ethnography text that shaped the field point out, “there is usually a constant interplay between the topical and the generic, or the substantive and the formal” (Hammersley & Atkinson, 2007, p. 25).

Participant observation is a research strategy used in ethnography to explain social actions in particular settings; as issues unfold in their everyday contexts, these are described from the participant’s point of view. Rather than imposing categories from the top down, the descriptions and meanings the participants give to an artefact form the basis of categorical mapping. In this way, participant observation enables description of the artefact and process to be built up from the participant’s inside viewpoint, rather than ordering events and social actions based on external knowledge about the field (Miller, 2010). Miller and Horst view participant observation as particularly relevant to the digital sphere because of people’s propensity to quickly incorporate new technologies into their everyday lives (Miller & Horst, 2012). Miller (2012a) argues researchers should carry out participant observation for a year or more in the field. He does not use quantitative statistical modelling or predictions about the
general population based on generative principles, preferring instead to participate in local activities and practices and to observe what unfolds naturally and openly (Miller, 2010). The researcher should have no *a priori* assumptions and be led by the actors’ own interpretations as they develop the technological artefact. The knowledge emerging from the local culture and group is seen as of greater value than any categories or assumptions that the researcher may impose in the field. This is a theory I fully endorse. As a researcher, I was there to observe, and be led by, the actors’ interpretations and actions. In this way, the conclusions drawn should be relevant to the actors because the underlying meanings were constructed by them.

Long-term participant observation that focuses on analysing what people do, as well as what they say they do, is traditionally combined with other methods. For anthropologists, these often include interviews and focus groups to provide a more complete representation of social reality, whilst accepting that any method is only ever a representation and therefore subject to bias (Boellstorff, 2012). Spending time studying the differences between people and their cultures is seen as critical in order to gain insight into subjective human experiences, because culture is made up of embodied practices (Boellstorff, 2012). I also cross-referenced and synthesised different types of sources to check evidence and give greater rigour to my findings (Hammersley & Atkinson, 2007). These are the core ethnographic values that influenced my project design.

My purpose in using an ethnographic research approach to Victoria’s Ultranet project was to understand the interpretations and meaning-making of individuals, groups, organisations and institutions as communication practices around learning were constituted and reproduced online. Moreover, I wanted to find out if the new modes, forms and types of relationships and participation practices, promoted by central DEECD officials as beneficial outcomes of Ultranet use, did in fact emerge for school leaders, teachers, students and parents over time. The methods I chose to answer my research question and theoretical sub questions were designed to compare the subjective Ultranet experiences of these groups with the objective success markers government and DEECD used to rationalise their learning platform initiative. As outlined below in Section 3.4, between July 2011 and January 2013, I spent 788 hours in the field learning about everyday practices and building relationships with participants, qualitative methods that are central to the anthropological tradition (Horst, 2012).

An important limitation in using a participant observation strategy is associated with the issue of reflexivity. Since the mid-1980s and early 1990s, there has been a qualitative and reflexive turn in sociology and anthropology that sees the researcher constructed as part of their
practice (Bourdieu, 1990 [1980]; Hammersley & Atkinson, 2007; Lobe et al., 2007; Wajcman & Jones, 2012). The issue of reflexivity in social scientific practice was key for Pierre Bourdieu (1990 [1980]), according to whom division between social scientific and anthropological ways of knowing is separated by the different theoretical and methodological practical understandings of the respective crafts. As Bourdieu (1990 [1980]) makes clear, the interpretation of symbols, words, texts and events is always contested because of the power struggles that various interests attach to decoding words and texts. He suggests that contest and ambiguity remain in interpretivist methods because interpreters ascribing a single, fixed “true meaning” to the sense of objects and practices themselves become part of the problem (Bourdieu, 1990 [1980], p. 17).

A central question arising out of this literature is the extent to which framing the analyst as part of their research produces bias (Hammersley & Atkinson, 2007; Rubinson & Ralph, 1996). Having worked in public education support roles for six years of my professional working life, I used my practical knowledge about technology design within DEECD—notably that administration servers were set up as bounded and disconnected from curriculum servers—to design research that framed technology as embedded in more overarching networks. To minimise the impact of the shaping role of my experiences, I took contemporaneous notes and reflexively accounted for any effect my presence had on participant’s actions. I understood that my observations were not value-neutral and that what I experienced and learnt was related to my attitudes, beliefs and past experiences. Anticipating and responding to problems, questioning my assumptions and being aware of my effect in the field were critical components in managing this research.

Although participant observation is critiqued in that a researcher’s role can influence the research intention (Hammersley & Atkinson, 2007; Lareau, 1989), my independent stance meant that I was less implicated in the findings than if I had been a parent, teacher, current DEECD employee or Ultranet shareholder. Even so, when my classroom research and ability to access and use the Ultranet blurred my status in schools and homes, I stressed my independence and ensured that all participants understood I would not be assuming a teaching role. I gained a Working With Children Check that legitimated my role as a researcher interacting with children in schools.\(^6\)

Another limitation of using participant observation in schools was the unpredictability of daily school operations and classroom dynamics. For example, sometimes a teacher participant was

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\(^6\) A Victorian state process that includes a National Police Check.
absent on the day I had planned to be in their classroom. I was flexible, however, and instead used the time to learn more about the school’s culture.

3.2: OTHER DATA COLLECTION METHODS AND ANALYSIS

Interviewing

Three types of interview—individual, paired and webcam—were used to gain insight into the subjective beliefs, perspectives, attitudes, values and preconceptions participants held about their Ultranet experiences. I tried where possible to conduct private, individual, semi-structured in-depth interviews, which had the advantage of being interactive, discursive and temporal. Also, participant interviews were audio-recorded and reactions noted through close observation of social cues. On a few occasions, at the request of participants, interviews were paired to include a family member or close friend. My interviewing format was flexible enough to adapt to individual participant requests. For instance, the decision to use a webcam to interview one key informant emerged as a collaborative and practical solution to overcome distance. Other than in this instance, all research interviews were face-to-face, with the Ultranet used to frame the discussion. In some teacher and parent interviews, I used a computer to refer to the actual Ultranet content we were discussing in order to elicit their views. Having access to private online content in this way helped to develop rapport and gave me greater understanding on how participants used the Ultranet.

Interviews also position the ethnographer as audience and present “an interactional format in which researchers play a key role through the questions they ask and their responses to answers, however non-directive the interview is” (Hammersley & Atkinson, 2007, p. 176). I remained aware of the possibility that interviewees were reacting to what they imagined my intentions to be, and sought to minimise this possibility by developing interview questions that focused on informants’ knowledge and experiences of the Ultranet in schools and homes.

Empirical sociologists Dunleavy and Carrera promote the value of new, web-based methods over those of traditional qualitative social science research that they see as obtrusive and reactive. They identify several pertinent issues that, they argue, limit high-quality social science research. These include “[interview] question biases, peer influences, subjects giving ‘improving’ responses that conform to public or cultural norms, or delivering what they think higher tiers of government or the researchers themselves want to hear” (Dunleavy & Carrera, 2013, p. 229). Ethnographers dispute this, seeing interviews as only one part of a deeper
engagement they seek with participants. They seek to produce written texts built from non-elicited methods, such as participant observation, and combine these with elicited forms, such as interviewing and visual methods, to produce knowledge (Boellstorff, 2012). Research on new methods that produce different evidence is valuable in building diverse knowledge, particularly as digital information becomes more accessible to social scientists.

To maximise the quality of my data, I identified key areas that needed to be addressed in each interview and used open-ended topic guided questions to help focus the discussion, refining my technique through experience. Interview questions were designed to elicit subjective accounts of how the Ultranet was used in schools and homes. The research schedule was designed to include interviews with key participants at both the start and end of the research project, helping to gain a longitudinal perspective. However, some key participants only attended one interview; this limitation was countered by using a range of other data to gain an overall perspective. Another limitation of interviews related to the inconsistency in interview spaces. Schools are busy, noisy and public places, and it was not always possible to ensure an interview space remained private for the duration of the interview. This lack of privacy related more to teachers than to principals or parents, because they sometimes chose to be interviewed in their shared offices or the staff room. Peer observation can influence an interviewee’s behaviour, so when interviews took place in a public place, I took note of the setting and other people present and considered these factors in analysis.

Focus groups

The focus group, a qualitative method some ethnographers adopt and one used frequently in media and communications research, allows the researcher to collect empirical material from group discussions. Focus group design can be very diverse and the location and structure of the meeting, including the role of the moderator, are crucial to the internal validation and reliability of any data collected (Lunt & Livingstone, 1996). The aim of the focus groups was to invite participants to discuss their perceptions and attitudes about the Ultranet’s ability to meet their home–school communication needs and expectations. I drew on a list of pre-planned topics for the focus group discussions.

The advantages of using focus groups to collect data on the impact of the Ultranet were that they were interpersonal and made use of group dynamics and shared experiences that resulted in high interactivity. I held all teacher and parent focus groups in the familiar local environment of their school, with the intention of making them feel comfortable and relaxed.
and more inclined to express their views openly. Participant groups, especially teachers who worked together, had their own, shared culture. This could be seen in the language they used, stories they told, the regular events with which they were familiar and their explanation of school hierarchies. Focus group dynamics were not fixed. Rather, they changed depending on factors such as privacy, intra-group familiarity, size of group, existing hierarchies and the group’s relationship with me as the researcher (Delamont, 2002; Lindlof & Taylor, 2011).

Acting as the group moderator allowed me to pose questions and focus the discussion on pre-identified themes and discussion items that provided valuable content to help answer my research question. For example, in teacher focus groups, I sought to find out: (i) how the Ultranet affected teachers’ everyday teaching; (ii) what teachers saw as the role of the Ultranet in their professional practice; and (iii) how teachers responded to expectations placed upon them by students, parents, school leaders, their colleagues and education department officials. Specific questions focused on how teachers had experienced the introduction of the Ultranet into their particular teaching spaces, ranging from single and semi-open classrooms to large open-plan learning spaces in primary and secondary settings. I also wanted to observe the different teacher alliances and power dynamics within the focus groups and consider how they impacted the appropriation of the new Ultranet technology.

As outlined, focus groups can be challenging and pose several research problems and limitations. Because focus groups concentrate on issues that matter to the participants and the associations they bring up, they can be difficult to facilitate, particularly when participants are already familiar with one another and regularly take part in small group discussions, as was the case with teachers. Cultural contexts and what participants see as appropriate to share can also influence focus group discussions. Personal dynamics can be problematic, especially if one member is seen as more authoritative, and overpowers others or uses their influence to drive a particular opinion. The researcher can compensate for this by trying to elicit the views of all participants, being aware that there are different levels of knowledge in the group, and understanding that some opinions can be overvalued, or not challenged, by others. The setting for focus groups is important. Mine were generally held in private areas of the school, but this was not always possible, with some taking place in classrooms or the school boardroom, which carried a bias of institutional power. With regard to parent focus groups, I had to change the timing of those that were planned to take place after school because of parent childcare difficulties, shift work commitments and travel time. I therefore supplemented parent focus groups with individual parent interviews to enable a more viable parent data sample.
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Fieldnotes

Fieldnotes document what occurred at a given time in a given place and are a cumulative, permanent, written artefact that reflects researcher accounts (Hammersley & Atkinson, 2007). Fieldnotes can act as a historical record, enabling the researcher to look back and analyse findings that can be cross-referenced with other data to develop themes. Themes are iterative: they can be used to link ideas back and forth and to refine and create new themes or reject others. I extracted and analysed data from fieldnotes in this way to refine the scope and aims of my research question and project (Hammersley & Atkinson, 2007).

I used two types of fieldnotes: a field journal to record my observations at each site, and electronic accounts created from my field journal and typed up as soon as practicable after leaving the field site, usually within 24 hours. Fieldnotes were taken for each participant observation visit and used in conjunction with other data I prepared, such as interview transcripts and personal journal entries, to record observations. Qualitative fieldnotes from focus group discussions and interviews were triangulated with descriptive data collected from the participant observations. I found fieldnotes to be part of a beneficial dialectical process of using a variety of textual, visual and aural modes to produce knowledge that I then tested in the field.

Fieldnotes have been criticised as being selective because the researcher decides what to include in, or exclude from, an account (Hammersley & Atkinson, 2007). My observations were not value-neutral but were related to my past experience, attitudes and beliefs. This means that my fieldnotes do not represent reality in any simple sense, but are a social construction of reality at a particular time and place. I sought to overcome this limitation by being aware of it and analysing data from a range of sources.

Documentary sources and material artefacts

Public documents and artefacts are valuable to trace the historical and political genesis of the Ultranet and highlight some of the complexities DEECD faced in implementing the Ultranet. Document and artefact analyses provided important additional information about topics such as the official viewpoint of DEECD, and helped to challenge or deepen the findings from participant observation, interviews and focus groups. DEECD generated a vast array of online resources to support the Ultranet project, as well as training guides for each user group. I analysed and compiled extensive data from these documents and used them to gain personal competency in Ultranet use. Online research methods made it possible to collect documents
that represented the Victorian education department over time, such as annual reports and school yearbooks, and provided political and social information about its uses of technology in schools. Printed, electronic and web-based documents and material artefacts were collected, including:

- government, DEECD and school policies and user agreements;
- Victorian Auditor-General’s reports;
- *Disrupting Class*, a book given to principals by central DEECD officials to promote the possibilities of the Ultranet;
- DEECD Ultranet parent, teacher and student resource guides;
- school timetables;
- school computer rules;
- school computer network plans;
- school, network and regional Ultranet implementation plans;
- school accountability documents such as Strategic Plans, Implementation Plans, Annual Reports and staff, student and parent survey feedback;
- DEECD Annual Reports and DEECD Ultranet press releases;
- samples of student work completed on the Ultranet;
- teacher planning documents based on the Ultranet;
- video footage and images of school settings and activities;
- school newsletters;
- school letters and permission forms;
- school and DEECD website content; and
- local school publications, such as yearbooks and student digital portfolios.

At one school, I had a school email account enabling access to valuable local information about leadership decision-making, policies and organisational structure. I also examined publicly available official documents and the websites of two groups of DEECD Ultranet stakeholders: the Australian Education Union’s (AEU) Victorian Branch and Parents Victoria (PV). These documents provide a traceable history of actions at the industrial, professional, governmental and DEECD level and formed part of my analysis of the Ultranet project.

One limitation was the lack of independent documents, because DEECD produced the great majority of public materials relating to the Ultranet. As owner and developer of the Ultranet, it also provided advice to the Victorian Auditor-General and the Independent Broad-based Anti-
corruption Commission (IBAC) and prepared press releases publicising and promoting the Ultranet. I note that any government-sponsored literature reflects the particular technological and economic interests embedded in the context of its commissioning and subsequent publishing. With all documents, I paid close attention to the intended audience, the context informing each document’s production, and tried to identify the interests of the authors (Hammersley & Atkinson, 2007).

Analysis

The main approach I adopted to analyse empirical data was “grounded theorizing” (Hammersley & Atkinson, 2007, p. 21). Data was continually analysed and theories inductively generated and developed following observations from the first and subsequent field sites thereby cumulatively building the ethnography (Hammersley & Atkinson, 2007). The theory and data are dialectic and inform one another. However, theory does not arise independent of its disciplinary and epistemological underpinnings. This affects the purposes for which the theory is used and the kinds of questions that are asked by the researcher, because theory is itself constituted within particular social, political and cultural domains (Grenfell, 2012). This is where triangulation of data was valuable in helping to avoid unwarranted inferences; I did not generalise from a sample population to the whole, instead I looked for connections between variables from within the model. Meaning was thus grounded in a reality that was observable, testable and explainable using key concepts and evidence, rather than being part of a broader theoretical alignment with a particular set of principles imposed from outside the social space. I also interpreted data iteratively as parts of the same process, examining inferences that could be tested with further data collection and analysis. Theory construction throughout the long-term data collection and analysis phases of this project was dynamic. The knowledge that arose from this theory-building was therefore continually tested using its own internal set of variables (Hammersley & Atkinson, 2007).

3.3: RESEARCH DESIGN

I used a qualitative, multi-sited and multi-group ethnographic approach combining:

- long-term participant-observation in home and school settings;
- in-depth, face-to-face interviews with teachers and parents in schools and homes;
- focus group discussions with teachers and parents in schools;
- home observation visits with teachers, students and parents; and
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- documentary sources and teacher and student artefacts.

This range of data collection methods allowed me to continually explore the issues that were raised.

The research was conducted in two stages in order to consider the impact of the Ultranet in both schools and homes. Stage One combined focus groups, in-depth semi-structured interviews, participant observation and image, audio and document analysis. The purpose in Stage One was to draw on a diverse range of interpretive views, attitudes, values and preconceptions surrounding educational uses of the Ultranet in schools and homes. Stage Two was an in-depth home study. The purpose of Stage Two was to explore parent and child interaction with the Ultranet in a family environment and to observe the child’s use of the Ultranet, as distinct from school uses guided by a teacher. Four students and their parents were invited to participate in this stage, which involved in-home observations, interviews and focus group discussions (outlined in the Appendix).

I collected data across the four school and 10 home sites during 56 weeks of fieldwork conducted over the 18 months from July 2011 to January 2013. I was in East Primary School (PS), South Primary School (PS) and North Secondary School (SS) for one semester each, and West Primary School (PS) for three consecutive semesters over two school years. In North SS, the timetable structured and restricted my research times to specific sessions each week. This was not the case in the primary schools, where there was much more timetable flexibility and I was able to give particular emphasis to in-depth classroom observations for the whole day. As my research visits generally lasted around five to six hours in primary schools, I developed relationships with students, teachers and parents at different times of the day. My participation at the start and end of a semester or school year correlated with when families and teaching staff joined or left the school community, and allowed me to observe and experience the ritual life of the school.

The fieldwork research took place in a mix of formal, informal and online spaces. These spaces were state exhibition halls, education department offices, teacher union offices, school offices, classrooms in my field sites and in other primary and secondary schools, boardrooms, discussion rooms, school assembly areas and the homes of student, parent and teacher participants.

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7 Pseudonyms are used throughout the thesis to protect the identity of schools involved.
Participant selection

Participant selection was an inductive process. Throughout the data collection phase, evidence was continually under review and subject to revision as new data supported or contradicted initial findings. The broad, pre-formed groups of officials, school leaders, teachers, students and parents were flexible enough to allow for some optimisation as collection and analysis of data proceeded. As I identified new participants, I reviewed and revised my goals for the sample population prior to, and during, the fieldwork. Once in the field, relationships developed and further opportunities arose to observe and interview other relevant people. The final design represented a diverse sample population to ensure a wide cross-section of views. The groups and a breakdown of participant numbers are outlined in a series of annotated tables in Section 3.4.

In this study I used key informants to gain information that was otherwise inaccessible, and as one of a range of ways to help identify the target population, mindful of the potential for key informants to exert excessive influence over the process. Combining approaches gave me a historical and theoretical insight into the development of the Ultranet. I wanted to compare and contrast the interpretations of groups in my study with those from other schools with different organisational settings. My aim was to generate theory that could help answer my research questions about the factors shaping Ultranet participation.

My original research design was to focus in-depth on the Ultranet use of 75 Grade 5 and 6 children, aged 10–12 years, born between 1999 and 2001. I became aware, however, from my school observations that Ultranet use was less frequent or structured than I had anticipated. To solve this problem, before data collection commenced in the second field site, I extended my research design to include children from Grade 3 up to Year 9, aged 8–14 years, born between 1998 and 2003. Overall, this made it possible to observe 132 students in a wider range of Ultranet student activities. The flexible and open-ended character of my ethnographic approach enabled me to adapt my methods to fit in with the demands of the particular culture and cohort under study (Lobe, Livingstone, Olafsson, & Simões, 2008).

My methodological and ethical goals were to build relationships with children through actual involvement in their socio-cultural environments as they used the Ultranet in their everyday learning, observing their practices and interpretations as they emerged. In hindsight, it may have been beneficial to combine participant observation with student interviews, enabling a richer representation of children’s Ultranet experiences (Lobe et al., 2008; Rowsell, 2012). Relying on adult-oriented representations of young people’s practices with new technologies
CHAPTER 3: Research Design and Methodology

has been critiqued, with such accounts seen as problematically reproducing structural hierarchies and lacking interpretive rigor (Herring, 2008). I managed this tension by reflexively monitoring my influence on children’s actions and triangulating observational data with other sources.

Choice of fieldwork settings

Following a review of relevant academic, school and DEECD literature, websites, DEECD school performance data and discussion with regional key informants, I selected four of Victoria’s 1600 state schools—East, West and South PSs and North SS—all located in a large and diverse outer Melbourne suburban education region, one of the then nine education regions in the State of Victoria, Australia. Restricting data collection to four schools in one geographical area meant I could gain an in-depth perspective within the limits of time and personnel available for the research. The sample size allowed for comparative analysis, with each school located in a different sub-region and neighbourhood. By contrasting schools from the same DEECD region, I anticipated this would draw close attention and give voice to the “local”, that is, teacher, student and parent uses of the Ultranet.

DEECD considered the primary schools to be “mid-size” and the secondary school “large” in terms of student numbers, school buildings, staffing, funding and resources. The three primary schools ranged in enrolment from 420 to 600 students, and the secondary school had approximately 1000 students. From 2010 to 2011, student enrolments increased 10% at North SS, 8% at West PS and 5% at South PS. Enrolments decreased by 9% at East PS.

At the time of my research, DEECD generated an overall socio-economic profile for each school community based on the Student Family Occupation index and a Language Background Other Than English (LBOTE) indicator, highlighting the different nationalities, languages and percentage of the student population from non-English-speaking backgrounds from data collected at the local level. The range of both variables was from low to high across all schools. Together with student numbers, DEECD regarded these factors as important determinants of student achievement and at the time of this research used them to calculate a school’s funding. The socio-economic and multicultural dimensions of each school were reflected in their organisational cultures, and hence affected school leaders’ and teachers’ Ultranet decisions.
I initially decided to limit the scope of my research to primary schools, for three reasons. First, I wanted to compare students with respect to their Ultranet activity. In particular, my research goal was to focus in-depth on how Grade 5 and 6 primary school students and their parents and teachers, positioned in diverse socio-economic and cultural contexts, appropriated the Ultranet technology into their everyday lives. Second, the Student@Centre Ultranet in government schools’ pilot analysis found that the impact of the Ultranet was higher in primary schools, proposing that secondary schools were already using a variety of other learning or administrative software systems (Griffin & Woods, 2005). From this report, I surmised that primary school leaders would be more likely than secondary schools to be developing new policies and processes relevant to the Ultranet. Third, I believed that the culture of primary schools, particularly in relation to more active parent group involvement, would provide greater opportunity than available in secondary schools to build relationships and engage in formal and informal discussions with parents, students and teachers.

After six months fieldwork in two primary schools, however, I changed my research design to include a secondary school, for three reasons. First, I wanted to determine if primary and secondary school teachers, students and parents differed in their Ultranet practices, issues and interpretations. Second, with my early results indicating the significance of Lead Users in shaping teacher, student and parent Ultranet participation, I wanted a secondary site that had continued to embed the Ultranet despite DEECD’s removal of Ultranet coaches. Third, a broader age group of students enabled a more comparative and informative account of the Ultranet phenomenon. It was not feasible to include more than one secondary school for comparison due to research time limits, but using an ethnographic orientation meant that I could achieve depth in the one site. Therefore, following discussion with Nicholas, a regional DEECD official, Bradley, a regional Ultranet Coach (RUC) and Allira, an ICT network group member, I decided to complement the research design by including data from a secondary school.

East Primary School

In 2010 and 2011, East PS had a teaching staff of approximately 32 comprised of two principal class personnel and a mixture of expert, accomplished and graduate teachers. The school’s overall socio-economic profile was “mid-high” and the proportion of students with an LBOTE was “low-mid”. From DEECD survey data, the level of staff and parent satisfaction was slightly lower than state average. The level of student satisfaction in the student engagement and
wellbeing variable was comparatively lower than that of other schools with similar students. I chose East PS because the Principal was managing a transformation in the use of technologies in all grades and with all teachers. He wanted to develop an online learning environment for the school community and was increasing the school’s ICT infrastructure capacity. Following ethics approval, I met with the Principal and team leader of Grade 5 and 6 who agreed to support my research. After initial fieldwork ended in 2011, I re-visited the school on two occasions in the first half of 2012 to review teacher, student and parent Ultranet use. Following a successful ethics amendment in 2012, I also returned to interview two parents involved in the original Stage Two phase. Fieldwork took place here between July 2011 and May 2012.

West Primary School

In 2010, West PS had a teaching staff of 28 comprised of three principal class personnel and a mixture of expert, accomplished and graduate teachers. West PS’s overall socio-economic profile was “low” and the proportion of students with an LBOTE was “high”. The level of staff and parent satisfaction was higher than state average. The level of student satisfaction in the student engagement and wellbeing variable was comparatively similar to that of other schools with similar students. Nicholas shared his knowledge with me about primary schools that were well-established in their use of information and communication technologies (ICT). Following this meeting, I contacted West PS and was invited to join a school tour and presentation run by the Principal. I chose West PS because technology was embedded across the curriculum, teachers were using student-generated digital portfolios and collecting evidence of student learning and reflections using ICT and the school leadership team saw the Ultranet online environment as key to improving student outcomes. At this school, I adopted an extended and continuous longer-term ethnographic approach over eighteen months from July 2011 to December 2012.

South Primary School

In 2011, South PS had a teaching staff of 37 comprised of two principal class personnel and a mixture of expert, accomplished and graduate teachers. South PS’s school’s overall socio-economic profile was “mid” and the proportion of students with an LBOTE was “mid-high” relative to the rest of Victorian schools. The level of staff satisfaction was slightly higher than state average. The level of parent satisfaction was at state average. Student satisfaction in the
student engagement and wellbeing variable was similar to that of other Victorian schools with similar students.

South PS was selected in April 2012, once I had analysed some of the data from the first two primary schools. By this time, I had been in the field for nearly 12 months and it was clear that I needed more parent input to learn the extent to which parents were appropriating the Ultranet into their everyday lives and identify the cultural factors explaining their low Ultranet use. I contacted Nicholas, who suggested five schools where parents had been invited to register to use the Ultranet. Of the five, I chose South PS because it was at the most advanced stage of involving parents, rationalising that any Ultranet teething problems would have been resolved and online partnerships between teachers and parents may be emerging. On contacting the Principal, he arranged for me to attend a scoping meeting and school tour with Lead Users. At this meeting, they explained how the Ultranet featured in the ICT curriculum and how they were trying to use an Ultranet space to communicate with 500 families. After this discussion, I decided to modify my research design at this school and concentrate on interviews and focus groups with parents and Lead Users only. This provided the opportunity to further interrogate how hierarchy and school leadership team decisions impacted on learning platform technology implementation in homes (Jewitt et al., 2010). Unfortunately, the school could not provide me with any personal parent details due to state privacy restrictions. Further, having not yet developed relationships with their children or teachers, I was unable to recruit parents using my preferred ethnographic approach (based on building face-to-face relationships and developing social networks with participants once in the field). Therefore, in this exceptional case and based on my project description and scoping meeting, Lead Users Emily and Tiffany compiled a list of 12 parents from across the school on my behalf. I then invited all 12 to participate in the project, and nine of them, all with different Ultranet experiences, agreed voluntarily to take part. Fieldwork took place at South PS from May to December 2012.

North Secondary School

In 2011, North SS had a teaching staff of 81 comprised of four principal class personnel and a mixture of expert, accomplished and graduate teachers. North SS’s overall socio-economic profile was “low-mid” and the proportion of students with an LBOTE was “mid-high”. The level of staff and parent satisfaction was slightly higher than state average. The level of student
satisfaction in the student engagement and wellbeing variable was similar to that of schools with similar students.

I chose to include North SS in my study in May, 2012, two years after the Ultranet’s introduction to schools, for four reasons. First, the school positioned itself to the school community as innovative and a statewide leader in the provision of an ICT-rich learning environment and curriculum. Second, the school leadership team had a regional reputation for promoting online student-centred learning. Third, Bradley and Nicholas identified it as one of two regional secondary schools leading Ultranet use in the curriculum.8 Lastly, I was keen to observe how the Ultranet was being used in the everyday lives of secondary teachers, students and parents, particularly given the widespread AEU resistance to the Ultranet. Following a meeting with the school’s Ultranet coach, Allira, I was invited to undertake my research. Fieldwork took place at North SS from July to December 2012.

**Ethical considerations**

This research received separate approvals from The University of Melbourne Human Research Ethics Committee and the DEECD. Unpacking the Ultranet: Home–School Uses, ethics identification 1135389.1 (May 12, 2011) was approved (following one amendment (March 22, 2012)), by the Humanities and Applied Sciences Human Ethics Sub-Committee at The University of Melbourne. Changes to the original research project design were deemed necessary after initial ethnographic fieldwork and required the submission of an ethics amendment request. This change gave DEECD key stakeholders a greater opportunity to contribute and allowed me to deepen my understanding of Ultranet design and implementation processes. The project gained DEECD ethics approval on June 15, 2011, with the subsequent amendment approved on March 20, 2012.

Research merit and integrity, justice, beneficence and respect—universal principles of studying human social life—guided my engagement with research participants, whom I saw as intelligent, sentient, rational, goal-driven, reflective and evaluative in their decision-making. I used the National Health and Medical Research Council’s (NHMRC) *National Statement on Ethical conduct in Human Research* (2007) and the University of Melbourne’s research code of conduct to inform my decision-making and guide my actions (National Health and Medical Research Council, 2007; University of Melbourne, 2017). Further, the handbook *Understanding

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Consent in Research Involving Children: The ethical Issues, helped me to apply the National Statement (Spriggs, 2010). In designing my research, I also carefully considered the view that power relations between adult researchers and child informants can negatively impact a child’s online and offline participation (Chakraborty, Nansen, Gibbs, & MacDougall, 2012; Lobe et al., 2007; Lobe et al., 2008). I undertook ethics training before commencing my fieldwork and was also in regular contact with and took advice from my supervisors, who have extensive experience in conducting qualitative research in anthropology, sociology and education. Any ethical issues that arose were discussed, documented and collaboratively worked through.

This sub-section outlines in three parts how the values and principles of ethical conduct informed this research project: first I review briefly the informed consent process, followed by how I managed the issue of privacy. Finally, I outline the steps I took to minimise any risk of harm to participants.

Informed Consent

In fieldwork and throughout the project, my objective was to keep potential participants fully informed about: (a) the key reasons why I believed they, as particular individuals, could valuedly contribute to the research; (b) the demands and requirements of their participation; and (c) the potential gains for them arising from their voluntary involvement. To this end, each individual was advised about the project in a plain language statement, written with specific application to their particular group (for example, parent, student, teacher or principal).

Throughout the fieldwork, with the support of the principal and class teachers, students were given comprehensive information about the project and a consent letter to take home. Parents were required to give formal written permission for their children to participate and both the student and parent were asked to sign the consent form if interested in participating. The information advised them of their right not to participate or to withdraw without being subject to questioning by me. Both also had to give or refuse consent for photographs to be taken. I elected not to take photographs of children in their homes, because I felt this had the potential to be a burden, off-putting and invade family privacy. I also asked participating students for permission to collect, analyse and use their learning artefacts, such as printed work, computer files and writing samples. An extensive description of the documentation given to participants can be found in the Appendix.

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9 I completed a Human Ethics: Consent and Confidentiality workshop through the Melbourne School of Graduate Research (MSGR) (2010) and an MSGR Global Research Ethics and Integrity online course (2011).
Students predominantly took responsibility for being part of the research and in some instances, as Livingstone and Sefton-Green (2016) similarly identified in their fieldwork, advocated for the project with their parents so that they could be involved. Once they had given their consent, none of the children withdrew from Stage One. One student decided to withdraw during Stage Two because of the unanticipated burden on his time out of school. The privacy of students who did not wish to be part of my project was respected and information was only collected from those who voluntarily consented to participate.

In the field, participants asked direct questions about their involvement in the project, my background, my role as a student researcher, my position in the school’s organisation and the publication of the research. Where applicable, all participants agreed to interviews and focus groups being recorded, with audio and transcripts stored in compliance with The University of Melbourne’s policy regulations.

**Privacy**

Prior to approval from DEECD, my primary supervisor and I had to sign a Research Agreement, assuring our commitment to privacy and DEECD laws, policies and procedures. I also had to stress in any information shared with participants that my project was unrelated to any DEECD research or evaluation on the Ultranet. For guidance on Ultranet privacy protocols, I used DEECD’s parent, student and teacher Ultranet user guides and also drew on the findings of an independent Privacy Impact Assessment commissioned by DEECD (DEECD, 2010f, 2010l, 2011g; Salinger Privacy, 2010). Any department-owned data, such as parent, student and teacher satisfaction surveys, had to be requested at the local level through the principal to respect school privacy.

Ultranet access was managed at an individual school level by school-selected Identity and Access Management (IDAM) administrators, regulated and determined by the relationship the particular user—teacher, student, parent or visitor—had with each individual school (DEECD, 2012a). I gained permission to access the Ultranet through a rigorous registration process designed to protect DEECD’s security and privacy. Once the IDAM manager had given approval, the principal gave me a username and password. This access was necessary in order to observe first-hand the uses and constraints of the Ultranet in learning and communication. Formal permission in each field site was conditional on principal approval and, as with my participants, regulated by Ultranet Terms of Service.
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The Ultranet spaces I could access were determined by the Ultranet authorisation level I was granted in each school community. In three schools I was recognised as a school visitor, invited by teachers to participate in specific online learning activities. At another school I was recognised as a casual staff member with teacher-level Ultranet access rights, allowing me to join Ultranet collaborative learning and community spaces not accessible to other school visitors and parents. In addition to my levels of Ultranet access, I was able to observe parents, students, teachers, school leaders and school visitors using the Ultranet, both spatially in the same room or online from my chosen location, thus providing a multi-group and multi-site perspective on participants’ activities.

The Ultranet online system provided opportunities to collect data from a range of situations. Learning content created and published by students on the Ultranet was, at times, quite descriptive and personal. Indeed, on occasions, I felt uncomfortable asking if I could use a student’s records for my purposes if that student had an emotional response to the learning content. This observation highlights challenges faced in collecting private records that are owned by others but used and made public by researchers over time.

Visual research methods have become a valuable way for researchers to return to their analyses of certain phenomena and capture moments in time, but they bring the risk that participants are identifiable, raising confidentiality issues. No photographs were taken where there was a possibility that confidential information on a computer screen could be identifiable.

I took particular care to minimise the risk of breaching participant’s privacy and confidentiality. As well as using pseudonyms in field notes, transcripts and in the published thesis, I omitted some contextual information about details or events that specifically implicated or alluded to individual participants in order to avoid any potential harm, embarrassment or identification. Interviews and focus groups were non-attributable, but as the number of people involved in this project was very small, I explained to participants that there was still a small risk they might be identifiable in the final report. On completion, the thesis will be available online to participants and the public through The University of Melbourne’s library.
Harm reduction

Researchers have identified several social and psychological risks involved in working with children (Delamont, 2002; James & Christensen, 2008; Lobe et al., 2007; Lobe et al., 2008; Spriggs, 2010). Students may not fully understand the research in which they have agreed to participate. Some may feel that participation, or non-participation, will ostracise them from friendship groups, social groups, school activities or family members who may also be participants or non-participants in the research. Others may fear that non-participation in the research project will affect their grades or future schooling. Some may be unclear about the role of the researchers and see them as having the same authority as teachers, whilst others may worry about having to share their work and/or that the researcher will ask questions they cannot answer. I addressed these issues in several ways.

My aim was to become familiar with the physical environment and social and learning culture of each school, engaging closely with the issues and becoming known in the school communities rather than relying on representations of Ultranet use in DEECD documents. I sat with teachers, students and parents in front of computer screens when they were using (or trying to use) the Ultranet to understand how they appropriated, critically evaluated and adapted Ultranet resources. As my long-term aim was to develop non-hierarchical relationships with students at all research sites, I participated in some group and class activities and generally adopted the same seating arrangement as the children so as to interact with them more easily. It was an important part of this case study’s objectives that I could observe certain phenomena from a child’s perspective and I was guided by the classroom teacher to ensure that any participation was non-intrusive.

It was important that my participation did not interfere with children’s natural uses of the Ultranet. At such times, the controlled nature of their everyday lived reality in safe settings and the importance placed on institutional and moral constraints were made more visible. Legal and social risks for student participants included any non-compliance with the school’s Acceptable Use Agreement (AUA), copyright laws and/or intellectual property regulations as they related to the Ultranet. On occasions students would unintentionally post comments on the Ultranet such as “I am a student at [name] primary school”, potentially identifying themselves and/or risking their safety. At such times I drew on my resources, judgement, academic research ethics training, supervisors, DEECD policies and reflexive research methods to consider each case in context.
I sought to build trust and rapport with participants and to understand how they saw their environment. I spent time with teachers in the morning as they prepared for classes, at the end of the day when they reflected on their work, and socialised with them in staff rooms at recess and lunchtimes. I spent time with children in the playground before school and during the day, and became familiar with some parents who regularly visited the schools. These informal experiences helped me gain a deeper insight into behaviours and attitudes and allowed me to analyse teachers’, students’ and parents’ social interactions as they began to appropriate the Ultranet into their everyday practices and relationships. At the same time, I had to remain cognisant of my own preconceptions and beliefs about 21st-century education environments and to be mindful of how others interpreted my presence.

In summary, my project was designed to honour ethical and legal constraints and to ensure minimal burden on DEECD staff, parent and student participants. The daily organisation of each school was respected to minimise the impact on sites, with research undertaken on days which suited the requirements of that particular school. Any out-of-school observations were voluntary, and were flexibly organised to ensure minimal disruption to the families involved. I followed clear ethical guidelines to protect participants’ privacy and confidentiality. I identified the social, psychological, economic and legal constraints associated with this project and took measures to ensure risks were minimal and no harm came to participants. I always tried to put people first throughout the research. After the project ended, one parent, Mikayla, whose Ultranet experiences are outlined in Chapter 8, reflected on how the nature of the relationship between the researcher and the participant had given new meaning to her self-understanding:

> [It] helped me clarify a number of things. You are very easy to talk to and have some amazing skills in communication, recall of relevant literature and qualitative research—a fabulous role model, thank you! Your ease with communication is much appreciated!\(^{10}\)

As we have seen in this section, the themes in Mikayla’s correspondence depict some of the ethical considerations in research design and redesign that have long been of value in any ethnographic process; in this case, the importance of establishing trust and rapport with each participant. In the next section, I provide a breakdown of the key groups and number of participants in the study.

\(^{10}\) Mikayla, parent, South PS, personal communication, December 5, 2012.
3.4: BREAKDOWN OF DATA COLLECTION

Table 1 and Table 2 below show that I collected data from 226 participants in 100 interviews and 15 focus groups in approximately 788 hours, or around 20 full-time weeks, over 18 months. I had formal contact with participants on 239 occasions. This does not include informal contacts with teacher and student participants through participant observation or discussions.

**Table 1. Sample sizes and data collection methods in Stages One and Two, by sub-groups, July, 2011–January, 2013**

<table>
<thead>
<tr>
<th>Participant types</th>
<th>Number of participants</th>
<th>Number of interviews and contacts</th>
<th>Number of focus groups and contacts</th>
<th>Number of home contacts</th>
<th>Total number of contacts with participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Officials</td>
<td>5</td>
<td>7</td>
<td>0</td>
<td>0</td>
<td>7</td>
</tr>
<tr>
<td>School leaders</td>
<td>23</td>
<td>37</td>
<td>0</td>
<td>0</td>
<td>37</td>
</tr>
<tr>
<td>Teachers</td>
<td>26</td>
<td>20</td>
<td>7 with 36 contacts</td>
<td>2</td>
<td>58</td>
</tr>
<tr>
<td>Students</td>
<td>132</td>
<td>0</td>
<td>0</td>
<td>42</td>
<td>42</td>
</tr>
<tr>
<td>Parents</td>
<td>38</td>
<td>32</td>
<td>8 with 27 contacts</td>
<td>32</td>
<td>91</td>
</tr>
<tr>
<td>AEU, Victorian Branch</td>
<td>1</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Parents Victoria</td>
<td>1</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td><strong>226</strong></td>
<td><strong>100</strong></td>
<td><strong>15 with 63 contacts</strong></td>
<td><strong>76</strong></td>
<td><strong>239</strong></td>
</tr>
</tbody>
</table>

...
Table 2. Total time spent with participants in Stages One and Two, by sub-groups, July, 2011–January, 2013

<table>
<thead>
<tr>
<th>Participant type</th>
<th>Number of participants</th>
<th>Total time spent per participant type (hours)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Officials</td>
<td>5</td>
<td>8</td>
</tr>
<tr>
<td>School leaders</td>
<td>23</td>
<td>42</td>
</tr>
<tr>
<td>Teachers</td>
<td>26</td>
<td>25</td>
</tr>
<tr>
<td>Students</td>
<td>132</td>
<td>622</td>
</tr>
<tr>
<td>Parents</td>
<td>38</td>
<td>86</td>
</tr>
<tr>
<td>AEU</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Parents Victoria</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td><strong>226</strong></td>
<td><strong>788</strong></td>
</tr>
</tbody>
</table>

Table 3 gives a broad overview of the types and numbers of officials involved in my research and the data collection methods used.

Table 3. Sample size and data collection methods, state and education department officials

<table>
<thead>
<tr>
<th>School</th>
<th>Number of officials</th>
<th>Number of interviews, contacts, and contact hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>interviews</td>
</tr>
<tr>
<td>Central DEECD officials</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Regional DEECD officials</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Regional Network Ultranet Coaches (RNUC) and (RUC)</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td><strong>5</strong></td>
<td><strong>7</strong></td>
</tr>
</tbody>
</table>

Table 4 gives a broad overview of school leaders’ sample size and data collection methods. The 23 school leaders participating in my project included principals, Lead Users, assistant principals, leading teachers, teachers with positions of responsibility, and members of a regional network-based ICT leadership group.
Table 4. Sample sizes and data collection methods for school leaders, by fieldwork settings

<table>
<thead>
<tr>
<th>Fieldwork settings</th>
<th>Number of school leader participants</th>
<th>Number of school leader interviews and contact hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>interviews</td>
</tr>
<tr>
<td>East PS</td>
<td>4</td>
<td>7</td>
</tr>
<tr>
<td>West PS</td>
<td>5</td>
<td>8</td>
</tr>
<tr>
<td>South PS</td>
<td>4</td>
<td>8</td>
</tr>
<tr>
<td>North SS</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Other schools</td>
<td>8</td>
<td>10</td>
</tr>
<tr>
<td>Totals</td>
<td>23</td>
<td>37</td>
</tr>
</tbody>
</table>

Table 5 gives a broad overview of teacher sample size and data collection methods. Time spent on participant observation varied between 16 and 56 weeks, dependent on field sites, time, research aims and teacher access.
Table 5. Sample sizes and data collection methods for teachers, by fieldwork settings

<table>
<thead>
<tr>
<th>School</th>
<th>Number of participants</th>
<th>Number of participant observation periods (weeks)</th>
<th>Number of contact interviews at school and time</th>
<th>Number of contact interviews at home and time</th>
<th>Number of contact focus groups and time</th>
<th>Total contacts and time</th>
</tr>
</thead>
<tbody>
<tr>
<td>East PS</td>
<td>4</td>
<td>20</td>
<td>7 with 4 teachers</td>
<td>6</td>
<td>0</td>
<td>6 in 2 focus groups</td>
</tr>
<tr>
<td>West PS</td>
<td>15</td>
<td>56</td>
<td>6 with 4 teachers</td>
<td>4</td>
<td>2 with 2 teachers</td>
<td>26 in 4 focus groups</td>
</tr>
<tr>
<td>South PS</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>North SS</td>
<td>7</td>
<td>16</td>
<td>7 with 5 teachers</td>
<td>6</td>
<td>0</td>
<td>4 in 1 focus group</td>
</tr>
<tr>
<td>Totals</td>
<td>26</td>
<td>56</td>
<td>20 with 13 teachers</td>
<td>16</td>
<td>3</td>
<td>36 in 7 focus groups</td>
</tr>
</tbody>
</table>

*cont. = contacts; †h = hours

Table 6 gives a broad overview of student sample size and data collection methods. At West PS, a group of 12 Grade 3/4 students was included because the school’s curriculum was specifically designed to provide this age group with opportunities to develop an Ultranet collaborative learning space. I did not include students at South PS, instead electing to research the Lead Users’ and parents’ responses to the Ultranet (outlined in Section 3.3).
### Table 6. Sample size and data collection methods for students, Stages One and Two, by fieldwork settings

<table>
<thead>
<tr>
<th>School</th>
<th>Number of student participants</th>
<th>Participant observation time</th>
<th>Number and grade/year of students involved in home participant observation</th>
<th>Number of home visits and time</th>
<th>Number of contacts and contact hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>cont. (^x) h (^f)</td>
<td>cont. (^x) h (^f)</td>
<td></td>
</tr>
<tr>
<td>East PS</td>
<td>11 Grade 5</td>
<td>200 h (^f) over 20 weeks</td>
<td>2 Grade 5</td>
<td>17</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td>28 Grade 5/6</td>
<td></td>
<td>2 Grade 6</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Subtotal 39</td>
<td></td>
<td>Subtotal 4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>West PS</td>
<td>12 Grade 3/4</td>
<td>300 h (^f) over 56 weeks</td>
<td>2 Grade 4</td>
<td>11</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td>39 Grade 5/6</td>
<td></td>
<td>1 Grade 5</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Subtotal 51</td>
<td></td>
<td>1 Grade 6</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Subtotal 4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>South PS</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>North SS</td>
<td>16 Year 7</td>
<td>80 h (^f) over 16 weeks</td>
<td>2 Year 9</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>11 Year 8</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>15 Year 9</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Subtotal 42</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Totals</td>
<td><strong>132</strong></td>
<td><strong>580 h (^f) over 56 weeks</strong></td>
<td><strong>10</strong></td>
<td><strong>32</strong></td>
<td><strong>42</strong></td>
</tr>
</tbody>
</table>

\(^x\) cont. = contacts; \(^f\) h = hours
Table 7 gives an overview of parent sample size and data collection methods. Twelve of the 38 parents who took part in Stage One also participated in Stage Two; I also collected and analysed data from their children and the teachers of their children.

**Table 7. Sample size and data collection methods for parents, Stages One and Two, by fieldwork settings**

<table>
<thead>
<tr>
<th>School</th>
<th>Number of participants</th>
<th>Stage One</th>
<th>Stage Two</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Number of interviews at school and time</td>
<td>Number of interviews at home and time</td>
</tr>
<tr>
<td></td>
<td></td>
<td>int.*</td>
<td>h</td>
</tr>
<tr>
<td>East PS</td>
<td>5</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>West PS</td>
<td>21</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>South PS</td>
<td>9</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>North SS</td>
<td>3</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Totals</td>
<td>38</td>
<td>8</td>
<td>8</td>
</tr>
</tbody>
</table>

* int. = interviews; † h = hours; ‡ cont. = contacts; • fgs = focus groups
In the next five chapters I examine the empirical data collected in this research. The data are separated by participant group: state and education department officials (Chapter 4), school leaders (Chapter 5), teachers (Chapter 6), students (Chapter 7), and parents (Chapter 8).
CHAPTER 4: HOW STATE AND EDUCATION DEPARTMENT OFFICIALS AND COMMERCIAL INTERESTS SHAPED ULTRANET DESIGN AND IMPLEMENTATION

The 9th of August 2010, the day of the official launch of the Ultranet, was made a pupil-free day to allow teachers to undertake Ultranet training. Over 3500 Victorian government school leaders attended the Department of Education and Early Childhood Development’s (DEECD) sixth statewide “Big Day Out” leadership meeting at the Melbourne Convention and Exhibition Centre. The Big Day Out event brought together key decision-makers behind the Ultranet project, notably the Premier of Victoria, John Brumby, and Minister for Education, Bronwyn Pike, and central and regional DEECD officials. Presenters at this event included international education academics and digital learning experts Sugata Mitra, Richard Elmore and Yong Zhao, who launched different aspects of the Ultranet product using DEECD’s “create, collaborate, connect” promotional message (Bartlett, 2010). These spokespeople acted as a powerful collective to promote the value of the Ultranet as an important technology that would drive school improvement. The carefully planned Big Day Out set high aspirations for those in state education to use the Ultranet—the first integrated learning platform technology in Australia—to socially transform Victoria’s system and be “the missing piece in the technology puzzle” (DEECD, 2010f, p. 2).

DEECD officials championed the Ultranet as an intervention strategy representative of a new direction in state education. More specifically, as part of DEECD’s School Improvement Program, they wanted to embed technology more deeply in everyday teaching and learning practices, claiming that it would:

- improve responsiveness to individual learning needs;
- provide better information to parents, the school system and Government;
- improve efficiency of the learning environment and school administration;
- adopt an enterprise approach to intranet development; and
- exploit previous ICT investments. (DEECD, 2009, p. 5)

Underlying DEECD’s version of modernity can be seen the idea that successful citizenship involves supporting shared values around technology and democracy. By exploiting newly available commercial learning platform software in their strategic development of the Ultranet, central DEECD officials wanted all members of school communities to interact through one online space “anywhere, anytime” and become more effective citizens (DEECD,
A central DEECD official, Tori, described the importance of this idea in the Ultranet’s business plan:

“When we wrote the business requirements for the system, it was really [about] improving teaching and learning [...] how can we actually leverage technology to support teachers to improve the learning process and also to support students to be more involved in the learning process to better monitor their own learning.”

Therefore DEECD officials framed their making the Ultranet available across the whole Victorian education system as a positive step in improving student learning and increasing participation opportunities for individuals and groups.

This chapter is concerned with the group of state and education department officials who had high-level decision-making and policy development roles in the Ultranet project. I reveal how these actors were influenced by public policy, commercial forces, professional organisations and their own particular sets of concerns within the broader context of the Victorian education system.

Officials influential in shaping the Ultranet’s implementation at a state government level included consecutive State Premiers; Education Ministers; opposition spokespeople; personnel from the Department of Treasury and Finance and Department of Premier and Cabinet; Parliamentary Secretaries for Education and their senior advisors; and members of the Victorian Auditor-General’s office and the Victorian Government Purchasing Board.

At an education department level, the key actors were the DEECD Secretary, Deputy Secretaries, General and Assistant General Managers, Regional and Assistant Regional Directors, central and regional Ultranet and Digital Learning Leaders and DEECD managers (Information Technology Division, Office for Resources and Infrastructure and Policy Research and Innovation). A central DEECD Ultranet group determined the overall policy and strategy and was headed by a dedicated Ultranet Project Board responsible for the implementation and evaluation of the Ultranet initiative. In DEECD, the Deputy Secretary, Office for Government School Education, Project Director, Ultranet Business Owners and Ultranet/eLearning managers were highly influential. Regional DEECD leaders and their staff, especially Ultranet coaches, were responsible for implementing and supporting the Ultranet in their regional networks and thus were important influencers in leading Ultranet practices at the local level.

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11 Tori, central DEECD official, interview, December 9, 2011.
Influential stakeholders representing the interests of their respective groups were teacher and principal representatives, School Council organisations, the Australian Education Union (AEU) Victorian Branch, the Australian Principals’ Federation and Parents Victoria (PV).

Influential commercial stakeholders were business group and technology contractor CSG Services Pty Ltd (hereafter CSG) and global technology company, Oracle Corporation Australia Pty Limited (hereafter Oracle). CSG was awarded the contract for the Ultranet Project and built the Ultranet software package, in part using Oracle Student Learning (OSL) technologies. CSG’s Ultranet contract was bought by NEC Australia in 2012.

In this chapter I examine how central DEECD officials created, shaped, built and attempted to institutionalise the Ultranet from 2003 to 2013, and how its bureaucratic design limited the kinds of participation that were possible for users. This chapter is structured in four sections. First, I examine the political and ideological context of the Ultranet to show how it emerged out of several influential education policies. Second, I discuss central DEECD officials’ four Ultranet goals showing how each was shaped to promote the benefits of the Ultranet to school communities. Third, I examine the problem-solving strategies central DEECD officials adopted in their response to four issues during the social construction of the Ultranet. Fourth, I use the Social Construction of Technology (SCOT) framework and Pateman’s Participatory Theory of Democracy (PTD) to discuss the relevant social groups and participatory opportunities evident in building the Ultranet learning platform.

4.1: THE RELATIONSHIP BETWEEN NATIONAL AND STATE GOVERNMENT FORCES IN THE ULTRANET PROJECT

State and education department officials sought to strategically align their goals with Federal and state government initiatives and policies promoting information and communication technology (ICT) in education. They supported a premise that increases in state and national productivity could be achieved from inside public sector institutional settings through enhancing people’s capacity to drive innovation and technological change (Dunleavy & Carrera, 2013). Their mission was to justify and implement the Ultranet as a system-wide technological change backed by public policy that would extend and integrate the skills, knowledge and resources already available in the Victorian education system. This section concentrates on those aspects of government policy that affected the practical implementation of the Ultranet. First, I discuss the relevance of national policies to the Ultranet’s development. I then show how the Ultranet was framed within two Victorian

**The impact of national education policy on Ultranet development**

Three national education policy frameworks, designed to change how technology was used in education, set the tone for what became the Ultranet: the *Melbourne Declaration on Educational Goals for Young Australians* (2008), the *Digital Education – Making Change Happen* (2008) policy framework and the Federal Labor Government’s *Digital Education Revolution* (DER) policy initiative (2008–2014) (DEEWR, 2011; Ministerial Council on Education, 2008a, 2008b). The *Melbourne Declaration* was aimed at tapping into digital education technology’s potential to support young Australians to become: “creative and productive users of technology, especially ICT” (Ministerial Council on Education, 2008b, p. 8). The DER invested 2.4 billion dollars to resource the introduction of digital education technologies in government, independent and Catholic primary and secondary schools and its policy goals sought to create direct systemic change at curriculum, pedagogical, infrastructure, information and resourcing levels (DEEWR, 2010, 2011). Policymakers argued that the strategic use of ICTs could enhance the digital skills of all citizens, allowing them greater access to a wider range of technologies and making possible new forms of communication across civil society (DEEWR, 2011; Ministerial Council on Education, 2008b). A central DEECD official expressed similar views on ICT as key to current and future educational reforms:

I think some of that interactive content will get better and better over time, and probably in twenty years classrooms will look incredibly different. I mean, even if I look at next year [2012], every year nine to 12 student will have access to a device, a one-on-one device through the National Secondary Schools Computer Fund. It’s a game changer.¹²

DEECD’s overall rationale for the Ultranet learning platform, justified by the three national policy frameworks described above, was that linking technology resources with innovative education practices would improve system outcomes and build community relationships.

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¹² Tori, central DEECD official, interview, December 9, 2011.
CHAPTER 4: Influences on Ultranet Design and Implementation

How DEECD officials linked the Ultranet to Victorian policy

The Victorian Labor government implemented large-scale ICT reform across Victorian public service institutions, including education, policing and public health services, over 1999–2010. Policymakers claimed this reform would provide greater access to democratic communication processes and give all citizens increased opportunities to be part of digital-era social changes (DEECD, 2010d; State Government Victoria, 2010; Victorian Auditor-General’s Office, 2012, 2013). The two consecutive major policies driving education in Victoria over 2003–2010 were known as Blueprints, key elements in the Labor government’s education reform process in Victoria. Both Blueprint policies concentrated on systemic reform and included initiatives around leadership, curricula and new pedagogies, within which were goals to integrate digital technologies more deeply and equitably in learning (DE&T, 2003; DEECD, 2008).

The first Blueprint promoted community building through partnerships. It stated that success was “dependent upon cooperation across the government school system”, and the goal of ensuring that all students could participate in the same educational opportunities, regardless of their social, cultural and/or academic status (DE&T, 2003, p. 28). The ongoing reform of the Victorian education system—outlined in the second and final Blueprint, released in 2008 but never completed because of a change to state government in 2010 midway through Blueprint 2’s 5-year plan—framed each individual in the system as an active participant. This moved away from an idea that organisational reform and leadership alone could drive education changes from the top down (DEECD, 2008). These policy directions, together with DEECD’s Digital Learning Statement, explicitly promoted a vision of a more participatory and democratic society (DEECD, 2010d).

The Victorian state government also set the direction for the kinds of technologies DEECD developed through its Blueprint policies, in which access to a modern learning environment and the rich use of education technologies in teaching and learning were valued and increasingly linked with the promise of improvements in participation and student outcomes. Central DEECD officials’ role was to design strategies to implement Blueprint policies, with the Ultranet just one of many aimed to support changes in teacher pedagogy and practice and continue the development of the Victorian education system (DE&T, 2003; DEECD, 2008). They strategically framed the Ultranet as part of public policy, thus increasing the likelihood that principals would implement it (DEECD, 2008, 2010i). The common view in government and the education department was that improved outcomes in education would eventuate if the Ultranet was successfully implemented in government schools.
We have seen how policymakers framed the potential of ICTs as being able to effect broad social, material and ideational changes to improve the lives of citizens and increase levels and types of participation in education. In designing the Ultranet project, DEECD officials closely aligned their intentions and goals with national and state policies and frameworks, highlighting their ideological convictions. The vision of two Labor government *Blueprints* promoted a move towards the broadening of partnerships across and within the education system. The organisational structure and political context of DEECD reflected this direction, one in which participation could be enhanced through the use of technology. Both political expediency and social alliances were significant in the Ultranet’s development as it emerged from historical, social and political contexts, with its design shaped by policy and by the ways in which DEECD officials, and later, individuals and groups in schools and homes, came to interpret it.

### 4.2: CENTRAL DEECD OFFICIALS’ ULTRANET VISION

Central DEECD officials introduced the Ultranet to more effectively realise and build on the technologies, skills, capabilities and knowledge already inherent within the Victorian system in the utopian belief that their political endeavours would increase participation opportunities in education. According to rhetoric visible in its public brochures, DEECD aimed to reinforce its “world-class” curriculum reputation, enhance professional interdependency between teachers, students and parents, and build the education system in more social ways (DEECD, 2010l, 2011g). In order for their Ultranet vision to become a reality, DEECD officials needed to design and implement a product that would entice school leaders, teachers, students and parents to build it into their everyday practices. Participation benefits would only be realised once the Ultranet was adopted system-wide. DEECD officials used their specialised knowledge and professional bureaucratic advantage to develop a range of Ultranet spaces and communication tools designed to embed technology more deeply into education contexts (DEECD, 2010e).

Informing central DEECD officials’ vision were three broad influences: system-wide growth in education technologies; society’s changing relationship with digital technologies; and education policy. They assumed several key outcomes would eventuate if their broader Ultranet goals were successful: improved teaching and learning; the development of a statewide “knowledge management framework” to store and share resources and materials; increased online teacher collaboration; the provision of individual student data tracking and
reporting; and increased engagement of parents in their children’s education\(^\text{13}\) (DEECD, 2010c, 2010e).

This section outlines four goals extrapolated from documents and interviews that are intended to be broadly representative of central DEECD officials’ Ultranet vision: to exploit new technologies to modernise learning; to integrate teaching approaches and classroom organisation; to improve data collection methods and quality of data; and to maximise data use and enhance reporting systems.

**Goal 1: To exploit new technologies to modernise learning**

As an institution, DEECD was responding to a growing academic discourse and public demand to show that implementing new digital technologies would improve student and system outcomes, benefit the economy in the long-term and provide value for money. Between 2003 and 2012, distinct from Commonwealth government ICT spending and schools’ ICT purchasing, DEECD spent 1.6 billion dollars on the provision of ICT services in schools, expected to grow to 2.6 billion dollars by 2023 (Victorian Auditor-General’s Office, 2012). This translated into interactive whiteboards, desktop and notebook computers, touch-screen devices, phones, iPads, iPods and audio-visual equipment, all positioned in DEECD literature as having roles to play in transforming education, with students seen as the main beneficiaries (DEECD, 2010b, 2010h). Although varied across schools, the statewide ratio of computers to students in primary and secondary schools improved from one to four in 2002 to better than one to three in 2010 (DEECD, 2011e). Resourcing a range of ICTs—each designed for particular purposes—was an important way DEECD officials shaped the education environment.

Central DEECD officials positioned the Ultranet concept as progressive, new and different from what already existed (Aloisio, 2004). It was unsurprising then, that in a competitive and quickly growing global education technology market, the case for the Ultranet as providing unique digital opportunities previously not available in the Victorian education system was persuasive (DEECD, 2010c). Further justification came through DEECD-sponsored trials that found web 2.0 media to be used in the Ultranet had unambiguously and positively changed students’ participation in learning (DEECD, 2010k), an ambitious claim given the difficulties in researching web 2.0 impacts in education settings (Hammond, 2014). Thus, as well as presumably being compatible with existing technologies and technical systems, DEECD officials

\(^\text{13}\) Tori, central DEECD official, interview, December 9, 2011.
chose the Ultranet to capitalise on previous ICT public investment and to transform everyday learning and communication practices.

Unlike other ICTs, the Ultranet software was promoted by DEECD officials as enabling users to have more direct involvement in their learning, providing private spaces where they could take risks, share content with trusted peers and experiment with ideas. For example, in the eXpress space, students could manage their own learning portfolio and set up learning goals that teachers and parents could view (DEECD, 2010l). The Ultranet was also promoted as an online platform that could provide increased access and storage of digital resources, greater opportunities to communicate, the ability to create and collaborate, and close monitoring of learning (DEECD, 2010e). By implication, using the Ultranet would provide individuals and groups with newer and easier ways to use resources and data and develop their knowledge and technology practices, especially with Internet-based technologies. As Hammond (2014) notes, governments use ideology to effect particular ICT policy outcomes in education. DEECD officials hoped that, as schools became more locally resourced with one-to-one devices, such as iPads, computer tablets and mobile phones, the Ultranet online workspace would more successfully integrate into each student’s learning (DEECD, 2010a). Therefore, DEECD officials saw that embedding more technologies into each individual’s Ultranet experience would create a need in those individuals to use the Ultranet as part of their everyday practice. As Somekh (2004) has argued, policymakers and leaders are influential in shaping technology outcomes in schools.

Central DEECD officials defined boundaries for each Ultranet User Group. For instance, teachers were seen as needing access to Learning Contacts and Portfolio Viewers to share knowledge and build teacher communities. Students could write and share their profiles but had limited opportunities in their personal space for networking with other students. As for parents, whilst DEECD officials promoted them as important participators in their children’s education process, they were not given the same rights as school users to own a private Ultranet space or to have personal contacts (DEECD, 2010f). Within a tightly controlled bureaucratic framework, DEECD officials defined which user groups could make content, collaborate, share ideas and be active in creating web 2.0 media and thus determined the kinds of participation that individuals could be part of through the Ultranet.
CHAPTER 4: Influences on Ultranet Design and Implementation

Goal 2: To integrate teaching approaches and classroom organisation

Central DEECD officials saw creating and distributing teacher-made content through the Ultranet as necessary to drive a higher level of teacher collaboration. The Ultranet, effectively a platform empty of content at inception, was intended to become an ever-expanding library of high-quality digital content for DEECD, teachers, students and parents that could be used collaboratively across classrooms, schools and communities. Once established, teachers would be able to add resources and construct a centralised communication architecture for over 1500 schools across Victoria. Teachers could already source content from existing digital libraries, such as Scootle (Education Services Australia Ltd., Melbourne) and FUSE (Find, Use, and Share quality Education), and web 2.0 social media, including blogs, interactive websites, such as Mathletics (3P Learning Limited, North Sydney) and YouTube (Alphabet Inc., San Bruno). Through the part-finished Ultranet platform, users would be able to create and distribute original content, encouraging broader participation processes. DEECD officials assumed teachers would become more motivated to embrace the Ultranet once they could confidently plan and prepare their own lessons on it as well as being able to access other teachers’ digital content. Tori provided the rationale behind this belief that quality digital content could be further developed by teachers and increase collaboration within and across schools: “It’s not just me in my classroom developing materials in isolation. If we come together and collaborate and work together, we are probably going to produce even better quality instructional materials.”14 Whilst content provided by the system was quality assured, it was hoped that quality markers would emerge through teachers’ use, moderation and review of one another’s resources. The belief that teachers were the experts underpinned this view, with Tori explaining:

One of the strengths for me of the Ultranet is even when we package content [...] it’s not saying “here’s your curriculum for this topic and no choice in how you do it.” It’s really saying “you’re the expert, you know where your kids are up to.” We’re going to give you resources you can easily access to incorporate into your learning and teaching.15

Thus, the Ultranet was socially constructed by DEECD officials who believed that, through teacher collaboration and their development and use of quality digital content, the Ultranet would evolve as a dynamic technology and increase participation processes system-wide.

14 Tori, central DEECD official, interview, December 9, 2011.
15 Tori, central DEECD official, interview, December 9, 2011.
As noted earlier, central DEECD officials also wanted to use the Ultranet to transform teaching practices in the use of technology and increase students’ involvement in their own learning (DEECD, 2009, 2010k). As Tori pointed out, formal teaching structures were anticipated to change over time, with teaching and learning becoming more student-driven and technology-focused:

I think the Ultranet needs to evolve over time. One of the things I’d love to see in this over time is, instead of the teacher creating the sequence and pushing it out, that in fact kids are given, well here’s a whole lot of ways you could meet where we’re heading with this outcome and you actually start to put together a bit of a sequence that I’ll monitor for you to get there.¹⁶

Yet, such transformation in teaching and learning came with assumptions and expectations. Even within the context of the Ultranet, student learning was still constructed by central DEECD officials as a teacher-driven process that required teachers to make decisions whilst delivering a tight, quality-controlled curriculum.¹⁷ Aly emphasised the crucial role of all teachers in developing the Ultranet and driving teacher collaboration:

The benefits of the system [Ultranet] are only realised if people are using it, otherwise it’s empty so that’s been an issue in terms of uptake. You present people with a portal that’s empty; they don’t know what to do with it. Then it’s about teacher’s capacity to change. There’s data that shows teachers have actually increased their capabilities around the use of ICT in the classroom but they’re not where we want them to be.¹⁸

Central DEECD officials regarded using the Ultranet to create, access and share peer-developed content as a major driver that would change teacher ideas and attitudes towards an increased use of technology in their teaching and positively influence the behaviour of all 55,000 Victorian teachers. Moreover, they believed that teachers’ authority as authors would expand as they generated content to share with their peers. They understood that the effective realisation of their vision was closely tied to changes in teacher behaviour and practice. As Buckingham (2008a) and Facer (2011) note, the positive democratic potential of digital technologies is not achievable without the interest and willing participation of users.

¹⁶ Tori, central DEECD official, interview, December 9, 2011.
DEECD officials strategically wove system-wide values of quality into Ultranet practices but also emphasised the individual’s responsibility to uphold these values. A risk in expanding user-generated digital resources on the Ultranet was that poor quality content would negatively affect the reputation of DEECD as a provider of world-class learning materials. The credibility of quality digital content—including video, audio, image, documents, web pages, educational software programs and digital libraries—was already well established across the system prior to the Ultranet. But non-DEECD-accredited content was also available to schools and homes and becoming more widespread, partly as a result of the digitisation of information, cheaper technologies and increasing use of educational software and educational websites. The concern was that, as more non-accredited content entered the Ultranet system, there would be less opportunity to control the quality of that content. This debate is similarly represented in other organisations where disintermediation, a process where one actor is removed in a supply chain, threatens the stability of the governing hierarchies (DeNicola, 2012). In an attempt to ensure quality and make standards explicit, new Ultranet content had to be grounded in principles of outcomes-based evidence approaches and theories of teaching and learning that were part of DEECD’s existing planning and teaching frameworks (DEECD, 2008, 2010). DEECD also required that any Ultranet content adapted for education purposes had to comply with existing curriculum and legislative standards. The Ultranet, however, intrinsically challenged these types of institutional boundaries and placed responsibility for compliance individually with teachers (as discussed in Chapter 6). In conclusion, DEECD officials saw that maintaining quality control on the Ultranet was of critical importance. This expectation was problematic as teachers started to generate and share digital content in ways that had not been possible before the Ultranet.

**Goal 3: To improve data collection methods and quality of data**

Information gained through data collection and report production was a valuable resource for the government, education department, schools and families, and part of a global trend. Commercial software developers had opened up this market by tailoring software to manage an institution’s particular requirements (Coopman, 2009). Consistent with wider information society changes taking place in public education (DEECD, 2010), central DEECD officials wanted to make available broader and more effective differential data sets to use within the system. The Ultranet was designed to capture and integrate data and produce a wider range of reports on each student’s skills, attendance and achievement that could be accessed from

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19 Tori, central DEECD official, interview, December 9, 2011.
school or home. Compounded over time, DEECD officials believed that such information would provide rich knowledge and lead to increased outcomes in the education system. As Bradley, a regional DEECD official, explained, “the ability for reports and the reporting component is brilliant and so that adds another layer to that information sharing or sourcing of knowledge.”\(^{20}\) Data security was also highly valued. Bradley added, “the Department has made very, very sure that everything is to the letter to ensure the highest security arrangements and compliance issues are in place.”\(^{21}\) Maximising and synthesising the different kinds of information available through the Ultranet was clearly seen as important for school improvement agendas designed to modernise and transform learning. Therefore, central DEECD officials positioned the Ultranet as a framework that could be used to extend its data management methods and information systems.

The systems developed to track and manage individual student data had some limitations. For instance, DEECD’s concern with providing a secure and protected environment required Ultranet designers to build a universal password system that proved a deterrent to Ultranet User Groups. Through a single access point, users could view all of their resources once logged on using a unique username and “complex-7” password containing characters, letters and numbers. This password requirement proved difficult and was a disincentive for some students in particular (as illustrated through fieldwork and discussed in Chapter 7). Further, the fact that the Ultranet could be used to track and monitor teaching and learning activities in classrooms raised some concerns, as Bradley pointed out: “Some teachers worry, ‘oh this is Big Brother looking up on us, checking up on us, seeing what we’re doing, what we’re not doing.’”\(^{22}\) DEECD officials had to persuade teachers that the data sets available through the Ultranet would be used for cutting-edge teaching and learning possibilities and not for accountability reasons. Despite concerns that the Ultranet represented a new type of “surveillance culture”, DEECD officials needed to enlist the support of teachers to create Ultranet content. With the Ultranet technology being promoted to enhance teacher practice and support student learning, at the same time as potentially being used by DEECD officials and school leaders to monitor classroom teaching and learning activity, a tension was evident.

To counter perceptions that a central governing agency was overseeing online activity—a risk posed by using particular forms of digital types of technology (Monahan, 2005)—DEECD officials used the metaphor of a “tool” to frame the Ultranet as simply a central

\(^{20}\) Bradley, regional DEECD official, interview, August 8, 2012.
\(^{21}\) Bradley, regional DEECD official, interview, December 5, 2012.
\(^{22}\) Bradley, regional DEECD official, interview, August 8, 2012.
repository. A central DEECD official, Aly, stressed the technical capacity of the Ultranet to emphasise its practical and straightforward role in teaching and learning:

> What the Ultranet did was like being the learning dashboard so that you could access your content. You could access your lesson in your learning tasks if you were a kid. If you were a teacher, you could find, you know, all the lessons you planned in the past there. You could share lessons from other people there. So, to me it was like a learning dashboard.\(^{23}\)

However, central DEECD officials were predominantly the toolmakers. They had designed the Ultranet software within public sector possibilities and constraints, influenced by the contexts in which they operated. While teachers, students and parents were framed as active controllers in their Ultranet choices and activities, they had minimal ability to design the Ultranet to fulfil their needs. Nor did teachers as expert educators have the same level of access as school leaders to view Ultranet reports. Hence, DEECD officials shaped the kinds of Ultranet activities that were available at the same time as promoting the Ultranet as a simple-to-use, specialised tool for all.

**Goal 4: To maximise data use and enhance reporting systems**

DEECD officials wanted to use the Ultranet to streamline reporting processes in schools. With technology part of a time-saving, “work smarter” discourse, they promoted a recurrent and powerful theme that its use would simplify administrative systems, everyday tasks and practices for teachers. The key messages DEECD officials used to sell the Ultranet to educators were that it was simply an extension of the computerised systems they were already successfully using and that its use would “consolidate school administrative functions into the one system and lighten teachers’ burden” (Victorian Auditor-General’s Office, 2012, p. 6).

DEECD officials believed the Ultranet would help in managing everyday routine tasks, seen to adversely impact on school administrators’ and teachers’ time (DEECD, 2009).

The computerisation of some teaching and learning administrative tasks was already underway in schools. Electronic attendance and online computer-based assessment systems had replaced traditional paper-based administrative and teaching records to some extent and student reporting software packages, such as Accelerus, Sentral or DEECD’s then centrally-funded reporting package Quick Vic, were being used because of their compatibility with

\(^{23}\) Aly, central DEECD official, interview, January 30, 2013.
existing DEECD databases. Schools using such systems to manage reporting to their school communities, however, had different requirements, practices, infrastructure constraints and software issues. From a system perspective, the purported value of the Ultranet was that it would create a simpler, more consistent and informative reporting system across the state. Streamlining professional communications about student progress was seen as a way of standardising information-sharing practices and further linked to DEECD’s concept of quality control. DEECD officials wanted to use the Ultranet to provide continuous data to parents and students throughout the year and thus extend and transform existing reporting practices.

DEECD officials regarded the ability of users to share data to plan, inform and monitor actions through the Ultranet as a new approach to student-parent-teacher interaction. In particular, they promoted the interrelated and open-ended nature of the learning process supported via Ultranet use. Tori described this continuous cycle process, in which teachers could use data to develop specific actions to personalise individual student needs:

> What I can do in the Ultranet is really monitor the learning process. I can give feedback to students, kids can give feedback to each other, parents can give feedback to students. But I can also participate, obviously, in any of these online materials and, last of all, at the end [...] I will do an assessment against curriculum frameworks, but that’s all captured as well and not only can I as a teacher do that and capture it, students can also do that, and back we go again. The next teacher can get the data and around it goes.24

Broadening this process to enable parents to view previously unavailable data through the Ultranet, however, challenged existing boundaries. Tori believed that “some schools were more hesitant to bring parents on than others because it is actually a transparent process.”25 The Ultranet threatened the traditional school organisational culture, in which student data was mainly used internally by teachers and ultimately integrated into formal end-of-semester reports to parents. DEECD officials thus saw creating, tracking and assessing data in a variety of innovative ways using the Ultranet as informing teaching practice, guiding schools’ decision-making and enhancing student-parent-teacher interactions. They hoped that, as more data and content were created, Ultranet participation by different user groups would increase. The Ultranet was intended to bring discrete data collection systems under a central framework, streamlining reporting and integrating existing teaching and learning practices year round.

24 Tori, central DEECD official, interview, December 9, 2011.
25 Tori, central DEECD official, interview, December 9, 2011.
We have seen in this section that the Ultranet was a unique technical solution designed by central DEECD officials to build on the strong foundations within the Victorian education system. Its introduction was aspirational and highlights the importance these officials placed on technology to solve complex system-wide problems. They believed that the Ultranet’s implementation would make teaching and learning more efficient and effective. They defined four key goals, all of which needed to be met if they were to realise their common vision for the Ultranet. To combat the perception that the Ultranet would mean more centralised control, DEECD promoted the idea that levels of participation and interest would increase once everyone was using the same system.

4.3: FOUR OBSTACLES TO ULTRANET IMPLEMENTATION

The delivery of the Ultranet was an important school improvement goal for DEECD and consecutive Labor state governments, not just another piece of technology in a growing commercial education market. Its history highlights the sorts of broader influences that can affect the design and implementation of large-scale technology initiatives by government institutions even with political impetus. Behind the Ultranet artefact were complex legal, social and organisational factors that shaped the strategic decision-making processes of state and education department officials and affected the subsequent Ultranet interface. Indeed, conflicts of interest, governance and accountability issues beset the Ultranet project from its inception.26 My analysis of documents and interview data shows that DEECD officials’ actions were constrained by multiple problems, the solutions to which shaped the Ultranet technology and had a social impact on its users. Were failures in the Ultranet design simply a result of complexity in government processes? As Bradley put it, “Upon reflection, I think it’s par for the course, not only for government projects but any sort of large ICT initiative. You just have big problems and it takes a while to iron them out.”27 Or was its design more influenced by a powerful group of central DEECD officials, aligned to state and market ideas and beliefs about web-based technology’s role in improving education? What is clear is that the ability of central officials to deliver a learning platform to meet their goals was challenged by legislative decisions, government regulations and political and contractual relationships that affected Ultranet design, implementation and eventual user participation.

26 Even more seriously, subsequent Independent Broad-based Anti-corruption Commission (IBAC) investigations have shown it to be a flawed and corrupted process that produced individual advantage (IBAC, 2016).
27 Bradley, regional DEECD official, interview, August 8, 2012.
This section contains analyses of four issues central DEECD officials encountered, the solutions they designed and the decisions they made in constructing and interpreting the Ultranet: funding; contractor appointment; change of state government; and privacy concerns. Analysis shows that, as public policy implementers, central DEECD officials operated within, and were shaped by institutional, top-down “whole-of-government” and education department rules, technical systems, processes and policy frameworks that constrained the development of the Ultranet. They responded to these challenges strategically while continuing to promote the Ultranet as an innovative technology that would improve the system.

Ultranet Funding

The concept shaping the Ultranet design was based on a Victorian government priority to improve education through digital technology. As Aly explained:

In 2004 [there was] a vision around how could teachers be supported to do their job better, how could parents get more ready access, how could kids have just in time access to their learning journey and their learning tasks and I think that vision was absolutely right. At that time, there was money to build a system.28

An early version of what DEECD officials wanted to create was manifested in their commission and design of the state-funded Student@Centre Ultranet in Victorian Schools’ pilot study in which 12 schools were selected to trial an intranet system built by Oracle Corporation (DE&T, 2005; Griffin & Woods, 2005). The study’s conclusions were used by the Department as evidence for its Ultranet business plan, highlighting a lack of transparency in the research design (IBAC, 2016; Victorian Auditor-General’s Office, 2012).

The promise to develop and deploy a statewide online learning, teaching and administration system in all government schools was a Victorian Labor Party election commitment in 2006. Consequently, as part of the Victorian Schools Plan, the Labor government funded the Ultranet project for 60.5 million dollars in 2007–8 (DEECD, 2011c, p. 48; State of Victoria, 2007). Quotes from the first tender process in 2007 were over 100 million dollars, however, and did not meet state government criteria, or obtain DEECD approval (DEECD, 2011c, p. 38; Victorian Auditor-General’s Office, 2012; Victorian Ombudsman, 2011). Even so, in 2009 the Shadow Education minister stated in Parliament that Ultranet costs had been quoted by the Minister for Education, Bronwyn Pike, as having overrun by 30 per cent (Dixon, 2009, p. 2935). By 2012,

following further scrutiny, the Ultranet project was costed at 180 million dollars to Victorian taxpayers (Victorian Auditor-General’s Office, 2012), a claim challenged by some witnesses at a state anti-corruption inquiry (IBAC, 2016). While the actual processes by which decisions were made about how Ultranet-tagged funds were spent are unknown, what is clear is that the original budget was unable to deliver a product that could meet central DEECD officials’ goals. Nonetheless, central DEECD officials had to operate in a broad state and DEECD bureaucratic environment, which impacted on Ultranet development.

In rescaling the Ultranet under financial duress, central DEECD officials reduced the scope of what they envisaged and publicised as being on offer to the Victorian school system. The version of the Ultranet that was eventually released to schools in 2010 had far fewer administrative features, reducing the functions originally planned, tested and showcased from 1260 to 131 (Victorian Auditor-General’s Office, 2012). For example, the attendance feature that was part of the Student@Centre evaluation was removed, thus failing one of the Ultranet’s key efficiency objectives: to integrate school administration systems through a user interface (Victorian Auditor-General’s Office, 2012). In the original platform, it was envisaged that up-to-date attendance data would be contemporaneously available to parents, schools and DEECD, enabling more immediate and effective follow-up where required. Reshaping the project meant that, as well as using the Ultranet, teachers still needed to rely on other systems and personnel to record student attendance. The purpose of integrating learning platform technology into users’ routine tasks was intended to save teacher administrative time, make use of personal and portable teacher ICT resources, and improve the quality of the information that schools and teachers were producing. Cutting back Ultranet features reduced the potential for its use in teachers’ work.

The consequences of these financial, political and technical bureaucratic decisions were that a reshaped Ultranet was promoted by central DEECD officials as a “Learning Portal” and “School Portal”, designed still to appeal to teachers, students and parents but with less focus on teacher administration. Crucially, as the scope and purpose of the Ultranet was reduced the risk that fewer schools would use it increased. Outside central DEECD circles, the social impact of this decision on the future of the Ultranet project was substantial, as Nicholas recalled:

Had the concept [been] able to be realised in its full then it would have taken off and would have taken off really well but as soon as it only became a student learning tool then there was no real reason why they had to use it. There was no imperative around it whereas, had it been, had all the administrative stuff been on it, there would have
been an imperative about using it because schools would have had to have used it. And then the spin-off of that would have been the student learning stuff because kids just would have gravitated towards it. So, I think Darrell Fraser’s original concept was very good but it got watered down and then of course it lurched from disaster to disaster.  

With the Ultranet scaled back, the administrative component originally planned was compromised, jeopardising the effective realisation of all policy goals. This shows how particular features central DEECD officials had selected were contingent on, and reflected, the budget issues and the interests of, and interactions between and within, the state government, DEECD and commercial companies.

Appointment of Ultranet main contractor

The appointment of a contractor to build the Ultranet involved social interactions between DEECD and other important agents and groups that had direct involvement in its design. Together with financial, political and technical factors, these interactions created the Ultranet artefact. This dynamic process culminated in the Ultranet tender process, with the contract eventually awarded to CSG in 2009 for 71 million dollars (Victorian Government Purchasing Board, 2009). A central DEECD official claimed that all decisions related to the Ultranet tender were closely monitored through “procurement guidelines and [...] very clear processes.” This would be true for all state government departments responsible for awarding large public service ICT contracts to private companies. Liberal–National Shadow Minister for Education, Martin Dixon, however, politicised the Ultranet project in 2009, highlighting in Parliament his concern about the processes used to select an Ultranet contractor. Dixon’s parliamentary critique reveals that four non-Australian ICT companies unsuccessfully tendered for the Ultranet contract (Dixon, 2009). Awarding the Ultranet contract to an Australian software company “out of the blue” strengthened a view in the global education technology market and within the Liberal–National opposition that the contract decision was questionable (Dixon, 2009, p. 2935).

The Ultranet tender process was politicised again when, in 2012, towards the end of the first Ultranet contract with the successful supplier, CSG, it was critiqued by external reviewers. Victoria’s Auditor-General found aspects of the Ultranet project lacked transparency and

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29 Nicholas, regional DEECD official, interview, December 4, 2012.  
30 Tori, central DEECD official, interview, December 9, 2011.
showed loose adherence to the whole-of-government processes that should be adopted when public funds are used to implement major initiatives (Victorian Auditor-General’s Office, 2012). In 2016 IBAC investigated the Ultranet tender process, and evidence was provided that showed CSG was chosen by Oracle as a partner to represent its interests and provide Oracle technology products in Australia (IBAC, 2016). These actors added to the wide range of institutional social groups involved in judgements and decisions during the design and development phase of the Ultranet project.

Having entered into a 3-year contract with CSG to deliver the Ultranet, DEECD was still faced with additional costs for new modules. Also, because the system was already committed to the expensive learning platform solution, there was a hiatus in other ICT innovation within schools and DEECD. Similar examples of UK government departments locking into expensive, long-term private service contracts that limit growth and creativity for both sides exist (Dunleavy & Carrera, 2013). The obsolescence built into technology by designers and government procurement processes were factors highlighted by Aly, just after the publication of a critical Auditor-General report:

Processes around procurement are long and lengthy within the government and so deviation with web 2.0, that was a tricky thing. And technology changes constantly. And how do you, within a procurement policy with big government, actually ensure agility to meet the needs when it’s based on guidelines around procurement that aren’t for that changing moment. 31

Designing a sustainable Ultranet technology, whilst taking into account such dynamic factors, was a problematic process, further exacerbated by a fast-moving commercial education technology economy. DEECD officials chose to purchase a commercial learning platform that could be centrally managed as a way to increase teacher, parent and student participation in education. This was in contrast to other options, such as promoting less standardised learning platforms, paid for and managed by individual schools, or buying different components of a learning platform design from multiple providers, a solution favoured by some UK schools (Jewitt et al., 2010). While commercial partners may provide alternatives and even fund ICT projects that allow schools to experiment and take risks (Somekh, 2004), such partnerships affect creativity in other ways. In the case of the Ultranet, financial, legal and technical factors tied ICT reform to a commercial model that had negative consequences for users.

31 Aly, central DEECD official, interview, January 30, 2013.
The Ultranet’s first contract with CSG (taken over by NEC Australia in June 2012) expired in June 2013 and was extended for six months until the end of the school year. Schools wanting to continue using NEC’s next iteration of the Ultranet, GenED v4.0, were advised they would need to purchase it in readiness for the start of the 2014 school year (NEC Australia, 2013; Topsfield, 2013). In short, DEECD officials’ vision that the Ultranet project would provide a value for money, long-term social benefit for increasing participation in the public education system failed to materialise. Although funded and supported by integrated national and state education policies and strategically managed by DEECD, the Ultranet technology was rebranded, repackaged, and sold by NEC Australia to individual schools by ex-Ultranet experts.

The number of schools purchasing GenED v4.0 was not released by DEECD making it difficult to assess interest in this replacement product.

**Ultranet opposition following a change of government**

A major event that affected the Ultranet’s development just after its release to schools was the unexpected change of government following the 2010 Victorian state election. Against a background of state budget restrictions, new education policies refocused the Victorian education reform agenda away from systemic intervention, promoting autonomy and professional trust at the school level as major priorities (DEECD, 2012b; Dixon, 2011). In the 2011 state budget, the government cut funding for the Ultranet’s online library, FUSE, but claimed to remain committed to the concept and development of the Ultranet (State of Victoria, 2011). As a result of these political and financial changes, education regions and schools were more uncertain about, and had less of a system focus on, the Ultranet. As Nicholas noted:

> One of the most interesting things for me is that *Victoria as a Learning Community* has just come out and the word Ultranet doesn’t appear in it. You know there are ICT platforms mentioned but the Ultranet is not mentioned. The Minister [Dixon] has not come out and made any major speeches around continuing with the Ultranet.\(^{32}\)

It is unknown to what extent a new government, keen to make its mark on education, believed that the Ultranet could deliver on the system-wide advantages promoted by the original designers. A damning Auditor-General report in 2012 may have contributed to the Liberal–National state government’s decision to defund the Ultranet at the end of 2013, with Minister for Education, Martin Dixon, stating the project was “botched from conception to

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\(^{32}\) Nicholas, regional DEECD official, interview, December 4, 2012.
implementation” and that it could no longer be supported (Tomazin, 2014). An education department under a government that promoted the transformative potential of learning platforms built the Ultranet, but a new government focused more on budget efficiency and decentralisation principles moved away from supporting it, both financially and symbolically. A key outcome in this dynamic environment was that state education underwent rapid internal organisational upheaval. The subsequent changes to public policy and bureaucratic leadership in the education department highlight the vulnerability of education policy implementation under the constraints of short term government periods and a lack of bipartisan collaboration in the design and political ownership of long-term public investment. The new directions that shaped education policy, technology development, funding and organisational reforms were also key influences on Ultranet User Group participation processes, adversely impacting the realisation of central DEECD officials’ Ultranet goals.

**Privacy decisions**

The Ultranet had to operate within the “checks and balances” of existing legislation, such as the *Audit Act 1994, Information Privacy Act 2000* and *Health Records Act 2001*. Government-style technology initiatives are linked to the state and therefore subject to top-down control mechanisms and policy regulation that act as constraints (Mansell, 2012; O’Dwyer & Doyle, 2012). Following a DEECD-commissioned Privacy Impact Assessment of the Ultranet published in March 2010, just months before it was launched in all state schools, central DEECD officials had to rewrite parts of the Ultranet design to protect the privacy rights of Ultranet users. This development challenged the central DEECD officials’ view that the Ultranet could enable individuals and groups to have more direct participatory opportunities and increase citizenship. The post hoc report, produced by Salinger Privacy, a private consultancy firm and approved Victorian Government supplier, recommended changes to the Ultranet software to comply with DEECD’s broader policies and procedures (Salinger Privacy, 2010). Central DEECD officials, who framed themselves as at the vanguard of accomplishing organisational change through socio-technical interventions in education, had to quickly change specific parts of the Ultranet design to comply with statutory privacy principles and protect DEECD’s structures.

The application of privacy law impacted directly on students’ learning experiences on the Ultranet, changing the characteristics of the personal communication space they were able to use. The technical modifications made to the Ultranet software saw the eXpress space landing page—the main page users saw when they logged on—redesigned, and the option for
students to share written messages with pre-approved learning contact friends on a “wall” removed. As a result of this redesign, DEECD officials’ rhetoric of using the Ultranet to enable more “social” learning turned from private “me” to collaborative “we” Ultranet spaces. By design, each type of space was intended to appeal to a particular user audience. “Me” spaces were promoted in DEECD materials as safe online areas where users had freedom to experiment with ideas and take “responsible” risks. In contrast, “we” spaces allowed everyone’s identity to be seen within that community and individuals could share opinions and ideas and manage their audiences (DEECD, 2010f). Developing collaborative skills was still valued, but students’ scope for individual expression, self-management and responsibility for their language and private writing within the Ultranet space was reduced. The result was a different, risk-averse and less exciting Ultranet space for students than that originally planned. This outcome mitigated against central DEECD officials’ first goal (as discussed in Section 4.2). Although central DEECD officials saw the original Ultranet features as important to increase participation, a consultancy recommendation to make the Ultranet compliant with existing legislation resulted in it being less interactive and participatory.

Central DEECD officials met with numerous financial, political, social and technical problems in implementing the Ultranet. They included issues with funding, design, contractor selection, the change of government and privacy compliance, all of which influenced the design of the technology. Central DEECD officials’ original plans to build a technology to bring about their desired changes could not be effected within the allocated budget. They were required to make a series of design changes, resulting in a technology different from that they envisaged and publicised. Regional DEECD officials believed that the Ultranet would have been successful had the original concept been fully funded to completion. Nevertheless, independent audit reviews into DEECD’s Ultranet project confirmed central DEECD officials’ authority to manage the project and modify their plan within the constraints of the financial environment, even though the changes reduced the options for participation by Ultranet users.

The change of state government, occurring at a crucial time in the Ultranet’s development phase, affected the Ultranet’s development and users substantially. This can be traced in Shadow and later, Minister for Education, Martin Dixon’s initial critique, and then oversight, of the Ultranet project post-2010. By this time the Ultranet had been publicly funded, tendered, contracted, built and resourced with Ultranet coaches. However, a new government, with different priorities and political beliefs, together with information from independent audit
reviews published two years after the Ultranet’s introduction into schools, mitigated against the Ultranet becoming successfully integrated into school communities.

I have shown how, with many critics and much public scrutiny, the selection of the Ultranet contractor was a complex political process that was influenced by a range of different, and often competing, state and central DEECD officials’ interests. Through such conflict, the Ultranet was shaped and reshaped, with each interaction triggering a different set of problems for which solutions were dynamically constructed. The Ultranet technology was formed within this largely critical, financial and political environment, highlighting the contentious and contingent nature of its development at government, institutional and commercial levels. The final example, relating to privacy, shows how technical, political and social changes affected Ultranet participation for students. Strong privacy recommendations reduced the social efficacy of the Ultranet design and challenged the central DEECD officials’ view that its use could enable individuals and groups to have more direct participatory opportunities and increase citizenship. As Malaby (2012) confirms, media technology design is value-based and culturally, politically, economically and socially constituted.

4.4: FRAMING THEORIES

The Social Construction of Technology (SCOT) perspective

Central DEECD officials were embedded in a broad range of social and cultural contexts that clearly shaped the way they interpreted the Ultranet. In pursuing a Release 1 “Learning Platform” technology to enable individuals and groups to participate more fully in public education, central DEECD officials deepened their economic ties with the global education technology and e-learning market, thus shaping the Ultranet technology in ways that reflected this alliance. Moreover, CSG, DEECD’s supplier of choice, built Ultranet Release 2 using the licensed OSL platform, thus nesting DEECD, Oracle and CSG within a broader, global corporate framework and the political economic structure of the knowledge economy. As critical media theorists (Fuchs, 2010; Mosco, 2009; O’Dwyer & Doyle, 2012) make clear, communication hardware and telecommunications constrain technology design and narrow technology users’ choices as the same time as generating substantial investment capital that constructs the conditions for institutional media production. As a new entrant to the education technology market, CSG stood to gain further commercial opportunities through its relationship with key partners Oracle and DEECD, something that later became the subject of an independent state
political inquiry (IBAC, 2016). Whilst central DEECD officials’ influence in the production of the Ultranet artefact was considerable, such influence was affected by the interactions between them and the Victorian government, state departments and commercial operators and moderated by economic concerns, such as whole-of-government conventions, the Victorian State Budget and the public tender contract processes. Thus, when DEECD officials outsourced the development of the Ultranet, broader contractual, financial and technical alliances were created that melded public and private enterprises.

The strategies central DEECD officials applied were mainly focussed on keeping the Ultranet project afloat. For example, they adopted a technical strategy to significantly reduce the complexity of the Ultranet design to meet available funding, with the consequence that the technology no longer represented the integrated e-Learning system approved by the Victorian state government. They continued with the Ultranet project despite critical advice from state government departments to delay or stop it (Victorian Auditor-General’s Office, 2012). They overcame the conflict that arose out of an unsuccessful first tender process by negotiating with technology vendors, Victorian State Parliament and government ministers, managing to keep the Ultranet project on track. They also deployed political and financial strategies to secure funding to keep the Ultranet working after an unexpected change of Victorian government destabilised the project in its first year, reinforcing to principals and teachers that the project was fully supported by a new government. The Ultranet project exemplifies the kinds of negotiations and conflicts that SCOT suggests are part of any technology construction process. Indeed, resistance and compromise were etched into its design.

The SCOT concept of stabilisation can contribute to an understanding of how technologies solidify in the conflict phase of development. As the Ultranet technology formed, a requirement to maintain high levels of privacy and security when students communicated with their peers in unmoderated spaces created friction between legislative and DEECD levels of government. Each of the different groups involved in the privacy issue advocated their own interests and a keenness for their version of the Ultranet to be adopted. The groups battled over what interpretation of the privacy legislation the Ultranet would adopt, eventually agreeing on a version of the technology resulting in closure. This created a new artefact that was then opened for construction from within a wider base, in this case the student user group that existed outside government and institutional groups. Evident throughout the Ultranet’s construction was an ongoing expansion and contraction of social action that took place within and across groups around issues that were competitively negotiated.
SCOT is helpful in describing the competing interests that shaped the Ultranet project design, but it does not adequately explain the concept of power as an influence in that shaping. Central DEECD officials had more capacity than users to affect the kinds of participation activities engaged in by different groups through the Ultranet. They designed the software based on their assumptions (or aspirations?) about how the technology should be used. For example, DEECD required teachers to moderate and monitor student content in Ultranet collaborative learning and community spaces. In consequence, users—students, parents and teachers—were less able to interpret the Ultranet flexibly, attribute their own meanings or appropriate it for their own purposes. Instead, users were expected to conform to a hierarchical institutional design that was perpetuated top-down and assumed particular uses as later chapters will show.

The discussion in this section has helped to explain how the design of the Ultranet was heavily shaped by central DEECD officials, themselves embedded in, and influenced by, wider social relationships and networks of power. Conflict across different social groups was evident in central DEECD official’s actions to introduce the Ultranet into school communities. This section presents my analysis of the political, financial and social interactions that were established and maintained, together with the sets of technological and social relations that resulted through central DEECD officials’ introduction of a participatory technology—the Ultranet—into education. Overall, the type of participation constructed by state and education department officials was based around system goals, grounded in political, economic and social drivers and shaped by commercial and rational values.

**The Pateman Participatory Theory of Democracy (PTD) perspective**

Local community stakeholders acted as consultants with limited influence in the Ultranet process. Through analysis of government literature and empirical evidence, an example of one-sided influence (partial participation, in Pateman’s terms) is visible in the Ultranet Stakeholder subcommittee. As was the government sectors’ practice with all DEECD programs, in the absence of Ultranet users’ direct involvement, stakeholders represented them and were recognised as legitimate communicators and negotiators. Stakeholders are defined in this context as “those who have or will have a substantial vested interest—not just an intellectual interest—in the outcome of the evaluation, and may have important information or views about the program and its situation/history” (Scriven, 2012, p. 6). DEECD’s Ultranet Stakeholder subcommittee included principal representatives, professional associations,
primary and secondary sector union officials, school councillor organisations and executives from a statewide parents’ association.

Examining the operation of the Ultranet Stakeholder subcommittee provides insight into the type of input that went into the design and development of the Ultranet, particularly from a community viewpoint. As explained in interviews with Tony, an AEU official, and Tania, a PV representative, following stakeholder meetings, those representing specific groups would meet privately with DEECD representatives to discuss any unresolved issues. For instance, AEU members had concerns that using the Ultranet would increase teacher workload, and this issue was raised at private meetings. Stakeholder groups then followed their own groups’ established communication methods to report to their members. Embargoes were in place, however, to prevent stakeholders sharing particular information with their members when it was previously agreed that such information would be announced first by politicians. As well as membership, DEECD also managed stakeholder organisation. Ten meetings were scheduled in the first year, reducing to four by the third year on the assumption that the implementation process would be working effectively. In fact, the number of meetings decreased just as problems in the Ultranet “take-up” phase in schools and homes became clearer, and when stakeholder input was potentially even more valuable.

A further contradiction in this democratic-sounding participation process was that, whilst accredited DEECD stakeholders participated in the Ultranet consultation process, their critiques were limited. Stakeholder groups were represented by only one or two individuals, bringing narrow perspectives focussed on each group’s particular issues. Views of non-DEECD accredited stakeholders were missing. Other individuals, such as volunteers drawn from user groups or research academics, could have presented alternative views and evidence for DEECD to consider. Whilst a School Users’ Subcommittee is recorded in the Privacy Impact Assessment as providing Ultranet feedback to DEECD (Salinger Privacy, 2010), it has proven difficult to ascertain the composition or findings of this group. The Ultranet consultation methods employed by DEECD restricted input and feedback to a small number of recognised representatives who had legitimacy to act on their groups’ particular set of interests but only within the protocols of DEECD’s Ultranet Stakeholder subcommittee process. Moreover, they highlight that key Ultranet political decisions were made by a narrow band of elite public education sector representatives who shared very restricted information with those they represented.

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33 Tony, AEU, interview, September 13, 2012; Tania, Parents Victoria, interview, October 23, 2012.
In Pateman’s terms, whilst a form of consultative decision-making was part of the Ultranet project, its scope was limited to one-sided influence and was not designed to create the conditions that would support the development of a politically active citizenry. Whilst stakeholders could exchange information and influence one another in meetings, DEECD officials controlled the consultation process suggesting that only partial participation took place. This asymmetrical structure of stakeholder involvement was representative of wider government regulatory processes that shaped education technology design and implementation inside and outside of DEECD. Whilst stakeholder relations are a common part of public sector practice when new policies or infrastructure are planned, those involved in this Ultranet consultation process did not challenge the existing DEECD authority structure. On the contrary, they reinforced the technical and expert knowledge of central DEECD officials. A collaborative approach that included a wider range of views may have contributed important background and experiences about how the Ultranet could be used to improve participation. Instead, the processes and institutional checks and balances used advantaged those closest to government.

Finally, the PTD emphasises the development of an engaged citizenry with individuals becoming actively involved in democratising authority structures (Pateman, 2012). The participatory society envisaged by Pateman (1970, 2012) was, ironically, evident in central DEECD officials’ Ultranet vision, that individuals were seen to incrementally accrue skills to eventually reach a high level of emotional and cognitive intelligence. My research, however, revealed little evidence that the Ultranet was being designed in ways that would support Ultranet User Groups to more directly and democratically participate in education.

Conclusions

Driven by policy that promoted online learning environments as a way to extend education partnerships beyond classroom walls and into homes and public places, the Ultranet developed out of a commitment from national and state government bodies to integrate more digital technology in education. Central DEECD officials’ role was to interpret policy and develop major strategies, whilst regional DEECD officials were concerned with implementation and support in schools. Charting this development shows the political and organisational interdependencies in the design and implementation of the Ultranet. DEECD officials saw the Ultranet as an innovation that would provide new resources and opportunities for students in their learning, improve teacher collaboration and broaden the kinds of data that would enable
teachers to report more effectively about students to parents. Central DEECD officials also believed that in time it would extend communication for all groups in the school community and allow for more democratic transparency. As discussed in Chapter 2, however, UK research shows improvements in participation do not always occur following the planned introduction of a learning platform (Jewitt et al., 2010). In a similar manner, as later chapters will show, the Ultranet project struggled to gain the active and broad support and participation of leaders, teachers, students and parents.

The challenges central DEECD officials faced and managed during the Ultranet design process highlight how their problem-solving strategies and decisions were made within a complex hierarchy of social groups. Funding and tendering processes were subject to multiple legislative oversights and a subsequent anti-corruption inquiry. These ideological, political, financial and legislative problems, together with a change of government, shaped state and education department officials’ decisions about the Ultranet project.

The SCOT position challenges narrow reductionist views that assume technology operates as a stand-alone, value-free driver of progress, instead theorising that technology is constructed and developed through multiple overlapping processes embedded in social practices. DEECD officials had very specific interpretations that were influential in shaping the Ultranet process because of their specialised expertise and high-level decision-making roles. The solution adopted by DEECD officials to change the way school communities participated in education was based on their technical and cultural assumptions about what constituted a participatory system. Tellingly, most Ultranet users were excluded from these decisions. Whilst the actions of small groups of DEECD-selected stakeholders contributed to the creation of the Ultranet, a greater diversity of non-aligned stakeholders would have allowed for wider input and participation in its design. Although the Ultranet project sought to change the way school communities participated in education, the nature of participation envisaged was heavily aligned to institutional goals framed by a bureaucratic and technocratic ideology. The significance of these findings will be highlighted in the next chapter, which shows how school leaders, challenged with enacting the vision of DEECD officials, attempted to implement the Ultranet within their school communities.
CHAPTER 5: SCHOOL LEADERS’ APPROACHES TO ULTRANET ADOPTION

Integrating the Ultranet—a new, complex and largely unknown education technology—into existing school communication systems, required extensive planning and reorganisation at the school level. Principals used local decision-making processes to develop an Ultranet Implementation Plan and set corresponding Ultranet goals in their Strategic and Annual Implementation Plans (DEECD, 2010i). They had responsibility for making sure their community was ready to use the Ultranet and understood how it fitted into existing school plans. This included updating any specific policies that impacted on safe, responsible and equitable use of web-based technologies.

Whilst all principals were required to implement the Ultranet, the extent to which they did so varied according to their beliefs and the context of their school. They were broadly influenced by a central Department of Education and Early Childhood Development (DEECD) unit that planned and oversaw the wider Ultranet policies and strategies and more locally by Regional Network Leaders who oversaw their Ultranet planning. They were supported by a regional network Ultranet coach (RNUC) from 2008–11 and a regional Ultranet coach (RUC) from 2012–13. Many shared expertise and specialised knowledge in networks and informally with principal colleagues.

Principals were expected to be Lead Users and select other Lead Users to help drive Ultranet implementation at the practice level. They operated in school-based Lead User teams and worked closely with and were trained by their school’s RNUC. Lead Users were influenced by, and could access support from, other Lead Users in their network, either face-to-face or by developing virtual communities on the Ultranet. Lead Users needed to be Ultranet enthusiasts, train other teachers, use the Ultranet with their own students and manage issues that threatened to destabilise Ultranet implementation at the school level (DEECD, 2010i). They also had access to an extensive range of online and printed DEECD Ultranet user guides to share with their school communities. Most Lead Users in my project were experienced classroom or leading teachers, already familiar with the use of education technologies in teaching and learning. Their effectiveness could be measured in part through data collected by DEECD and shared with principals indicating the consistency of Ultranet use in that school.34 Lead User teams were a key decision-making group at the local level and pivotal in how principals set up the Ultranet in their schools.

34 Daniel, Principal, East PS, interview, September 22, 2011.
In this chapter I examine how school leaders in two school communities, South and East Primary Schools (PSs), responded to DEECD’s Ultranet expectations and demands between June 2011 and December 2012. I analyse how their beliefs, perceptions, goals and practices influenced Ultranet participation. Specifically, I examine how leaders at each school locally controlled and shaped the Ultranet’s construction. Principals at both schools had adopted DEECD’s Lead User structure to strategically implement the Ultranet in ways consistent with DEECD’s Ultranet vision, but also in order to fulfil their own goals.

School leader data was also collected from a third primary school (PS), West PS, and a secondary school (SS), North SS. Whilst West PS also used the Lead User structure, it was more committed to an alternative learning management system, SharePoint (Microsoft Corporation, Redmond, Washington), and already successfully using corporate web 2.0 and Mathletics educational software products for homework tasks. Over time, school leaders reduced their Ultranet expectations of teachers, concentrating instead on embedding information and communication technology (ICT) more generally into the curriculum. At the time of my fieldwork, North SS no longer had a Lead User structure in place. For these reasons, data from West PS and North SS are not explicitly referred to here but have implicitly informed this chapter’s argument and the overall project results. In Chapter 6, however, I show that principal leadership at North SS impacted on Ultranet design and as a result shaped teachers’ actions. The four principals I interviewed were all experienced with a combined 85 years teaching service in government schools. All four schools encountered unique controversies and developed resolutions to Ultranet implementation specific to their context.

The chapter is divided into three sections. First, I examine two South PS Ultranet goals designed by Lead Users to improve communication and participation with parents. I show that both goals were risk-averse goals and led to school leaders continuing to control communication and little increase in participation for families. Second, I examine two East PS Ultranet goals designed by Lead Users to enhance digital infrastructure and increase teacher collaboration. I show that school leaders could not fully implement the Ultranet according to DEECD’s high expectations because of inadequate technological infrastructure. With respect to their second goal of increasing teacher collaboration and communication, I show that teachers resisted the expectations of the Principal by not actively sharing planning documents on the Ultranet. Third, I analyse the empirical data with reference to the Social Construction of Technology (SCOT) theory and Pateman’s Participatory Theory of Democracy (PTD) frameworks to illustrate how the convoluted and messy trajectory of the Ultranet
development overseen by school leaders resulted in only minimal increases in participation in their school communities.

5.1: SOUTH PRIMARY SCHOOL’S ULTRANET STRATEGY TO STREAMLINE COMMUNICATION AND IMPROVE PARTICIPATION

South PS staff regarded their school as innovative. Prior to the Ultranet’s release, teachers could access learning materials stored on a school network from home if they wished, and the school had already developed a secure website portal that enabled parents to access school policies and formal documents. The concept of the Ultranet, however, took South PS beyond these discrete communication channels consisting of intranets and school networks split into curriculum and administrative servers and protected websites. Over time, South PS leaders assumed dependence on existing ways of communicating would disappear and the Ultranet would become a vehicle for online collaboration, sharing information and resources amongst and between teachers, students and parents and gaining new skills and knowledge. South PS leaders wanted to introduce do-it-yourself methods to encourage school community members to source the information they wanted without recourse to a particular person or the school.35

South PS’s Lead Users—Principal Ronald, and teachers Emily, Tiffany and Brooke—were experienced, with varied combinations of teaching and responsibility roles. Lead Users formed an influential decision-making core, charged by Ronald with implementing the Ultranet and modelling its use across the school community. To deliver on the school’s overarching Ultranet goals, they designed a formal decision-making structure and set up an Ultranet Team Committee (UTC), carefully following DEECD protocols. Established in 2010, the UTC members were the five Lead Users (one of whom—the Assistant Principal—did not participate in the research project), seven teachers and 15 students; they received support from their RNUC. There was no parent or education support staff representation. The UTC teacher representatives were formal positions of responsibility selected at each year level through expressions of interest. As representatives were required to report back to their team, it was assumed that Ultranet knowledge would be shared and, accordingly, that the input from teacher representatives stood for the views of all teachers in their team.36 Initially comprising 15 Ultranet-trained students, UTC student representation was reduced to seven in 2012, one from each year level, chosen for their ICT skill and interest.37 As well as acting as classroom

35 Lead Users, South PS, fieldwork scoping meeting, May 7, 2012.
37 Tiffany, Lead User, South PS, interview, November 9, 2012.
helpers, student UTC members attended school-run Ultranet professional learning workshops in the expectation that their enthusiasm and skills would support teachers and fellow students.

The UTC structure cohered with the culture and formal organisational structure of South PS, with roles and responsibilities clearly defined. Decision-making flowed down from the leadership team—Principal, Assistant Principal and the Curriculum and Innovations Coordinator, all of whom were also Lead Users—to Leading Teachers, level coordinators and eventually to classroom teachers. Although required to provide information to their year-level peers, UTC members did not have the same decision-making capacity or level of access to specialised Ultranet knowledge or DEECD training as Lead Users and were therefore less influential in designing and implementing the Ultranet in South PS.  

In the following subsection, I analyse two goals South PS school leaders developed for improved community participation through the use of the Ultranet: to streamline and strategically control communications to its online community; and to share school information more broadly.

**Strategic control of online communications**

The first goal was based on school leaders’ belief that participation would increase if they restructured school communications to exploit technological advancements. Grant (2009); Lewin and Luckin (2010); Passey (2013) and Selwyn et al. (2011) all argue that well-designed technology programs have the potential to make home–school communication better. The Principal (Ronald) stated that ICT innovation was required to meet the expectations of a growing and diverse school community because the “traditional means” of communication were “not cutting it.” A specific focus was to improve communications to the parent community, and school leaders wanted to translate as many of the school’s “traditional” face-to-face, paper-based and hand-delivered communications as possible to digital formats. They wanted parents to have relevant, up-to-date and easy-to-access information more quickly, and saw the Ultranet as serving this purpose. Their vision and planning was consistent with DEECD officials’ framing of the Ultranet as a “one-stop shop”, with information and communication retrievable from one online space. This Lead User goal also mirrored that of other Australian public service organisations’ strategic adoption of new media technologies to communicate

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38 Tiffany, Lead User, South PS, interview, September 9, 2012.
39 Ronald, Principal, South PS, interview, September 9, 2012.
40 Aly, central DEECD official, interview, January 30, 2013; Ronald, Principal, South PS, interview, December 11, 2012.
with online audiences (Dunleavy & Carrera, 2013). Therefore, digital and web-based information were framed by school leaders as a modernising influence and an effective means to change the ways in which the school related to its community.

Minimising variability in all communication was a strong theme and part of the value system that underpinned South PS’s philosophy. The consistency of oral, written, visual and aural information was thus given critical importance. All written communications and newsletter items were audited before wider publication to the school community, a process Tiffany described as giving the “stamp of approval.” Ronald argued that building and maintaining “trust and credibility”, directly and indirectly, and minimising risk through “getting it right most of the time” mitigated against any “leaky holes in the boat.” He saw communication as something that needed to be controlled and filtered because of the potential for information to be misused or to misrepresent the school or its staff. He believed any poorly communicated messages from the school could lead to a breakdown in community trust and damage the school’s reputation for as long as it took for an entire student cohort to progress through the school (six years). As Ronald explained:

> What influences that [word of mouth] is the information that all those parents get and that’s where it’s controlled information. I don’t like to use the word control. It is, alright, for want of a better word, controlled information. That is the information, because they won’t get information from anyone else. Simply because we have the protocols that operate in this school, it doesn’t mean you don’t get the occasional leak here and there, sort of like [...] the CIA, but I mean it simply to say the information that we give has to be reasonably accurate information and so we can’t have seven different perceptions of that information.  

Prior to the Ultranet, all publishing decisions rested with Ronald. Whilst this remained generally the case, he was less directly involved in day-to-day Ultranet decisions, allowing Emily increased degree of autonomy to decide what information to publish in her roles as Ultranet portal and content administrator. Nevertheless, the perceived durability of online content added an extra dimension of communicative risk. Ronald explained how his top-down filtering process worked:

> Any documentation put on Ultranet, anything published in hard copy or online, that’s it, you cannot retract it, so the whole idea that it’s filtered is really important [...]
anything that I do for my report is read by two other people. A parent office staff member reads it from a parents’ point of view and my assistant principal will read it from a “does this make sense?” point of view, so we try to filter it and that’s what we try and do when teachers send out information.\textsuperscript{43}

Thus, South PS leaders shared a careful and controlling attitude toward the creation and communication of information, and intended that any digital content they created on the Ultranet would reflect their school’s values.

Ronald trusted the quality and reputation of DEECD’s existing website, intranet and web-based services. He wanted to duplicate some of the positive examples of Ultranet use he had witnessed in other schools in order to consolidate content and reorganise communication channels. He assumed that the Ultranet platform was performing at a high enough standard to be confidently used in the external school community.\textsuperscript{44} In implementing the Ultranet in his school community, he acted to control what he saw as being within his jurisdiction: the production and distribution of school communication and information. He wanted to set up a new system, but one that would continue to follow the management processes already in operation.

The Ultranet’s secure interface allowed information to be tailored to particular audiences, permitting Lead Users to control the publishing of specific information. For instance, student names and images published on the Ultranet would need to be anonymised if made available on the more open school website. Lead Users also anticipated that the time taken to create and maintain different versions of communication would be reduced once all information was placed on the Ultranet. The school could also opt into displaying DEECD automatic notices and information through it, rather than having to create, update and publish new content.\textsuperscript{45}

Centralising documents and learning resources onto one platform was seen as an advantage, enabling users to access, download, store and use recent and archived school information anywhere, anytime. The attraction in accessing school information via the Ultranet was clear; families would be able to access permission forms and other school documents at home, saving school resources, and teachers could access curriculum materials and plan their lessons

\textsuperscript{43} Ronald, Principal, South PS, interview, September 9, 2012.
\textsuperscript{44} Ronald, Principal, South PS, interview, September 9, 2012; South PS, 2012 Annual Implementation Plan.
\textsuperscript{45} Ronald, Principal, South PS, interview, December 11, 2012; Emily, Lead User, South PS, interview, September 9, 2012.
out of school hours. School leaders were convinced of the cost and time-saving benefits of producing and distributing information through the Ultranet.

DEECD’s Blueprint initiatives acknowledged parents’ important role in the education of their children, making active partnerships between schools and parents a key focus (DE&T, 2003; DEECD, 2008). The Ultranet was seen as beneficial in supporting these partnerships because it could be used to provide more timely and asynchronous information to parents. A criticism from some South PS parents was that they were not notified early enough of school events involving their children.46 A more formal criticism can be seen in the school’s 2011 DEECD Parent Opinion Survey results. The score for “Parent Input”—a section that included questions on parent involvement in policy, decision-making and future directions of the school—was the lowest it had been for three years and the lowest marker of all parent responses.47 Lead Users saw the Ultranet as a way to address this deficit by involving parents in new methods of sharing community information. Together with providing direct access to personalised digital content about their children, Lead Users believed that using the Ultranet would eventually increase parent involvement in the school.

To meet their parent communication goal, Lead Users selected an Ultranet “My Organisation” community space (see Figure 2).48 This was managed by Emily, the portal administrator, who used it to categorise and archive non-personal school documents, forming a centralised digital library of school communications. She also made available generic year level “homework grids” and encouraged teachers to use the Ultranet to set homework and communicate more extensively with students and parents.49 Through the My Organisation space, parents and staff could access school policies, past newsletters, curriculum and extra-curricular activity reports, and parent school councillors could access agendas and minutes rather than having them emailed.50 Emily saw it as “one of the most developed online community spaces in the city and even regional areas.”51 As Lead Users further developed the My Organisation space by uploading more and more content, lower than expected parent participation numbers were glossed over. Emily explained that any misunderstanding would be overcome with more parent education:

46 Tiffany, Lead User, South PS, interviews, September 9, 2012; November 9, 2012.
47 Emily, Lead User, South PS, interview, September 9, 2012; South PS, 2011 DEECD Parent Opinion Survey.
49 South PS, Ultranet meeting for parents, May 15, 2012.
50 This link was broken during my fieldwork in 2012.
51 Emily, Lead User, South PS, interview, September 9, 2012.
The community [My Organisation] space is definitely an incredible resource and that’s obvious because we get asked by other schools to see what we’ve done, how we’re putting it together. I don’t believe the parents are fully appreciative of the fact that you can access the last two years [of content] on that space, so that’s something we need to relaunch as a school.\textsuperscript{52}

From a Lead Users’ perspective, the choice and design of the My Organisation space was successful in meeting their purposes to control, manage and enhance school communication processes. Parents, however, remained reluctant to use it.

\textbf{Figure 2. How a “My Organisation” space displayed for parents through the Ultranet}

Source: (DEECD, 2011g).

Lead Users envisaged information flowing from the school to the community. Ultranet user involvement was restricted to read-only (or first-wave) technologies that still separated technology designers and users’ intentions (Malaby, 2012). Whilst Emily’s organisation of institutional online content was streamlined, it was, in effect, equivalent to a read-only web page and narrowed access of school content to school-only participants through static communication technologies. The My Organisation space was more concerned with “information integration” than with, “social integration” (Holmes, 2005, p. 55). On the other

\textsuperscript{52} Emily, Lead User, South PS, interview, September 9, 2012.
CHAPTER 5: School Leaders’ Approaches to Ultranet Adoption

hand, Ultranet learning spaces for use by both parents and their children were being investigated by South PS specialist ICT teacher and Lead User, Brooke. She developed a learning activity where students could design and publish their learning goals and reflections that was also accessible to their parent/s and teachers.\(^53\) This was the model that DEECD hoped would get traction with teachers, but it was used minimally in this school.

Overall, the Lead Users’ decision to limit the My Organisation space to approved content prevented users from accessing more collaborative and active Ultranet options (outlined in Chapter 8). A more successful approach to improve parent participation might have been to obtain their input into the design of an Ultranet community space that combined web 2.0 technologies, such as the “Chat” application, wikis, an events calendar and printable forms. As Coopman (2009) and Friesen (2010) have argued, web 2.0 learning platform software is adaptable and can be redesigned by groups to effect particular outcomes. Lead Users at this school believed the Ultranet was the solution they needed to more closely manage web-based communication and enhance their provision of “point of service” information. Their Ultranet implementation was hierarchically managed and organised from Principal level down to fit within the existing social and cultural demands for control and the mitigation of perceived risk.

**Uploading the school newsletter to the Ultranet**

Lead Users’ belief that parent participation could be improved through distributing the school newsletter via the Ultranet led to a key controversy. Making the newsletter a carrot to encourage parents to log into the Ultranet was debated and endorsed by the UTC committee.\(^54\) Ronald was hopeful that this strategy would increase participation. He felt “quietly confident” that most parents would login and “be informed what was taking place in their student’s classrooms and homework tasks” and anticipated this was a “good motivating way of getting parents to access a technology that perhaps they would not normally have access to.”\(^55\) South PS was not unusual in deciding to use digital, as distinct from face-to-face, communication methods to expand its audiences, believing it would reduce costs and speed up the distribution process. Digital media offer greater flexibility in managing and displaying content, eliminating the need for manual printing and distribution and making newsletters and bulletins with colour images far cheaper to produce.

\(^{53}\) Brooke, Lead User, South PS, interview, November 19, 2012.

\(^{54}\) Tiffany, Lead User, South PS, interview, September 9, 2012.

\(^{55}\) Ronald, Principal, South PS, interview, September 9, 2012.
Lead Users explained four specific reasons for the newsletter decision. First, the newsletter held a pre-eminent position in the written communication ecology of the school community (confirmed during my fieldwork), and was socially valued for its high information capacity, reach and visibility. Second, they hoped that the Ultranet would become self-promoting: once parents used it to access the school newsletter, they might then explore other Ultranet content and share their positive experiences with other parents. Third, they felt it was very important for the school to be seen by DEECD as successfully involving parents in the Ultranet. As Tiffany pragmatically explained, “[t]he aim was to get more parents registered and using the Ultranet.” Finally, sending the newsletter electronically was seen as saving resources and increasing both efficiency and speed of delivery. Lead Users’ decision to use the Ultranet to communicate with the community was based on all these social, cultural, political and economic reasons.

After six months spent in organising, supporting and encouraging parents to register, the school migrated the newsletter to the Ultranet. Once this happened, only non-registered parents were sent the newsletter by email. The school tried to monitor and reinforce this change in practice. Some paper newsletter copies were still produced and available at the office but any student or parent picking one up was asked why they were not accessing it through the Ultranet. Also, as Identity and Access Management (IDAM) system administrators, Lead Users could view parent registration statistics through an Ultranet report. Tiffany explained the limited extent of information they could access: “[W]e can find out how many people registered, but can’t monitor who’s using it and how often.” Observations confirmed that few parents were accessing the Ultranet, even though nearly 500 families had registered as users. Instead, a new communication problem had been created. It was apparent from the increased phone calls and enquiries at the general office that the new Ultranet newsletter method introduced by Lead Users was meeting with little success. Given the importance of newsletter information to the parent community and in the daily running of the school, this situation quickly led to a breakdown in communication. The strongly negative responses to the change in newsletter distribution highlighted parents’ concern with the process designed by the Lead Users. Although their goal was to update and simplify communication through the Ultranet, by not engaging parents in the process, Lead Users were

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56 South PS, 2012 Information Booklet.
57 Tiffany, Lead User, South PS, interview, September 9, 2012.
58 Emily, Lead User, South PS, interview, September 9, 2012.
60 Tiffany, Lead User, South PS, interview, September 9, 2012.
struggling to gain the positive outcomes they sought. As Grant (2009) and Selwyn et al. (2011) note in relation to the role of digital technologies in home–school relationships, schools need to adopt more inclusive, parent-centric decision-making processes in implementing complex innovations.

Following complaints from some families about feeling pressurised into using the Ultranet and with parent disenfranchisement clear, Lead Users decided to seek feedback. In late 2011, Ronald designed a newsletter questionnaire offering parents three options for receiving the school newsletter: an emailed portable document format (PDF) attachment and link to the Ultranet; a paper copy distributed to students; or sourcing the content for themselves from the Ultranet. Unsurprisingly, the results showed 83% of parents chose personal email distribution as their preferred option. Ronald explained:

...the highest percentage were those wanting it through email because it was automatic access. They didn’t need to go in and put in a username, password etc. etc. and they didn’t have to do “wait time” because it’s automatic, it’s there. They click in, get it.

Although email was adopted ahead of paper-based or Ultranet communication, the Lead Users’ preferred option was not totally abandoned. As Emily rationalised:

We’re not going in that direction at the moment because of our feedback. When we tried to do that on the Ultranet, that you could only access the newsletter on the Ultranet, it probably slapped us back in the face because the Ultranet was probably not as successful back then and we copped the flak.

Similarly, it was not Ronald’s intention to relinquish the Ultranet as a communication solution. Over time, he suggested, it would “fine tune itself and [...] develop so that it actually will meet the needs of the school community.” His immediate goal, however, was to rebuild relations with parents and, implicitly, with teachers and students, and repair the negative fallout brought about by changing the newsletter distribution method. To re-establish the importance of parent input, Ronald committed to resurvey parents on newsletter distribution methods at the end of the year, and use the feedback to inform his next move:

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61 Ronald, Principal, South PS, interview, September 9, 2012.
62 Ronald, Principal, South PS, interview, December 11, 2012.
63 Emily, Lead User, South PS, interview, September 9, 2012.
64 Ronald, Principal, South PS, interview, December 11, 2012.
In the end, when you get it wrong you acknowledge it and the way we do a back flip is to simply give out a survey because the survey saves a little bit of face. It’s a dignified way of saying “hey, by the way we stuffed this up, we’ll send out a survey, how do you want it actually done?”, and if we can actually be able to say we address what you [parents] want we’ve got a win-win situation.\(^{65}\)

The failed attempt to move the newsletter and other school information onto the Ultranet returned the school to more traditional email and paper-based printed forms of communication, practices that Lead Users had hoped to leave behind. The Lead Users’ goal to narrow the school’s written communication ecology to the single Ultranet platform revealed their assumption that all groups in the school community shared the same interests, when in fact there was a diversity of group interests. Although media researchers (Bruns, 2008; Buckingham, 2008a; Grant, 2009; Ito et al., 2010; Jenkins et al., 2009) see new technologies as enabling broader social participation, they also note the importance of different groups’ influence in its use and development.

Even though the Ultranet was not successfully adopted at South PS, its uses had a social impact on the Lead Users. During the two years they had been trying to implement their Ultranet goals, there were changes in the school’s communication ecology, partly through parent use of social networking. Although used for different purposes, a successful parent Facebook group was created that moved parent interest away from the Ultranet. Having been unsuccessful in realising their first two Ultranet goals, the Lead Users turned their attention to a third goal: to reorganise complex internal communication among and between teachers and administrators.\(^{66}\) Despite the challenges, they remained confident that, given time, their goals to provide a workable communication solution for their school and community through the Ultranet would be realised.

In summary, the potential of the Ultranet learning platform to increase participation was not fulfilled at South PS. Lead Users saw the Ultranet as supporting their vision to increase participation by communicating clearly and effectively with individuals and groups across a growing school community, but the participation enabled was passive. Credibility and control of one-way information were central factors for them when considering how the school should relate to its community through the Ultranet. In setting up a My Organisation space, Lead User interests were prioritised over those of other user groups. They believed that using the

\(^{65}\) Ronald, Principal, South PS, interview, September 9, 2012.

\(^{66}\) South PS, 2012-2015 School Strategic Plan.
Ultranet as the primary communication medium would enable a more dynamic, secure, streamlined, efficient and effective way of communicating across the school community. The model they designed required parents to register on and access the newsletter via the Ultranet, but this did not meet parents’ needs. Attempting to streamline content by moving to a secure, private, self-serve and paperless model, betrayed a hierarchical, untested assumption that the Ultranet would enable the school to communicate with its community in more inclusive and participatory ways.

5.2: EAST PRIMARY SCHOOL’S ULTRANET STRATEGY TO CREATE A 21ST-CENTURY LEARNING ENVIRONMENT

When the Ultranet was initially introduced in 2010, the Lead User team at East PS consisted of five members: the Principal, the then ICT coordinator and three staff members representing the school’s professional learning teams. This small group was very active, especially during 2010. They used the Ultranet with students and delivered some Ultranet professional development sessions for teachers. A classroom teacher described their presentations on Ultranet training days as “light-hearted entertainment” and “lots of fun,” particularly positive comments in light of the statewide Ultranet technical difficulties being experienced.67 The group’s staggered approach to implementation was formed following their interaction with Lead Users from another school at regional Ultranet training. As Melissa explained:

They [the other school] were going to jump on board with everything, every single part of it, and we kind of went “whoa”, we don’t know enough about it to be able to implement it here, let alone try and introduce it as a whole school thing.68

By the time of my fieldwork in Semester 2, 2011, however, the new Lead User team of the Principal (Daniel), Melissa, Amie and Marcia was in place and the group dynamics of the previous year had changed markedly. The Victorian Liberal–National Coalition government’s “school autonomy and governance” agenda had been introduced, and Daniel was hesitant to invest any further resources or teacher time into implementing the Ultranet in case it ceased to be supported by the system (DEECD, 2012b, p. 31). The changing political circumstances, together with reductions in regional Ultranet support and resources, were important considerations that affected Daniel’s decisions. Ultranet implementation was disjointed and

67 Jodie, teacher, East PS, interview, December 12, 2011.
68 Melissa, Lead User, East PS, interview, December 12, 2011.
stagnant, and what Ultranet use remained seemed to be linked to Daniel’s commitment to be part of my research project.

Staff changes during the Ultranet’s crucial first year damaged the school’s adoption attempts. By mid-2011, Lead User roles were no longer clearly understood, by Lead Users themselves or classroom teachers, with some unable to recall who the current Lead Users were. The 2010 ICT Coordinator, who was also the Lead User team leader at that time, had left the school. Two other teachers who had undertaken Lead User training decided not to continue in the roles, and a third Lead User was no longer involved because of planned leave at the end of 2011. Changes to grade teaching responsibilities in 2011 had also altered the representativeness of Lead User group membership. This movement of teachers had a significant impact on the ability of Lead Users to train other staff after the first year. Some students and teachers were left with no Lead User support, whilst others were over-supplied. As Marcia explained:

> At the moment, not every team has one coach [Lead User]. My team has three people and some teams have no people that are trained Lead Users, and the senior Ultranet coach has left the school and been replaced by somebody who has not had any Ultranet training.

The remaining Lead Users formed part of a new team at the start of the 2011 school year, taking care to ensure that the 2010 model with one representative from each professional learning team was continued. Several members were learning new teaching roles, with the majority of information exchange informal and taking place between one or two team members as issues arose. New team members received no DEECD-run training because this phase of Ultranet implementation had ended and Lead User meetings were held infrequently. Clearly, the hype around the Ultranet in its first year had diminished.

The onus was on Lead Users to stay up to date with all Ultranet information and communication and share it with others in the school community. Everyday information and notifications of any Ultranet software upgrades came to authorised Lead Users via DEECD’s eduMail system, but sharing this information with all staff by email was not happening. Faced with this communication breakdown, teachers increasingly sourced information online themselves. Those planning to use the Ultranet needed either to login daily to find out about any planned outages or updates from Ultranet Central, take a risk and assume it would work,

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70 Marcia, Lead User, East PS, interview, December 14, 2011.
or decide not to use it. As noted in a focus group, teachers planning to use the Ultranet found it particularly frustrating and unprofessional to find it unavailable (which occurred often, for a range of reasons). With the responsibility to find information on Ultranet availability becoming ad hoc and individualised, Ultranet participation for teachers and their students was shaped by an ineffective communication approach at the school level.

Designed with an assumption that Lead Users would share skills and knowledge, we have seen that DEECD’s Lead User training program was important in East PS’s Ultranet’s adoption strategy. Basic information exchange processes and sharing of resources, however, became unreliable and the potential for such knowledge to be shared was limited by staff changes at both a regional and school level. The changes to the Lead User team resulted in a reduction in their influence to control day-to-day decisions, plan and deliver Ultranet training sessions or communicate information to teachers. By 2011, Lead Users no longer had the training skills, knowledge, experience or legitimacy required to successfully implement the Ultranet.

In the next subsection I analyse two goals East PS leaders developed as they sought to implement the Ultranet as part of a 21st-century learning environment: to enhance digital infrastructure and technology, and to use the Ultranet to increase teacher collaboration and communication.

School infrastructure limitations in implementing the Ultranet

During my fieldwork in 2011, East PS was at an early stage of integrating the Ultranet as part of a wide range of technological, social and pedagogical changes. It had recently moved towards more open-plan flexible learning spaces, team teaching structures and an increased focus on learning technologies. Ultimately, the Principal believed that being able to use the Ultranet via smaller and faster mobile devices located across the school would attract new families and result in enormous benefits for teachers, students and eventually parents.

Daniel originally planned and budgeted for ICT to be replaced in a 3-year rotation but, following feedback elicited from students about their technology access, the school council invested an additional $100,000 of school funds to replace outdated computer technologies. The majority of this funding was spent on iPads and notebook computers to be housed in specific locations in each classroom. School Council’s ambitions—that students would be able to participate more fully in their learning with access to the latest technology—support

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71 Gabriela, Ishan and Jodie, teachers, East PS, teacher focus group, August 31, 2011.
72 Daniel, Principal, East PS, interview, September 22, 2011.
broader arguments suggesting the efficacy of ICT uses in empowering young people (Bruns, 2008; Buckingham, 2008a; Ito et al., 2010; Jenkins et al., 2009; Livingstone, 2010). By early 2012, the school had around 200 student devices and 35 staff devices (in addition to teacher’s personal mobile phones and iPads). The decision to provide these extra resources was a statement to the local community about the value of technology and that embedding it into all curriculum areas was an East PS priority.

The school’s Pedagogical Master Plan (PMP), developed with support from DEECD regional staff, legitimised the focus on students’ use of mobile devices in their learning. Implementing the ICT priorities of the PMP required improvements in infrastructure and wireless in all of the learning spaces. Daniel and Amie shared the view that the school’s Wireless Access Points (WAPs) needed to be improved quickly in order to take advantage of the new hardware. The length of time new devices took to load was frustrating for everyone. As Daniel explained, “You have to start up the computers 10 minutes or 15 minutes before you have the lesson and then some children will still get a bigger slice [of access].” In coping with this everyday experience, Amie described how she had to “be organised, turn it on and then go off and get all your stuff and come back and then login.” She felt students were in danger of disengaging from learning because they knew what a fast connection speed was and expected the same at school. Daniel’s vision for technology to become seamlessly integrated into students’ everyday learning and improve teacher collaboration was severely hampered by this problem.

As Horst and Miller (2012) demonstrate, computers, laptops, iPads and Internet access are all material structures that shape cultural contexts, in this case students’ learning activities in classroom structures.

School participation in the Ultranet initiative consisted of DEECD-funded infrastructure, including the central provision and installation of broadband and wireless connections. DEECD required principals to perform audits of school ICT equipment to ensure their school infrastructure would be compliant with the Ultranet. From DEECD’s point of view, as every school in the state had been allocated the full range of technologies available to support the Ultranet, all was ready for implementation. In reality, however, East PS staff and students had to compete for wireless access daily, limiting opportunities for teacher team planning and student peer-to-peer sharing. Daniel explained the impact of the school’s ineffective wireless system:

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73 Personal communication, April 17, 2012.
74 Daniel, Principal, East PS, interview, November 25, 2011.
75 Amie, Lead User, East PS, interview, November 29, 2011.
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It does stymie the use from a child’s point of view; even from a staff. We can’t sit down at a staff meeting and put all our laptops on and access the Ultranet at the same time. We simply don’t have the capacity through the current WAP system to do that.\(^{76}\)

Therefore, implementation of the school’s Ultranet goals was constrained partly by lack of access to resources, with the Principal citing poor ICT infrastructure as a major reason for the school’s ineffective Ultranet use. As Eynon (2009) and Seiter (2008) have observed, the speed and quality of bandwidth and physical access to devices and software does constrain users’ learning opportunities and young people’s production and consumption of media.

School principals had autonomy to manage their ICT school spending to comply with DEECD specifications to effectively use the Ultranet in schools. They could also utilise DEECD buying power to purchase recommended computer hardware. Aly, a central DEECD official, confirmed this situation:

> Schools have a choice, but in terms of general ICT, the Department provides infrastructure for schools as in network, ISP [Internet service provider]. Schools don’t get charged for Internet, they get that free. They get allocations to buy devices but they’re not told what to buy.\(^{77}\)

Any ICT spending was not reimbursed, even if that same equipment was later funded in government programs. It was Daniel’s final decision therefore to wait until it became clear whether any additional public money would eventuate in the next state budget before using locally-raised funds to upgrade the school’s wireless infrastructure.\(^{78}\) His action meant that the Ultranet could not be used effectively during this time, which underlines the contingent nature of its development.

In 2012, Daniel sought advice from DEECD about purchasing WAP from existing school funds because no further government funds had been made available. The recommendation from DEECD was to buy “contemporary CISCO Wireless Access Points from the Department’s panel providers, replacing out-of-date models where possible.”\(^{79}\) Daniel decided that the most effective solution was to outsource the selection, purchasing and installation of the technology to DEECD. Even though he had some technological expertise, he said he found it more straightforward if DEECD contractors did the work rather than employ ICT companies on behalf

\(^{76}\) Daniel, Principal, East PS, interview, September 22, 2011.

\(^{77}\) Aly, central DEECD official, interview, January 30, 2013.

\(^{78}\) Daniel, Principal, East PS, discussion, April 17, 2012.

\(^{79}\) Personal communication, April 17, 2012.
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of the school.\textsuperscript{80} The equipment was bought and installed by DEECD-recommended contractors for two-thirds of the Principal’s estimated cost of $24,000 (expressed during a follow up visit in 2012). This was due to technologies becoming cheaper over that period and DEECD’s bulk purchasing power.\textsuperscript{81} Thus, waiting to purchase the infrastructure needed to more effectively operate the school’s devices had been partly successful. Although the final cost to upgrade WAPs was less than had been anticipated, this combination of technological, political and economic factors had stalled the progress of the Ultranet’s implementation at East PS at a crucial time, when the Ultranet project itself was faltering statewide.

In summary, Daniel identified infrastructure issues as central to the school’s very limited adoption of the Ultranet. Initially, Daniel prioritised the quality and accessibility of personal computing devices over having faster wireless access. This led to further wireless constraints and Internet unreliability that required infrastructure improvements. A change of state government created more uncertainty. By the time Daniel had worked through funding and technology alternatives and the required upgrades had been installed, staff and student use of the Ultranet had become negligible.

Difficulties with sharing teacher planning through the Ultranet

From 1995, the push was on in schools to develop more open classroom spaces and harness the potential of online technologies to promote team building, problem solving and enhanced decision-making practices (Apple Inc., 2008; DEECD, 2010k; Intel Corporation, 2010). The rhetoric here was “time to move away from old thinking, paradigms and ways of teaching and look towards the new”, with digital technologies seen as being able to support this transformation. Greater collaboration across the teaching profession was central to DEECD’s vision in building an Ultranet-based knowledge management framework (DEECD, 2010j). East PS had recently remodelled some of its classrooms on such 21st-century teaching and learning principles to encompass open, flexible, light, connected and colourful spaces. In part, this design aimed to promote collaborative aspects of contemporary teaching and learning.

East PS’s goal was to increase teacher collaboration through the Ultranet and encourage teachers to communicate and think more widely as part of a larger school team. In 2011, aspects of collaboration were already evident in the school. Teachers were sharing in and

\textsuperscript{80} Daniel, Principal, East PS, interview, November 25, 2011; Daniel, Principal, East PS, discussion, April 17, 2012.
\textsuperscript{81} Daniel, Principal, East PS, discussion, April 17, 2012.
between teams, shared content was built into school planning, and the personal and professional benefits of sharing became regular discussion topics in formal and informal meetings. Collaboration through the Ultranet, however, was a new challenge for teachers.

Prior to the Ultranet, East PS was running several communication systems for teachers: an intranet, DEECD eduMail and the staff room whiteboard. When the Ultranet was introduced, it was simply seen as another system to which teachers were required to adapt. Trusting the technology to work was seen as a central requirement by teachers if they were to implement the changes associated with the Ultranet. School leaders, however, lacked confidence in staff to read notices on the Ultranet; coupled with ICT infrastructure problems, this meant that the school continued to use a staffroom whiteboard as its main means of communication for teachers. Daniel and the leadership team synchronised calendar dates through a Microsoft Outlook calendar, another communication channel operating in the school, but this system was on a small scale and not considered something that could replace existing communication systems. Even so, the shared vision of school leaders was to use the Ultranet as a single, online location to host general school policies and information and to create a space where teachers could publish planning documents and programs. Daniel believed this would streamline how staff accessed and used information:

> The beauty of it also is we’ve got all our policies, different things on the intranet [network drive]. Everything you could imagine is on there. But we can actually build, I’ll call it a toolbox, I can’t think of another name for it, where we can say “here’s your quick link to all of the planning tools that we find really handy at [East PS].” Now, we haven’t quite even got that organised. We’ve got an area on the intranet [network drive] but it’s blown out of all proportion, but we’d like a nice little concise toolbox for planning.

Through this Ultranet “toolbox”, planning documents, previously unavailable away from the school curriculum server, would become more portable; they could be uploaded, shared and accessed online from school or home on different devices. Through this strategy, Daniel hoped to encourage greater collaboration and efficiencies between, and within, teacher professional learning teams.

If embedding the schools’ formal planning and policy documents in the Ultranet was the first step, the second was to encourage teachers to publish their own planning on it by sharing

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82 Fieldnotes: East PS, Stage One 2011.
83 Daniel, Principal, East PS, interview, November 25, 2011.
weekly and term teacher planners and programs. Once familiar with the Ultranet, Daniel anticipated that teachers would introduce it into student learning. Teachers had previously uploaded term planners and programs on the school curriculum server, but Lead Users saw being able to access regular weekly planners through the Ultranet as more valuable in promoting team teaching.\(^{84}\) Melissa therefore developed a private Ultranet Design space where teachers were required to publish and share their planning as part of their annual performance and development (P&D) plans.\(^{85}\) Teachers could also include an individual goal to use the Ultranet in their teaching in their P&D plans but this was not one of the Principal’s expectations.\(^{86}\) Lead Users believed that a culture based on sharing would develop greater trust and respect within professional teams, change teacher practice, benefit student learning and lead to greater synergies of Ultranet use.

Amie and Marcia identified two issues of trust blocking Ultranet implementation progress. Although seeing the existing communication system as inefficient and non-progressive, Amie was frustrated with the Ultranet: “Even though you want people to do it [communicate] all electronically, you can’t trust that’s it done.”\(^{87}\) Marcia understood that any lack of trust or privacy concern might limit teacher collaboration but saw value in sharing existing resources online:

> I don’t care who sees my planner. Maybe some teachers do feel, “that’s my planner I don’t want people to see it”, but for me [...] I’m happy, you look at mine and I’ll look at yours and we can get ideas. I’m very pro-sharing though, and some people aren’t. To me it makes sense because it just cuts your time down [...] a lot of teachers my age [25] I don’t think have a problem with it. I mean, we share everything in our lives so I don’t care who sees my planner. That’s not the most private thing that’s going on.\(^{88}\)

Trust in each other, or a lack thereof, was an important factor in shaping how the Ultranet was constructed as a sharing mechanism at East PS.

To what extent using the Ultranet was ever mandated by DEECD to principals and from principals to individual teachers remains unclear. Certainly, there was a central and regional DEECD expectation for Ultranet implementation to be included in principal performance reviews. This also explains why Ultranet implementation strategies at East PS in turn included a

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\(^{84}\) Fieldnotes: East PS, Stage One 2011.

\(^{85}\) Melissa, Lead User, East PS, interview, December 12, 2011.

\(^{86}\) Daniel, Principal, East PS, interview, September 22, 2011.

\(^{87}\) Amie, Lead User, East PS, interview, November 29, 2011.

\(^{88}\) Marcia, Lead User, East PS, interview, December 14, 2011.
similar expectation from Daniel that all teachers share their P&D plans on the Ultranet. The school’s Ultranet goal to improve teacher collaboration was expected to have flow-on effects for student achievement if implemented incrementally over time. Despite this goal, Daniel did not mandate Ultranet use, so only some teachers were using it, while others actively resisted the change. This was a source for frustration for Amie, who explained her concerns as follows:

I can go into any grade theoretically and click on 3B’s planner and see what’s on, what’s going on this week. The issue we’ve had is people having trouble uploading them, and tabs, and because it’s not working or they’re frustrated after the first go, [they] never went back. Where’s the accountability? […] I’m not putting it up so who’s checking on me, who’s telling me that […] what trouble do I get in?

These controversies led to Amie and other teachers participating in my study suggesting that Daniel be clearer and mandate all teachers to share their planners and programs on the Ultranet. That he did not do so highlights how teacher Ultranet participation was shaped more by the Principal than by Lead Users, who felt unable to challenge this situation.

In summary, DEECD expected a culture shift would take place alongside the Ultranet, with integrative technologies helping to facilitate a change away from individuals working in traditional classrooms and towards working in teams in more open spaces. Such a move from physical to virtual collaboration would reduce the requirement for teachers to be in the same location. Daniel and the Lead Users thus placed an emphasis on more consistent school-wide planning, with teachers expected to work collaboratively with one another and their students through the Ultranet, rather than autonomously in isolated pockets of the school. Lead Users created an Ultranet Design space to encourage teachers to share their planning, and Daniel saw this space as a way to coordinate all school information and create, store and update policies in real time. Teachers were to be made more accountable as the goal to upload planners was incentivised through their performance plans, but this was not enforced. Without all teachers sharing their planning through the Ultranet, it was unclear to what extent a culture shift or changes in teacher practice would occur. Although the Principal advocated the Ultranet as a catalyst that would improve teacher collaboration, it was not fully embedded in school culture and remained at the margins of teacher practice.

89 Amie, Lead User, East PS, interview, November 29, 2011.
5.3: FRAMING THEORIES

The Social Construction of Technology (SCOT) perspective

DEECD designed the Lead User model to facilitate the Ultranet’s successful implementation. Lead Users’ purposes and their capacity to influence and shape the Ultranet project were closely aligned with DEECD values and priorities. Moreover, they reflected general principles steeped in DEECD’s change management vision, particularly around policy and security. At South PS these purposes were linked to efficiency and effectiveness, and at East PS to teacher collaboration. As the empirical evidence shows, Lead Users combined their knowledge and ability to influence groups’ Ultranet use at the local level. I applied the SCOT presumption that different groups have unequal power in shaping participation processes to analyse the capacity of Lead Users to shape participation processes and implement the Ultranet in the workplace.

Both stability and intra-group conflict shaped Lead Users’ construction of the Ultranet artefact to varying degrees. At South PS, Lead Users were a stable group; they had very clear and coherent role definitions that helped them monitor the impact of their Ultranet strategies. In contrast, East PS Lead Users lacked stability. They struggled to adapt to staff changes, with new team members bringing different experiences, priorities and personal goals that restricted the growth of the Ultranet. SCOT’s concept of closure helps to explain how both Lead User groups coped with ongoing Ultranet tensions. Lead Users’ role status and their collaborative design of formal Ultranet implementation plans approved by DEECD regional leaders gave them legitimacy in their communities. This analysis suggests that both status and structure act as stabilising mechanisms within leadership groups, confirming that clearly understood role descriptions and goal congruence are important factors in groups’ successful technology development. That DEECD had considerable influence in defining Lead User role descriptions and managing generic Ultranet implementation processes underlines the State’s top-down influence in the Ultranet’s development.

Applying SCOT’s concept of stabilisation, we can see that conflict was also evident inter-group, with unequal power between groups influential in shaping participation processes at South PS. Lead Users wanted to create new standards and change the behaviour of the parent group to privilege the Ultranet over all other forms of communication. By arguing against, and successfully resisting, Lead Users’ attempt to dominate their communication choices, parents showed themselves to be a powerful user group in this school. Agreement was reached that
the Ultranet was not the answer to the school’s broader parent communication needs. Following this stabilisation process, Lead Users determined to return to previous newsletter distribution methods, an example of closure in the SCOT approach. This shows that the newsletter was not a neutral communication tool; rather, that its interpretation was socially shaped. Both the newsletter and the Ultranet had to fit the social context and technological systems into which they were being introduced. Lead Users kept their goal to improve parent communication but no longer promoted the Ultranet as their preferred communication solution, recognising that parents’ interests were not being met as intended. In the end, older mass and personal communication systems prevailed at South PS. The “winners” were hybrid mediated forms such as the school website, Facebook groups and hand-delivered notices but, significantly, not the Ultranet. What we see through this example is local inter-group conflict, the outcome of which challenged DEECD and Lead Users’ power and their vision of the Ultranet as a stable alternative to dominant forms of communication.

At East PS, Lead Users’ purposes were not clear, nor understood, by internal or external groups. Although the Principal was strongly committed to following DEECD’s technology goals, he did not focus on strategies with his Lead Users that would more specifically meet the local community’s needs. Because they were not a strong, cohesive group of trained implementers, Lead Users were unable to influence others in the school community to fully utilise the Ultranet, leaving teachers’ online collaboration skills undeveloped. While the Ultranet was recognised symbolically by Lead Users as important at a system-wide and professional level, it had minimal influence in practice.

Missing from the SCOT account is the material dimension of technological objects, including digital infrastructure, software and computing devices, something East PS’s Ultranet experiences show impacted on decision-makers in their responses to technical, economic, social and political issues. An essentialist view of human sociality, seen as common to conventional social anthropology (Miller, 2005), fails to take material culture into account and denies its contribution to the shaping of social relations. An alternative view sees technologies such as the Ultranet as capable of shaping technical and human actions insofar as they are encountered as material artefacts. Following this theory, school leaders would understand the Ultranet as affecting social relationships rather than just being a product of them. At East PS, poor technical performance and under provision of equipment, especially laptops, made the material dimension particularly evident (Miller & Horst, 2012). Because students exercised
patience or shared computer equipment, broadband speed and high student computer ratios did not always limit Ultranet use. But material as well as social constraints in Ultranet use were made clear when a school network was down or, crucially, when a student could not retrieve their digital content. These examples show a realist dimension to Ultranet adoption, because the reasons why people used or did not use it were part of a material, encountered culture.

The SCOT lens helps to illustrate the conflict evident in the different Ultranet goals of parents, teachers, school leaders and (indirectly) DEECD, with each group competing to construct a version of the Ultranet to fit their purposes. Throughout the active phase of technological development, school leaders’ actions (or inactions) strongly shaped Ultranet participation processes. This analysis synthesises SCOT with the empirical data to show the complexity around different groups’ purposes and relationships that in turn were influenced by context and overlapping and competing interests. Both cases analysed throughout this chapter—the experimentation with Ultranet use in South PS and its non-adoption in East PS—show how the Ultranet was part of a complex technological and social environment that confirmed hierarchical power relations between stakeholder groups. The Ultranet did not operate as a stand-alone technological force driving the development of parent communication or teacher collaboration. In fact, we can see that its development was not quite as open-ended or competitive, in line with different interests and purposes between and within groups, as the SCOT reading might suggest. Ultranet User Groups had less scope for shaping Ultranet participation processes than school leaders.

The Pateman Participatory Theory of Democracy (PTD) perspective

South and East PSs used the introduction of the Ultranet as an opportunity to expand internal and external communication networks in ways that reflected DEECD’s Ultranet design. Even though participation in the Ultranet was initially promising at both schools, the extent to which a participatory society was constructed was strongly shaped by school leaders.

An analysis of the data using Pateman’s typology shows that participation at South and East PSs took place in different forms and at different levels. I show how both schools’ authority structures included high and low levels of participation.

Principals at both schools participated at the higher level of management, and together with their school councils were responsible for implementing DEECD policies and designing the Ultranet change management strategies for their school communities. Lead Users mostly
participated at lower levels of management, but had more ability at South PS than at East PS to influence or participate in principal or school councillor decisions. Also participating at this level were the UTC (South PS only), the RNUC and the RUC, all of whom had some power to implement and oversee day-to-day Ultranet activities.

According to Pateman, collective arrangements have a significant role in shaping participatory society. Lead Users worked together in a collective formation, thus meeting a requirement for full participation in Pateman’s typology. Individual members had unequal decision-making capacity, however, as power was distributed unevenly according to their position and actual level of responsibility. At East PS, there were few opportunities available for non-principal-level Lead Users to make decisions, whereas at South PS there were more opportunities as the Principal (Ronald) delegated some Ultranet responsibilities to other Lead Users. For example, Emily became more influential in Ultranet decisions as Ronald limited his Lead User role in the team. She was also a member of the school leadership group and therefore involved in higher-level participation, but still did not have the same final decision-making power as Ronald. Such collective arrangements did not promote full participation.

DEECD created new Ultranet positions, including portal administrator and school content administrator, to be selected at the school level. Often, as in the case of Emily, school leaders and teachers designated by Ronald to take on Lead User or Ultranet administrative roles already held other positions of responsibility in the school. As such, trained Lead Users could use their specialised skills and knowledge to influence how others used the Ultranet. This is an example of partial higher-level participation. Whilst those holding positions of responsibility had increased opportunities to represent and influence their peers, potential partial higher-level participation opportunities for others were negated.

Pateman (1970) regards individuals having opportunities at higher management levels (as was the case with Tiffany and Brooke) as advantageous for the creation of a participatory society. Such opportunities support individuals to participate more fully in their everyday work and help them socialise into a higher level management structure. For example, Tiffany acted at lower management level in her role as classroom teacher but at a higher management level when making decisions as a member of the Lead User team. Tiffany and Brooke partially participated at both management levels, but their Lead User roles were shaped by the existing authority structure of the workplace in which the Principal was still seen as the main decision-maker and leader. Nonetheless, their higher-level participation enabled them to share resources and ideas in highly influential ways and provided them with more opportunities than
their peers to guide Ultranet implementation. They gained more information about how management worked and could share their knowledge and skills at the “worker” level with other teachers, students and parents. Importantly, the decisions Tiffany and Brooke made about the Ultranet impacted on teachers, a group of which they were also representatives. At South PS, the category of “management”, as seen through a PTD lens, was dynamic and multi-levelled.

Ultranet decision-making at South PS included members of the UTC. I did not study the UTC’s decision-making, but its design (to include individual teacher and student representatives) suggests members had some influence at the teacher, student and Lead User levels. Parents had no formal representation on the UTC but may have had some influence through their children or children’s teacher. The UTC acted as lower-level management, with potential rather than actual participation. Moreover, the UTC used consensus decision-making as its democratic model. The extent to which consensus was achieved by the UTC, given the different interests represented by members, was not explored in my study. In any case, whilst classroom teachers and students on the UTC could have more input into Ultranet adoption process than other classroom teachers and students, such input was moderated by the Lead Users, who made final decisions.

School council policy and finance decisions in East PS were guided by information received from the leadership team led by the Principal. Backed by student feedback, Daniel successfully argued that more modern and effective technology resources were required to enable students to participate fully in their own learning. School council is an example of a school’s higher-level management making a partial participation decision by virtue of the school council president having a casting vote in the event of a deadlock. The higher-level financial decision-making power of the School Council was evident in its backing of the Principal to allocate $100,000 of school funds to purchase devices students and teachers needed and to fund wireless infrastructure to enable Ultranet stability.

The East PS Principal, Daniel, was part of a team that represented his region’s technology purchasing and staffing interests. Even with this status, he was not involved in statewide Ultranet policy or implementation decisions and had little influence over the wider Ultranet initiative. This asymmetrical power situation provides an example of Pateman’s pseudo-participation, because his participation in critical aspects of Ultranet implementation was symbolic rather than actual. The timing of political commitments, information technology (IT)
procurement and regulatory constraints on the Ultranet’s design were essentially fixed elements of the adoption process and thus less open to challenge and redirection from school-based employees, students and parents. Hence, the opportunities for school leaders and Ultranet User Groups to participate in DEECD’s decision-making and influence the path of the Ultranet’s development were limited in comparison to the decision-making influence of institutional and commercial social actors. PTD can thus add to an interpretative SCOT approach and provide a more comprehensive explanation of the empirical data.

Applying Pateman’s PTD to my findings exposes a dialectical relationship between school leaders and all other groups in the social space. Such relationships are fluid because all the actors adjust and realign to new situations, as seen when school leaders at South PS had to change their Ultranet strategy because of strong parent feedback. What this discussion has shown is that pseudo and partial (but not full) forms of participation were evident in the Ultranet project. Different contexts and relationships shaped how DEECD officials, school leaders, teachers, students and parents participated in Ultranet implementation.

**Conclusions**

South PS’s leaders’ vision was to enhance communication between home and school, and to develop local, statewide and global networks through the use of technology. Seen as an important part of ongoing school reform, South PS’s Lead Users’ response to DEECD’s Ultranet initiative was professional, organised and very structured. Their decision to control and micromanage all of the school’s communication processes through the Ultranet, however, was antithetical to building sociality at a time of significant digital change. In trying to manage the school’s communication needs in a growing community, they developed Ultranet content that exhibited their values and made decisions about sharing information and resources that complemented their management culture but did not meet their community’s diverse needs and expectations. At South PS, the Ultranet was constructed hierarchically around existing communication systems and social, cultural and organisational practices.

Section 5.2 focused on East PS’s Ultranet goals. DEECD saw Lead Users as best placed to embed the Ultranet in their local communities and ensure that the right people, support, technologies and leadership were in place. Daniel made most of the Ultranet implementation decisions himself, however, with little involvement from Lead Users. Following personnel

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91 South PS, 2010 eLearning Plan.
changes during the Ultranet’s first year, the Lead Users’ ability to train or support staff or students decreased in any case, and their leadership became disjointed. Making sure that wireless infrastructure was in place to ensure the success of the Ultranet was pivotal in Daniel’s thinking, with technical, political and financial limitations influencing his decision-making. He believed that a transformation of public education through uses of new digital technologies was underway and that unless he got on board his school would be “left behind”. He still assumed that the Ultranet would eventually be an easy-to-use technology that would result in increased collaboration and communication between teacher teams (outlined in Chapter 6).

Social Construction of Technology and PTD theories partly explain the variety of ways in which individuals and groups in both schools, with differing goals, values and beliefs, constructed their uses of the Ultranet. School leaders operated as an influential group who were aligned to state and local ideas and beliefs about the Ultranet and utilised it to reinforce their hierarchical positions and pursue their goals. Their actions were moderated by the materiality of the technology owned and maintained by DEECD, school culture and values but they also operated within institutional, hierarchical decision-making structures shaped by their positions of responsibility and DEECD’s Ultranet implementation prescriptions. The Ultranet was designed and developed for use in human and cultural contexts and environments for pedagogical and political reasons. Different interests and influences shaped how the Ultranet was constructed and developed in the schools in my study. The Ultranet project unfolded in multiple ways, but a general thrust evident was that it had to “fit in” with existing school culture.

The Ultranet cannot be conceptualised as a technology separate from the way people engaged with it; it did not follow a single path of least resistance, nor was it always used in the ways that school leaders anticipated. As the most powerful group in the school community, school leaders drove Ultranet implementation and promoted the direction they believed to be most effective. They, in turn, were influenced by other groups who also had interests in shaping the Ultranet in particular directions. It is to teachers, the key Ultranet implementers at the classroom level, that I now turn.
CHAPTER 6: TEACHERS’ IMPLEMENTATION OF THE ULTRANET

Following a strong message from state and education department officials, delivered through principals, over 50,000 Department of Education and Early Childhood Development (DEECD) teachers were required to register as Ultranet users by the end of 2010, the Ultranet’s first year of operation (DEECD, 2011f). Promoted as a “disruptive technology”, the Ultranet was expected to become a significant part of teachers’ work habits and practices (DEECD, 2010j). But how would the Ultranet transform teaching, support teachers in their professional duties and contribute to improvement of the system as a whole? Clearly, as Buckingham (2008a); Carrington and Marsh (2008); Facer and Thomas (2012); Selwyn et al. (2010) and Somekh (2004) found in relation to technology initiatives in schools, the actions teachers took were central to its success or failure. Less than two years into its implementation, however, the Australian Education Union (AEU) Victorian Branch banned Ultranet use by its members, threatening central DEECD officials’ vision of the Ultranet as a game-changing technology.

Central DEECD officials promoted the Ultranet as enabling teachers to build their skills and knowledge in using information and communication technology (ICT), saving time and enabling them to:

- draw on a “one-stop shop” information repository of digital tools and services;
- create and access student achievement data and build up a comprehensive and informative account of each child’s learning over time;
- regularly record and report students’ progress to parents;
- plan units of study, lessons and learning tasks for individual students, classes and groups;
- find and embed digital resources into Ultranet spaces to “support purposeful interaction between students, teachers and experts”;
- share curriculum plans and resources with other teachers in the same school or in other Victorian schools; and
- complete administrative tasks (such as student attendance records) more easily.

(Information compiled by the author from DEECD (2010f, p. 12; 2010g, p. 3))

This chapter has five sections. It addresses how teachers’ experiences, attitudes and decisions in three schools shaped their social, institutional and professional Ultranet use. First, I analyse the dominant teacher union’s resistance to the Ultranet. Second, I compare Ultranet aims with actual uses by a group of West Primary School (PS) teachers. Third, I analyse the different ways
CHAPTER 6: Teachers’ Implementation of the Ultranet

in which a team of East Primary School (PS) teachers responded to the Ultranet innovation, failing to integrate it into their practice. Fourth, I examine how the values and beliefs of North Secondary School (SS) teachers, influenced by the AEU, School Principal and Ultranet Coach, shaped their interpretation of, and participation in, the Ultranet. I then consider in greater depth how one teacher found ways to integrate the Ultranet into her practice and discuss how she negotiated the tensions around this. Finally, I draw on the theoretical perspectives of the Social Construction of Technology (SCOT) theory and Pateman’s Participatory Theory of Democracy (PTD) to interrogate and explain the empirical data.

6.1: THE AUSTRALIAN EDUCATION UNION’S ULTRANET BAN

Along with other interest groups identified by DEECD, the AEU, representing both primary and secondary teachers, had been part of ongoing Ultranet stakeholder discussions from 2007. Teachers were represented at the local school level by their union representatives, who transmitted their collective concerns to local and statewide AEU branches. As was the case with any program, policy or process that impacted on teacher work conditions and involved changing social relationships between teachers, students and parents, the AEU also met privately with DEECD to promote its position on the Ultranet. Two AEU officials, one from a primary and one from a secondary school background, were involved in the DEECD Ultranet consultancy process for the design, rollout, implementation and take-up of the Ultranet.

As explained by AEU official Tony, who considered himself “not tech aware”, the AEU’s contributions to the stakeholder meetings focused on three key factors: work practices, timelines and resources. In regard to the first, Tony saw any change to work practices as a potential concern, even where the Ultranet was promoted by DEECD as an opportunity “to decrease workload.” Second, he was concerned about any requirements on schools “to implement [the] Ultranet to set timelines.” Third, he was disappointed by what he saw as limited “resource allocation to skill people, especially as the Ultranet was such a costly venture.” He pointed out that teachers needed “familiarisation with the platform, let alone skills to use ICT effectively in the classroom.” Tony believed that many teachers had a “broader issue [with] trusting the system” and depicted teacher attitudes about Ultranet implementation as negative, saying, “why bother wasting time [with it]?” He implied that their attitudes had their genesis in the August 9, 2010 pupil-free day, when all schools statewide were allocated a professional development day to use the Ultranet for the first time and (embarrassingly) it went offline. In general though, Tony characterised ICT issues as a lesser
professional concern than “class sizes, buildings, facilities, time for teachers to actually do the work they’re required to do” for most teachers, although he thought younger teachers might rank them higher.  

In August 2011, the AEU sought to negotiate a new enterprise pay agreement for its members as the 2008 Victorian Government Schools Agreement had expired (Preiss, 2013). Frustrated by what it saw as a lack of progress, from May 2012 the AEU progressively banned its members from undertaking a range of teacher duties. Over the following year, as enterprise bargaining negotiations stalled, the bans escalated, affecting DEECD and the wider school community. These bans were focused around the discretionary work teachers were undertaking and culminated in a work-to-rule 38-hour week. In most schools, this resulted in a halt to the implementation of the national curriculum (Australian Curriculum/Victorian Essential Learning Standards (AusVELS)) and Ultranet, and no DEECD teacher or parent survey participation, written reports or camps and excursions. The ban also extended to those teachers involved in a 3-year DEECD-commissioned Ultranet evaluation (AEU, 2012b; DEECD, 2010 July/August).

Part of an organised industrial campaign intended to promote a collective political voice, a teacher stop-work rally on June 7, 2012 resoundingly supported the Ultranet ban, which remained in place for a further 10 months until an enterprise bargaining resolution was achieved in April 2013 (AEU, 2012a).

From one AEU official’s perspective, the ban on implementing the Ultranet was part of a package designed to disrupt the status quo and position the union as actively campaigning on teachers’ behalf, while also highlighting the government’s election promises:

> It’s got everything to do with our industrial strategy and so, in that sense, there’s a tremendous amount of frustration that our members have about Ultranet and what it represents. So it was a ban that was eagerly taken up by the vast majority of our members [...] equally there were plenty of our members, including the Ultranet coaches, who thought it was the wrong type of thing to do.

The ban was particularly disruptive in schools that were Ultranet “converts” and had fully aligned their direction with implementing the Ultranet in their local community. With an uneven pattern of adoption and low teacher use already very clear to those state and education department officials privy to Ultranet usage statistics, the AEU ban reduced the number of teachers using the Ultranet even further. As Aly, a central DEECD official, explained,

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92 Tony, AEU, interview, September 13, 2012.
93 Tony, AEU, interview, September 13, 2012.
“the usage data is not actually reflective of the potential that we could have had, that we may have realised if there wasn’t an AEU ban.”

Through this brief introduction, we can see that DEECD, the AEU and teachers held disparate Ultranet interests, all competing for attention in a tense political environment.

6.2: THE ULTRANET EXPERIENCES OF WEST PRIMARY SCHOOL TEACHERS

Central DEECD officials’ aims included the promotion of alternative online forms of assessment and reporting that teachers could use to communicate more effectively with students and parents, in turn leading to greater participation of these groups in the learning process. As a stepping-stone toward this, West PS leaders’ Ultranet goals were for teachers to use Release 1 Collaboration to develop and share an Ultranet space with the wider community and to use the Release 2 Teaching and Learning module to plan a curriculum learning task. In this section, I discuss how teachers tried to meet these school goals, and show how they found ways to balance Ultranet demands with their everyday practice.

Challenges in setting up a collaborative learning space to share curriculum content

The following example describes how Alesha, an experienced specialist teacher, constructed a collaborative learning space to meet the school’s Ultranet Release 1 goal.

Alesha was responsible for managing and running an environmental sustainability event for students and their teachers in her region. She decided to construct an open collaborative learning space to share her web resources and encourage peer collaboration. She believed this type of space would allow students and teachers to access the same information-sharing opportunities. Alesha’s actions were consistent with DEECD’s framing of the efficacy of such spaces for student collaboration and learning. As the space owner, she could manage the range of permissible actions but allow users to view and add to the content of pages as well as copy, save, download or print pages (DEECD, 2007). She wanted students to access the open collaborative learning space prior to attending the event and hence be informed and knowledgeable about the complex issues involved in the topic. Once they met face-to-face, she hoped their interactions would expand into building deeper connections that could be pursued online through the Ultranet. She also wanted the Grade 6 students who were helping organise and run the event to actively co-design materials for the space and develop into a

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95 West PS, Ultranet Implementation Plan.
small group of Ultranet “super users” who could teach their peers at school and at the event. Overall, she wanted students to have more voice in the learning process and challenge the traditional school authority roles in which teachers acted as “professional gatekeepers”, filtering what information, and in what form, to disseminate to student audiences (Flanagin & Metzger, 2008, p. 12). In deciding to use a collaborative learning space, Alesha hoped to shape audience composition, the resources participants could access and the skills and kinds of collaboration students could develop with the intention to build a more democratic and participatory learning environment. Similar hopeful teacher attitudes were promoted in government-funded research on learning platform adoption in UK schools (Condie et al., 2007; Jewitt et al., 2010).

Design and transparency were important further considerations for Alesha in constructing the collaborative space. Her description of the Ultranet prior to using it for her project was that its complex and overlapping pages were “very layered.” Following her experiences in using it, she suggested that teachers thinking about setting up a collaborative learning space were “not going to want to know my journey,” describing the process as “tedious” and “time-consuming.” She also felt there was a major problem with gaining feedback through the Ultranet, especially regarding audience patterns of use. As the site moderator, she was unable to discover whether event participants had logged in, found the collaborative learning space (not always a straightforward process, even with the space’s identification number) or been able to find the particular third-party website she wanted them to access. Not knowing who had accessed her Ultranet materials, she was therefore unable to use the Ultranet to build rapport with her potential audience. Her colleague Amber, a Lead User and Grade 5/6 teacher, had a similar view on Ultranet feedback:

At the moment, I’m just putting stuff on there [Ultranet] mainly for the kids. Oh, I put the newsletter on once in a while, but I can’t tell you whether they go and look at it, but I just feel that I have to do that.

So, although these teachers could own and publish content on collaborative learning spaces, they did not feel they could effectively interact with their audiences. They liked the idea of using the latest technologies to communicate with their peers and provide learning resources to students, but felt the Ultranet made their working lives less efficient and more complex.

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96 Alesha, teacher, West PS, home visit, April 4, 2012.
97 Alesha, teacher, West PS, home visit, April 4, 2012.
98 Amber, teacher, West PS, teacher focus group, March 21, 2012.
As the site owner and moderator, Alesha also disliked the lack of prompts and information to help manage the digital content. Ultranet spaces did not show when there was new content added or when sites needed to be updated, nor did they have an email or alerts system that advised users when sources linked to collaborative learning spaces changed. Other than manually checking by visiting the websites or Ultranet spaces, there was no way of knowing if, or when, any embedded content displayed on a collaborative learning space that linked to third-party content had altered. Alesha and other teachers were concerned that, as was sometimes the case, audiences would encounter problems such as “page not found” or similar error messages because the links or pointers to particular external content no longer worked. Space owners could add Ultranet web 2.0 applications, such as Page Comments and Webforms, to enable users to give feedback, but adding more design features had consequences for presentation including readability, navigability and layout. Presentation is important in how receivers make judgements about the believability of information and sources, as demonstrated in research on credibility and digital media (Rieh & Hilligoss, 2008). In order to effectively explain and present new content to wider audiences, teachers had to take all of these restrictive factors into consideration when deciding whether or not to adopt Ultranet collaborative learning spaces into their practice.

The Ultranet’s introduction revealed tensions between DEECD’s existing copyright laws and teachers’ use of online content. Having discarded her previous email distribution methods in favour of the Ultranet, Alesha exhibited some anxiety about how she would manage and share online information alongside the more restrictive government regulations on copyright. Alesha had no intention of claiming authorship of third-party materials and so needed to be aware of the complex Ultranet copyright regulations around displaying, copying, cutting or pasting third-party content directly into the collaborative learning space. Her peers were also concerned with monitoring copyright in their Ultranet usage, with Leading Teacher Leah commenting, “I don’t know, it’s kind of that grey area where you go, ‘how much is ten per cent? Can I really put it up there?’ So, we’ve kind of just gone ‘oh, we just won’t.’” Teachers also found extracting content from the Ultranet time-consuming, with limited options for reuse in non-Ultranet compatible systems because of its proprietary software file systems. Clearly, concerns over managing online copyright and intellectual property were important new issues that shaped teachers’ decision-making when designing, presenting or sharing materials on Ultranet spaces. (I discuss other implications of copyright later in Sections 6.4 and 6.5.)

Using the Ultranet was intended to expand teacher collaboration and open up alternative ways for them to share curriculum information more widely. But to what extent was this Alesha’s experience? Although the collaborative learning space she designed was open for any students and staff in Victorian government schools to join, the problems she encountered gave her the sense that the Ultranet was inflexible and not fit for her purposes. Using it, she felt a lack of control over the currency and dissemination of information, copyright and audience patterns of use, supporting other findings where teachers’ practices were challenged by the introduction of disruptive Internet technologies into students’ learning (Selwyn et al., 2010; Somekh, 2004). What was important to Alesha was communicating pertinent, online information clearly and unambiguously, saving planning time and building her and her students’ expertise in creating and managing information. Being able to set micro-permissions to control who could view and contribute to Ultranet spaces or maintaining a secure Victorian government school users only online environment were less important to Alesha than they were to central DEECD officials. She wanted to open up, not close down, the communication environment, but had a professional obligation to control it at the same time. She spent many hours at school and at home learning how to construct the learning space, but in the end decided not to continue using the Ultranet because of what she saw as its limitations. She did not achieve the outcomes she hoped for in using Ultranet Release 1: an online community or increases in student collaboration, goals promoted by central DEECD officials and initially seen to be achievable by her school’s leaders through teachers’ effective use of the technology.

**Participating in information sharing**

Ultranet Release 2 included two learning spaces: Learner Profile and Learning Tasks (DEECD, 2010g). A broader explanation of the characteristics of Release 2 can be found in Chapter 1, and the Learner Profile space is also discussed in relation to parents in Chapter 8. This sub-section outlines teacher values and attitudes toward using the Ultranet’s Learning Tasks space in their reporting practice.

Under DEECD information management guidelines, electronic or hardcopy student reports were part of a school’s public records, reinforcing their transparency and legitimacy as structures (DEECD, 2013a). DEECD required schools to provide formal written information to parents on their children’s progress twice per year. The standard reporting window generally occurred at the end of each semester in June and December when a school report was sent.
Through the Ultranet, however, teachers could extend existing practices and report online more regularly on student progress against curriculum standards. Although mostly negative about Ultranet implementation, the broadening of reporting mechanisms was seen as generally positive by Tony, an AEU official, who conceded, “I think any teacher would say it is a good thing to communicate more [fully] with parents about the progress of their child at every opportunity, so long as they can do that without it becoming an overbearing task.” He supported the idea of “continuous reporting” to parents through the Ultranet if it was used instead of existing practice, and believed that teachers had a moral and professional obligation to share pertinent information about the nature of their work with those who had a right to know. Reporting, however, was an institutional practice with social implications that could not be easily adapted to fit in with the latest technological developments. Further, as previous research on the impact of new technology on home–school relationships has shown, schools retain more power than families in shaping communication practices and commitment from all groups is required to effect change (Grant, 2009; Lewin & Luckin, 2010; Passey, 2013; Selwyn et al., 2011; Stevenson, 2011).

Each West PS teacher in my research adopted their own method of assessing and recording student achievement, ranging from a reliance on memory through to using handwritten notes, student reporting software packages, databases, office software and web-based modes. Any approach they used needed to conform to existing DEECD and school assessment protocols, something made more explicit when teachers produced student reports or feedback through the Ultranet. For example, Sarah, West PS Grade 3/4 teacher and regular Ultranet user, created student assessment formats on Ultranet Learning Tasks that mirrored the report style and language she was already using, thus reinforcing the school’s organisational and cultural values online. Sarah believed that any new forms of communication with parents via the Ultranet should be consistent with the professional values that already guided her formal communication with them. She understood that once comments were made about, or by, students or parents on the Ultranet, they became part of that student’s Ultranet record and subject to the same DEECD regulatory policies as hardcopy student records. Sarah’s interpretation of this DEECD requirement led to her decision not to involve parents in viewing their children’s work; she also felt students were not yet ready for this level of scrutiny.

100 During fieldwork, union bans on written report comments resulted in West PS leaders accessing teachers’ DEECD laptops and student records in order to produce students’ end-of-year reports.
101 Tony, AEU, interview, September 13, 2012.
102 West PS teacher artefact.
Although Ultranet involvement was not a current school priority, Sarah anticipated that this would change over time, saying “We haven’t really put into that parent aspect yet. We’d like to, but I think that the students have got to get a bit more competent with it before it gets onto the parents.”

Teachers were aware of the pressure to use the Ultranet to communicate with parents but were not trained in using it to do so effectively. Grade 5/6 colleagues Leah and Amber were unclear about the nature and level of parent involvement that should occur through the Ultranet. They were unsure about whether they would be expected to provide feedback on each learning item, what specialised knowledge they would be required to share, and what resources would be available to support them. Grade 5/6 teacher Petra, who was new to the teaching team in 2012 and still learning about the school’s parent communication processes, thought parents may not have the equipment or skills to access Ultranet information, meaning “some parents may not even open it.” Amber went further, questioning whether parents would see any purpose in the Ultranet if all they saw when they logged on to a Learning Task was “an empty space”:

I think there are some parents who do like to get on [the Ultranet] and do want to see the homework coming through that way and do want to see stuff. So yeah [...] I don’t see it as a tool for them so much as a teacher. I see it more for teaching the kids and for the teaching and learning that’s going on here. If they see what the kids are doing, and if they’re able to add to it, that’s great, but at the moment I don’t see that it’s for them.

Lastly, Grade 5/6 teacher Nikola questioned the veracity of online assessment and records, asking, “If it was just online, that could bring in issues of like, how do you know what’s falsified?” Nikola advocated that Ultranet records should be used as an additional, not the solitary, means of evidence used by teachers to make decisions. Interestingly, a negative theme—that communicating and sharing student work via the Ultranet was inauthentic or deceptive—is visible in numerous participant comments and is supported by recent research (Flanagin & Metzger, 2008).

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105 Leah and Amber, teachers, West PS, teacher focus group, March 21, 2012.
106 Petra, teacher, West PS, teacher focus group, March 21, 2012.
107 Amber, teacher, West PS, teacher focus group, March 21, 2012.
108 Nikola, teacher, West PS, teacher focus group, March 21, 2012.
It seems fair to say, then, that while the Ultranet did expand options for teachers to plan, share and assess curriculum content with multiple authorised audiences, communicating more regularly online presented challenges. Teachers needed to create, upload, monitor and assess Ultranet student tasks and also consider how they might manage any problems associated with changes to their communication practices. Clearly, however, for the data to be valuable, teachers needed to make the Ultranet their dominant means of recording student work regularly over time and be open to parents’ involvement in individual learning tasks. This was a possibility, given parents had their own Ultranet usernames and passwords. Ironically, the Ultranet provided teachers with the ability to tailor Learning Task feedback so as not to include parents, thereby allowing them closer control of the process. Teachers at West PS, however, did not have the knowledge, skill, training, time, interest or incentive to experiment with the Ultranet to this level.

Ultranet implementation required teachers to develop an understanding of how ethical standards, such as security, confidentiality and safety, and legal requirements, such as copyright and legal ownership, affected their professional obligations. In theory, teachers had access to new audiences, formats and data through the Ultranet. In practice, however, sharing this information relied on teachers being willing to exchange personal student records with other social groups, such as parents, moderate collaborative learning spaces to minimise student risk, and comprehend the legal rights of content owners and producers. The outcome of such requirements meant that the majority of teachers at West PS constructed their version of the Ultranet as a potentially risky and inflexible teaching and learning space. As Hammond (2014); Somekh (2004) and Street (2012) have argued, teachers constantly negotiate ICT through their socio-material practices that are, by their own admission, sometimes in opposition to government values.

Teachers at West PS did not prioritise embedding the Ultranet in their assessment and reporting practices, and this was reflected in their planning and classroom practices. The Principal believed a major reason for this was their lack of competence, stating, “It’s a matter of training teachers on how to use it properly and what’s appropriate and what’s not appropriate.” Moreover, teachers felt able to resist Ultranet implementation due to two other factors: the autonomy they had to carry out their work in a devolved structure and their school leaders’ loss of faith in the Ultranet as an effective “tool.” 109 The outcome was that the school’s broader goal—to create a parent audience and enable them to receive valuable, up-

109 Timothy, Principal, West PS, interview, March 13, 2012.
to-date information about their children’s learning through the Ultranet—went unfulfilled. In fact, Sarah, Leah, Amber, Petra and Nikola saw that involving parents in their children’s learning via Learning Tasks posed more risks for them than benefits. They were used to communicating in formal and standardised ways supported by school leaders, but had concerns about their professional judgement being questioned if they relied on unproven online assessment and feedback methods. Teachers’ assumptions and perceptions about parents and students also shaped construction of the Ultranet. They saw parents as not necessarily having the knowledge to understand the Ultranet’s Learning Tasks space and students as not being ready for continuous, possibly critical, parent and teacher feedback. These concerns all combined to see West PS’s Ultranet goals unmet and Learning Tasks empty of meaningful content. As a system intervention, the Ultranet was promoted as a large-scale, more transparent means of public communication. Instead of making this aspect of teachers’ work easier, however, it increased and complicated their professional and public duties.

6.3: THE ULTRANET EXPERIENCES OF EAST PRIMARY SCHOOL TEACHERS

At a system level, central DEECD officials expected the Ultranet to spearhead changes in teacher practice and advance teacher technical skills. At East PS, this played out with Lead Users asking teachers to plan and share curriculum documents within their teams and across the school to improve wider teacher collaboration.110 This section delves more specifically into how a Grade 5 and 6 teaching team, Gabriela, Ishan and Jodie, circumspect about the Ultranet’s introduction, tried to integrate it into their practice in 2011, nearly one year after its introduction to schools.

Gabriela, a keen user of office software to record student data, was conflicted in her views about using the Ultranet in teaching and learning. She found setting up Release 2 Learning Tasks was “time-consuming and not simple” and that “individualising tasks take even longer and make it harder” because of a software requirement to “open one at a time.” Although she had attended in-school Ultranet professional development, she cited a lack of training as limiting her Ultranet use, but also felt she had no time to do the training anyway. As Gräsel (2007) and Hammond (2014) argue, teachers’ knowledge about the educational uses of ICT develops through systematic training, supported by school leaders, that reflects their wider practices. Although she knew the Lead Users’ goal—to use the Ultranet to increase teacher collaboration and communication—she was less sure about the team’s specific expectations.

110 Melissa, Lead User, East PS, interview, December 12, 2011.
about meeting it, saying, “I think, yeah, they’re worried about enforcing things when we don’t have the PD [professional development], but they do want us to use it.”

Gabriela claimed a lack of technology resources was contributing to student Ultranet disinterest. She was finding it difficult to motivate them and felt they did not enjoy working with it. With not enough laptops for every student in the class, six students at a time worked on the Ultranet, resulting in these students missing out on other class activities. Moreover, if students shared a laptop in class out of necessity or for small group work, only one student could log in at a time. This was in opposition to the Ultranet rules and security measures put in place and seen as necessary for privacy and safety by DEECD. Having recently seen an example of an open learning technology curriculum in progress at another primary school, Gabriela felt it would be better if all students had a laptop so she could teach them together but was fearful simultaneously about teachers becoming redundant because of an over-focus on technology. She was concerned that “no-one’s going to write” if schools continued to integrate technologies into students’ learning and saw skills such as using a public or school library as a “lost art.” Somekh’s (2004) work on the impact of ICT on school systems shows that “to be transforming, ICTs need to become an integral part of human activity” (p. 177), but for Gabriela, ICT use constrained the human experience. Her attitudes and feelings were to resist the integration of technology into teaching and learning.

Ishan, a graduate teacher in a classroom resourced similarly to Gabriela’s, was more hopeful about the Ultranet, saying, “I personally like using technology myself, obviously coming from a young generation and so I’ve always had iPods and laptops and computer at home and Xbox and Wii and the gaming stuff” and “I reckon most, that the majority [of students] are really loving it [the Ultranet], it’s just that some don’t like change.” Ishan’s views appear contradictory as they both supported and challenged a celebratory perspective that sees all young people as loving, and being immersed in, technology-rich environments (Prensky, 2001a, 2001b). He also believed that the Ultranet was another mode of expression students could use to present work or to develop their technological skills in the same way that earlier generations of students had used posters and project books. Ishan clearly saw the Ultranet as just another neutral tool that students could choose to use to complete individual or small
group learning tasks. He was concerned, however, about his lack of Ultranet training, especially as he wanted to use it in more advanced ways:

We had that one [Ultranet training] session in the day and then we were never really made to use it, or never really. We were sort of asked to put our planners up, which was a basic process on the Ultranet of just copying and pasting our planners, so it wasn’t too extensive, so we weren’t sort of excelling in using it. And it hasn’t become a vital sort of tool for us to use, so it was sort of being a bit useless in that regard in that we’re probably not using it to its capacity because we haven’t been shown and we haven’t kept using it.117

Ishan successfully negotiated with Jodie, his mentor, to use the Ultranet in his teaching, although as a graduate teacher on a 1-year teaching contract, his influence and legitimacy within the team and school was limited. Graduate teachers were expected to adopt the Ultranet in their practice in the same way as experienced teachers, an unrealistic view given that Ultranet training was not part of teaching degrees.118

Jodie, the third teaching team member, was finding it similarly problematic to weave the Ultranet into her practice. She used technology for a range of learning activities, believing it motivated students to perform some tasks, but thought the Ultranet’s novelty had worn off, with many students resisting its use after just one term.119 (Some of these students’ perspectives and experiences in using the Ultranet are outlined in Chapter 7.2.) Jodie believed that technology was a tool and needed to be simple to use and support teachers’ work. She did not find this to be the case when using the Ultranet, stating, “It’s the logging-in, it’s the going to your name, it’s the different names of things, it’s the unknown of where everything is. It’s not as user friendly as what I think it could possibly be.” She did not agree with DEECD Deputy Secretary’s Darrell Fraser’s promotion of the Ultranet to teachers as “the missing piece of the technology puzzle” [original emphasis] (DEECD, 2010f, p. 2). She questioned its specific role in student learning and was unsure about how to use it explicitly within the AusVELS curriculum (DEECD, 2010g). She believed that the Ultranet was superficial to her practice, interpreting it as an additional burden on teachers’ workload imposed by non-teaching bureaucrats. Rather than use the Ultranet, she felt it was “easier for us [teachers] from the knowledge we’ve already got to make up our own maths activities from what we’ve done in

117 Ishan, teacher, East PS, interview, November 8, 2011.
118 Teachers, West PS, teacher focus group, March 21, 2012.
119 Jodie, teacher, East PS, interview, November 9, 2011.
previous years and use the resources we’ve got in our room.” Moreover, she saw little need to share curriculum information or resources outside of her school. Gräsel (2007) found similar reluctance from teachers about sharing resources with peers. Jodie’s belief was at odds with DEECD’s Ultranet officials who assumed, possibly naively, that all teachers would use it to share information outside their physical classrooms or teaching teams (as discussed in Chapter 4.2). Instead, she interpreted the Ultranet as a top-down directive and implied that “the government” wanted teachers to share only positive news with parents through it:

This [the Ultranet] is not a tool. This seems to be an application that we’re expected to use to inform parents of how well their child’s going. That’s how it was sold to us all: a place where kids can put up their work and the parents can look at their work and it’s fantastic [...] all parents [will] want to see [...] and it hasn’t quite moved away from that because none of us have really used it.

Somekh (2004) and others (Bruns, 2008; Buckingham, 2008a; Ito et al., 2010; Jenkins et al., 2009) note how schools mostly overlook using the Internet as a transformative technology in students’ learning, a view strongly reflected in Jodie’s attitudes to resist the Ultranet in favour of traditional pedagogies, curriculum, existing relationships and the status quo.

Clearly, the integration of data sources was a concern for teachers. Prior to the Ultranet, attendance data in full days was automatically generated from the CASES21 database to provide near real-time updates. Ultranet attendance data, however, was displayed in half-days, leading to confusion for some teachers. Incompatibility between the Ultranet and a school’s third-party computerised systems also resulted in out-of-date attendance data being published in the Learner Profile window for some students. Such misinformation did little to ease the progress of the Ultranet into classrooms. When Gabriela and Jodie discovered their Ultranet student absence data was wrong, Gabriela noted:

It does worry me that some of the things are not accurate either. Like, I noticed with one of my students, that I picked up on all of them in the end, that on their Profile, their days of absence were wrong, and I thought, if a parent looks at that, it’s a lot more days absent than what they actually have been.

120 Jodie, teacher, East PS, interview, November 9, 2011.
121 Jodie, teacher, East PS, interview, December 12, 2011.
122 Fieldnotes: East PS, Stage Two 2011.
123 Gabriela, teacher, East PS, interview, November 7, 2011.
DEECD’s plan to attract an Ultranet audience was based on the premise that accurate, rich data could be made available, synchronised across compatible administrative technology systems. This arrangement was more beneficial to centralised managers than to teachers, because the Ultranet provided no links to student achievement data tracking software, such as On Demand, (Victorian Curriculum and Assessment Authority, Melbourne) and the National Assessment Program—Literacy and Numeracy (NAPLAN).

Student photographs caused a similar problem for Gabriela and Jodie. They were stored on a Computerised Administrative System Environment in Schools (CASES21) database (DEECD’s centralised school administrative database) but could be synchronised to the Ultranet. After some of her students complained to her about their old school photographs showing up in the Ultranet, Jodie investigated. She eventually found out from her school’s Regional Network Ultranet Coach (RNUC) that CASES21 and the Ultranet were linked, but that student photographs had to be first updated on the CASES21 database in order to be accurate on the Ultranet, a task out of her control. She shared this frustration with Gabriela, stating, “We can’t even change the kids’ photos from last year. So, there are a couple of those faults that make it difficult if you are setting that up. Why can’t I change the kids’ photos? That’s crazy!”

Both experiences led to these teachers losing trust and feeling powerless in using the Ultranet and brought to light their anxiety about how misinformation and faults might negatively influence their relationships with parents and students. Gabriela and Jodie were missing the coordinated support they required to successfully integrate the Ultranet in their work.

Teachers at East PS were challenged to include the Ultranet in their teaching practice and meet the expectations of different social groups. At a local level, teachers had to consider how they would use the Ultranet to communicate with parents and provide learning opportunities for students, some of whom they interpreted as technologically savvy but intermittently motivated. Working against successful implementation of the Ultranet were: a dominant “digital native” ideology (Prensky, 2001a, p. 2); teacher and student resistance to change; insufficient Ultranet training opportunities; increased curriculum demands; limited resource allocations; and, a centrally-managed Ultranet interface that interoperate extensively with other computer-based systems but was slow and inflexible. Thus, teachers in the same teaching team held different social positions and views about their own, and their students’, level of skill and interest in the Ultranet that shaped their attitudes and ability to use it in their practice.

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124 Jodie, teacher, East PS, interview, November 9, 2011.
6.4: THE ULTRANET EXPERIENCES OF NORTH SECONDARY SCHOOL TEACHERS

Fieldwork at North SS took place midway through 2012, two years after the UltraNet’s introduction into Victorian government schools. By this time, the UltraNet Lead User structure had been superseded in favour of appointing a school-employed UltraNet coach, albeit originally trained as a RNUC. A long-term technical issue around timetabling preventing most secondary schools across the system from using assessment and designing ICT-based learning, had only recently been resolved, and the AEU ban was affecting teacher, and therefore student, UltraNet use, with the majority of teachers electing to follow AEU advice. This section presents a discussion of the experiences and attitudes of four teachers with different teaching responsibilities and expertise—Joseph, Stephanie, Mariette, Caspian—as they tried to implement North SS Principal Diana’s UltraNet strategy, selected with advice from Allira, the school’s UltraNet Coach. It concludes with an in-depth analysis of how a fifth teacher, Ann, used the UltraNet in a Year 9 English elective for a two-period block each week over one semester.

Against the less than helpful background already described, Diana had continued with her overall plan to embed ICT into teaching and learning at North SS and understood that teachers were being asked to undergo a “big cultural change in teaching” when the UltraNet was introduced. She described her UltraNet strategy as encompassing both “opportunities and sticks,” referring to a method of motivation derived from social psychology (Higgins, van Bemmel, Param, & Lewis, 2013, April 19). Diana’s incentives were investing in human resources, employing expert staff, including Allira, and providing them with time allowances so they could train and support the teaching staff to integrate technology into their pedagogy. All teacher participants had sought advice from Allira, who, consistent with the ICT adoption literature outlined in Chapter 2.1, believed that, “Staff participation and attitudes are very driven by leadership’s messages and leadership’s way of working.” Diana’s “sticks” were that teachers were required to record a personal UltraNet goal in their formal 2011–2012 accountability documents. As Diana explained:

> All our staff will have used it to some degree, mostly because we put it in their PDP [Performance and Development Plan] that they had to. Some are using it quite successfully and quite extensively, others are only ticking off the PDP requirements.

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125 Tony, AEU, interviews, September 13, 2012; November 21, 2012.
126 Diana, Principal, North SS, interview, December 12, 2012.
It is important to note here that regional DEECD officials also strongly encouraged principals to include an Ultranet goal in their Performance and Development (P&D) plans. Nevertheless, Diana later removed the mandatory aspect of teachers’ Ultranet goal to avoid clashing with the AEU ban.128

The AEU understood that the Ultranet ban was not popular with “IT evangelists”, nor with teachers who had formal responsibility to lead Ultranet implementation in schools, who felt adversely affected by it (AEU, 2012a, p. 12). The union accepted that teachers holding such positions might be conflicted and that their workload could actually be increased if they followed the strict guidelines of the Ultranet directive. Therefore, the AEU reassured such teachers that they could continue in their Ultranet work as the ban was not intended to destabilise job security.129 This suited North SS teacher Ann, who explained:

Problem is, use of the Ultranet has been banned by the union, so it’s really something that teachers in the union are not meant to be using. But they said, the union said, “if it’s going to make your life easier, then go ahead and do it” [...] so this suits me fine for what I wanted to do.130

Hence, amongst the other constraints affecting teachers’ Ultranet uses at North SS, union action was a major influence.

Exploring attitudes towards Ultranet participation

In trying to adopt the Ultranet into their practice and daily operations, North SS teachers encountered several problems. They were challenged to change their behaviour and use an Ultranet collaboration space instead of the multiple communication systems already functioning in their teams and the school; they were worried about students self-managing the online password administration systems; and they were struggling to instil in students and themselves a positive attitude toward using the Ultranet in school and at home.

Teacher participants explained that the Ultranet’s under-utilisation was mainly the result of a loss of “goodwill” from teachers statewide, a view Tony, an AEU representative, reiterated.131 Staff acceptance and use of the Ultranet was negatively affected when the Ultranet “crashed across Victoria at half past nine in the morning” on August 9, 2010, a pupil-free Ultranet

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128 Diana, Principal, North SS, interview, December 12, 2012.
129 Tony, AEU, interviews, September 13, 2012; November 21, 2012.
131 Tony, AEU, interview, September 13, 2012.
training day for schools and Big Day Out (Ultranet launch) for principals. This landmark event met with widespread cynicism, as it was most teachers’ first opportunity to login. Resistance to the Ultranet spread quickly through commercial media within both formal and informal teacher networks, including YouTube, Twitter (@ultranetvic and #Ultranet) and web logs (Bailie, 2016, October 25; Berner, 2010; Cashen, 2013), which speaks to the power of information sharing across the teaching profession. It was a crisis moment referred to by all participant groups in my study. The Ultranet was supposed to be used in schools to encourage greater teacher collaboration but, as Joseph posited, teachers instead took a yes-or-no position that he assumed originated from the problematic Big Day Out. He interpreted this dichotomy of opinion as negative for social cohesion, saying, “So right from the word go, we’ve had this variety of continuum of opinion, and it’s quite a broad continuum so that’s not a good thing.” Certainly the union action shaped teachers’ Ultranet interpretations along political lines during my fieldwork, possibly masking other cultural and social factors that may have been prominent under different circumstances.

As part of her role, Allira was expected to demonstrate how teachers could use the Ultranet to professionally collaborate, reduce their dependence on school network servers and make all administrative information accessible from school or home. This matched one of DEECD’s digital learning strategies: to provide digital resources through an Ultranet repository that could be accessed “anywhere, anytime” (DEECD, 2010d, p. 14). Allira set up a staff-only internal communication page on an Ultranet Design Space to share information about forums and domain meetings and with links to all ICT policies. Her logic in making a staff notices page the main point of communication was to encourage teachers to get into the habit of logging into the Ultranet daily. Despite having access to this “virtual staffroom”, however, teacher participants did not change, and remained reliant on their existing communication practices such as eduMail. The virtual staffroom had been explained to all teachers at an orientation session at the start of the 2012 school year but had proven unsuccessful in attracting teacher attention or in achieving a critical mass of regular Ultranet users. By November of that year, none of my teacher participants was using it, or could remember how to access it rendering its purpose as even a content repository to share information unlikely (Condie et al., 2007; Grant, 2009). Indeed, Stephanie believed that the only way they would use the Ultranet virtual staffroom was out of necessity, saying, “You’re not going to use it

133 YouTube (Alphabet Inc., San Bruno) and Twitter (Twitter, Inc., San Francisco).
unless you’re forced to continually access it because you need to." Mariette agreed, suggesting teachers were not learning how to use the Ultranet because it was not mandated: “It hasn’t been a rule, has it, where it says you all must have at least one class up on using the Ultranet by such and such a date.” Mariette felt that discussing—let alone using—the Ultranet was difficult because teachers had such different levels of skill and interest in using ICT in their practice. Paradoxically, teachers decided against using the Ultranet in ways promoted by Diana and Allira at the same time as expecting more top-down directives to use it.

The intended or unintended consequences of designing and regulating the Ultranet to protect DEECD’s integrity had repercussions for its practical everyday use by classroom teachers. Because DEECD required students to manage their own passwords, teachers felt a lack of control in managing this process in order to successfully engage students in their learning. Caspian, a North SS teacher, summarised this unsatisfactory situation:

> I had my maths class. We were going to do some stuff on there [Ultranet] and then three of them [students] couldn’t get on. They couldn’t remember their ID. They couldn’t remember their password. Didn’t know where the bit of paper was, because we hadn’t done that for weeks. So then it’s like, “how do I work around it for them?” [...] I can’t change the whole lesson just because of that. I’ve got to bring them into the lesson, so I’ve got to find a work-around. So how can they get to the same stuff without working through the Ultranet? So it was then printing stuff out.

Where students forgot their login credentials, they sought permission to leave class to ask the Identity and Access Management (IDAM) system administrator and Ultranet coach, Allira, to reset or provide their username and password. But not all classroom teachers or students knew who the IDAM administrator was, where she was located or whether she was busy with other students, thereby creating further disruptions to learning. Allira’s view differed from that of Caspian, however; she believed that all students should have control of their login information as they would then be more responsible for their own learning and help maintain a secure learning environment for everyone. Stephanie had a similar view. Having previously attempted to introduce the Ultranet to a mixed-ability class of 25 students, she was now using it with a group of high-achieving Year 7 students in a problem-based curriculum unit (as discussed in Chapter 7.3). She thought that using the Ultranet with this group of “motivated”
students with Allira’s support was “fun”, partly because they were committed to using it and had systems in place to record or remember their passwords. Nevertheless, other teachers challenged Allira and Stephanie’s more positive views due to the problems they encountered day to day in trying to use the Ultranet in their practice.

Teachers were frustrated that students did not take advantage of teacher-endorsed curriculum resources on the Ultranet. Allira showed teachers how to set up and embed shortcuts on the Ultranet so that students could access targeted resources to complete their assignments rather than having to use unmoderated search engines. For example, Mariette set up a Year 8 Vikings collaborative learning site with Allira but found that “kids just weren’t accessing what was there, and no matter what you said—‘go to the Ultranet space for this, have a look at what’s there’—I’m not sure why.” She still saw value in providing such links to guide students, because:

> When you direct your kids to that space for that particular project, they don’t have to do the googling—google, google, google—and have to decide for themselves, which they’re not very good at, what is a credible site and what isn’t.¹⁴⁰

Recent research supports Mariette’s argument, showing that although digital media presents new opportunities for youth, it also challenges them to evaluate and make decisions about digital information (Baym, 2010, p. 32; Flanagan & Metzger, 2008). When it became obvious to Mariette that course curriculum materials were being under-utilised, she formed the view that the Ultranet was not the most appropriate way to deliver resources. It was this sort of opportunity and challenge that teachers struggled with in their use of the Ultranet.

Some teachers felt that even students confident in using ICT had not cope with the Ultranet environment. As Mariette explained, “I just think there’s a misunderstanding there amongst the kids what actually the Ultranet’s function is I guess. They are probably as lacking in the PD or the knowledge as we are.”¹⁴¹ In general though, students were seen by teachers and Diana as being proficient in accessing ICT consistent with a “digital native” narrative (Prensky, 2001a, p. 2). Mariette expressed this common view well: “A lot of them are a lot more tech savvy than I am.” Joseph agreed, saying, “I’ll put my hand up for that one too, that’s the case.”¹⁴² Many students, however, lacked Ultranet-specific skills that teachers did not necessarily have the required knowledge to teach.

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¹⁴⁰ Mariette, teacher, North SS, teacher focus group, September 20, 2012.
¹⁴¹ Mariette, teacher, North SS, teacher focus group, September 20, 2012.
¹⁴² Mariette and Joseph, teachers, North SS, teacher focus group, September 20, 2012.
Teacher participants saw the Ultranet as having little positive effect on student learning. Mariette and Caspian felt that a more commercial Ultranet “look and feel” would be more appealing and that it would be more useful for older students if they could set up Facebook-style groups and study together online, as some were already doing at Victorian Certificate of Education (VCE) level. They also thought that designing the Ultranet so that students could access it through their other devices, such as smartphones, would encourage more independent Ultranet use. When compared to Google (Alphabet Inc., Mountain View) and Facebook (Facebook, Inc., Menlo Park), teachers saw the Ultranet as “not intuitive”, “clunky” and “not so simple to navigate your way around.” These ideas, based on adopting dominant commercial products, prompt questions about the sorts of educational technologies schools should be using or promoting. Budget limitations and the comparatively slow development of the Ultranet software meant that it could not keep pace with technologies developed within a fully commercial business model and wherein planned obsolescence is used to drive demand (Garnham, 2000). In the Ultranet’s favour was its educational focus, with Facebook interpreted by some teachers in this school as “dangerous” and distinctly non-educational and of inferior cultural quality. But Ultranet Release 1 web 2.0 technologies included content embedding principles similar to those found in Facebook, so why some educators in this secondary school in particular were resistant to adopting social networking ideas that may have facilitated Ultranet implementation is puzzling. Integrating such a social dynamic may have expanded Ultranet use and better achieved DEECD officials’ goals to expand participation.

Some teachers expressed a concern about equity, pointing out that some students might not have Internet access outside of school. With North SS categorised (by DEECD) as having a low-mid socio-economic cohort, Caspian was worried that, if teacher expectations about student use of personal technology increased, this might exacerbate a new digital divide (Buckingham, 2008a) and further entrench inequalities in student access to technology:

Do they all have this sort of access that we take for granted? Do they have constant Internet access? Do they have a computer that they can get access to? Four kids in a house and one computer. How are they going to deal with that? That’s the part of it, yes it’s a tool but does my cohort have the access and the consistent access to actually make use of it?  

143 Mariette, teacher, North SS, teacher focus group, September 20, 2012.  
145 Caspian, teacher, North SS, teacher focus group, September 20, 2012.
Students’ ability to access the Internet and devices outside of school, however, tends to be underestimated by educators (Somekh, 2004). Nevertheless, the finding that personal access to a computer at home for school-work reduced participation in digital reading activities for some students in Australian government schools in lower socio-economic areas supports Caspian’s concerns around universal access (Thomson & De Bortoli, 2012). Although all children who participated in Stage Two of my study had Internet access at home, they often shared technology resources with siblings and technology use was occasionally proscribed by parents. I witnessed families responding to pressures around technology access, but expectations from teachers that students should use the Ultranet at home for school work were minimal. It was clear, however, that domestic computer system incompatibility did affect student and parent Ultranet use some of the time, more so than infrastructure as such. For instance, homes and schools often used different hardware, browsers and Internet settings, making it difficult for some students to access and share their Ultranet content. Following up any accessibility problems in homes required system administrator permission to change home computer network or security settings, demanding a level of ICT and communication skill that teachers believed few students had. Technical support was another issue. As school technicians did not use the Ultranet in their own work, support came instead from school leaders, Ultranet IDAM administrators or Ultranet users themselves, who had to initiate contact with CSG’s Ultranet HelpDesk by telephone or email (Salinger Privacy, 2010). Unfortunately, the majority of participants who had used this HelpDesk saw it as ineffective and slow.

While some teachers at North SS negatively construed the Ultranet as introducing a protected “walled garden” online space into everyday classroom practices, Allira (the school’s Ultranet coach) saw it as supporting students to be responsible for their own learning and promoting DEECD’s ethical values. DEECD required teachers to respect the privacy of student information; it asked students not to share their passwords with teachers but conversely expected teachers to monitor any student-shared spaces. In short, the Ultranet had the effect of closing down communication at the same time as DEECD was arguing it should be opened up for children to develop as global, as well as national, citizens. DEECD’s legal obligations to provide safe online access together with teachers’ obligations to uphold their duty of care restricted Ultranet implementation, disrupting students’ learning experiences and discouraging their participation. Supported by the union ban, teachers resisted the changes required in their

146 Fieldnotes: East, West and North SS, Stage Two 2011, 2012.
147 Fieldnotes: North SS, Stage One 2012.
behaviours and attitudes in order to use the Ultranet successfully. They saw the technology as being imposed on them by the system and led by school leaders unconvinced of its efficacy, thus shaping their negativity.

Integrating the Ultranet into practice

North SS teacher and school librarian, Ann, was mostly positive about digital changes in education, with the management of educational electronic resources being a major part of her work. The digital library of electronic information she had helped build had firstly been stalled by the impact of search engines and then superseded by Diana’s decision to implement the Ultranet.\footnote{Ann, teacher, North SS, interviews; September 10, 2012; December 6, 2012.} Ann saw both benefits and drawbacks in using the Ultranet in her teaching. She liked how she could use it to share resources and how students could use it to “support one another technologically or [work] together to get their answers.” She saw the Ultranet as helping students to be “collaborative, all building on that knowledge.”\footnote{Ann, teacher, North SS, interview, September 10, 2012.} Ann’s close supervision of students on the Ultranet reflected the traditional teacher—student authority model evident in the school. She used a mix of technology and non-computer strategies to engage students, most of which were designed to encourage them to interact and provide reciprocal feedback. For example, through Ultranet web 2.0 wikis and blogs, students posted comments to one another.\footnote{Fieldnotes: North SS, Stage One 2012.} Ann chose not to work with Google Docs (Alphabet Inc., Mountain View), an alternative application that could be embedded into the Ultranet through iFrames,\footnote{A web 2.0 application that could be set up to display third-party content on an Ultranet space.} because it confined students to working and commenting on the same document, saying, “it wouldn’t fit in with what I wanted.” Instead, she drew on ideas gained from viewing a local primary school teacher’s collaborative space and her Ultranet knowledge to develop a wiki. Using this, each student was required to complete a task, then share it with other students who could provide feedback. She needed no print materials to use the Ultranet wiki, saving on valuable school resources and her personal teaching budget, noting:

I was ready for it. I wanted to go down this way and it just makes sense to me to be able to deliver all my work like that, it’s easier. I didn’t have to do any photocopying [...] it’s all just there for them, they don’t have to go anywhere to get anything.\footnote{Ann, teacher, North SS, interview, December 6, 2012.}
Ann believed that the Ultranet was a “central conduit” that made pedagogic and economic sense, simplified information sharing amongst students, and had the potential to increase their participation in their own and their peers’ learning.

Ann also saw limitations in using the Ultranet. She believed it was “not a natural thing. Kids just don’t login to it.” She thought that students would not understand how the Ultranet could improve their learning until it was embedded in the school culture. She was also frustrated about the inability to “see what they [students] see, so I can’t even demonstrate on the board”, missing out on the valuable opportunity to see learning from the student’s perspective (Hattie, 2012). She found working in the Ultranet time-consuming and its interface complex and difficult to use. Even after entering all the required student data, she had to cut, paste and edit comments into software applications outside the Ultranet:

The way it does it, you’ve got to go into the student’s name and then you’ve got to choose the particular dimension you’re assessing and then you’ve got to go and look at the next entry. So you can’t just put the kid’s name in and all the dimensions that are there automatically come up. And it’s very, very slow [...] I certainly won’t be doing that next year.

Her impression of students’ work produced through the Ultranet was that it was of lower quality than work produced on word processing software:

I might get them to do their stuff in Word first because the amount of times they got logged out and also their layout of their stuff was all over the place. The font was all over the place, some of it was big, some of it was a bit small, some of it I found hard to read. I did notice that a lot of them forgot to use any kind of capitalisation and all of that sort of punctuation and paragraphing. I think they didn’t really see it flow through properly [...] I just felt that the technology [Ultranet] worked a little bit against it.

She also found the Ultranet’s search feature challenging, “unless you know exactly what you’re looking for.” Although accepting that students needed to save work on any computer system, saving had been problematic with the Ultranet because its time-outs, designed to protect private information, ironically resulted in many students losing their creative work. Once students grasped that they could use software they trusted, such as Microsoft Word (Microsoft Corporation, Redmond) to cut and paste content into the Ultranet, they were more

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comfortable using it. This “mix-and-match” process of utilising software from dominant commercial suppliers was a common strategy adopted by teachers and students. They found it to be more practical than just using the Ultranet, validating the SCOT argument that social groups use technologies as part of their problem-solving strategies.\textsuperscript{155}

Ann used the Learning Tasks part of Ultranet Release 2 to create Learning Items and assign them to all her students to complete online (DEECD, 2010g). Once submitted, Ann provided online feedback saying, “Every child who submitted a piece of work got comments and feedback from me on their individual work in their learning tasks.” Even so, students found it “hard to find my comments and my grades and I don’t doubt that was a problem. It wasn’t obvious for them to see.” Ann also embedded Wallwisher (Padlet, Inc., San Francisco), a web 2.0 literacy application, but decided it was “not much value” because students’ comments posted at home did not show up in the Ultranet.\textsuperscript{156} While it would also have been possible through the Ultranet for parents to view and provide written feedback to their children and the teacher, Diana decided not to include parent participation in the Ultranet (as explained in Chapter 8).

Ann was concerned about copyright issues on the Ultranet. Having “bought and borrowed” extra picture books, she “still didn’t have enough for one for everybody so that’s why I did the digital thing.” On her collaborative learning space, she created a layout of different types of curriculum materials for students. She embedded websites, added links to third-party content that she believed she was “allowed to do”, and scanned and converted PowerPoint (Microsoft Corporation, Redmond) documents into portable document format (PDF) files. Teachers could also share and upload this type of content to the Ultranet repository, but Ann perceived this as an added task:

> Ultranet, it’s got a digital library that’s just for our school, so each time I upload something, I could upload it to the digital library rather than put in it my space. But that’s going to be reliant on who’s going to be bothered doing that because that’s an extra step or something else you’ve got to do.\textsuperscript{157}

Ann found the regulations around republishing print books on the Ultranet to be overly complex. She highlighted what she saw as a contradiction between copyright and freedom of information in reusing traditional print materials: “I don’t know how this kind of sits because

\textsuperscript{155} Fieldnotes: North SS, Stage One 2012.
\textsuperscript{156} Ann, teacher, North SS, interview, December 6, 2012.
\textsuperscript{157} Ann, teacher, North SS, interview, December 6, 2012.
I’ve bought multiple copies of the book but I wanted them [my students] to be able to access it anywhere, anytime [on the Ultranet].” After informally consulting Allira for guidance, however, she decided to restrict access to the collaborative learning space by changing it from “open”—which anyone in DEECD could see and join—to “private”, hidden from general view, with membership conferred only following a personal email invitation from her as the space owner. By choosing to restrict access to the materials she had sourced for her class, Ann sought to protect DEECD, her students and her professional credibility.

Teachers have long photocopied materials from textbooks and showed film and video footage to students. Pre-Ultranet, such third-party resources might have been saved onto a school server, on either a commonly accessible or private teacher folder. Where once a teacher shared these resources with limited audiences, however, sharing through the Ultranet exposed their choice of resources to much wider audience scrutiny and left them open to complaints and possible professional misconduct. DEECD made clear through its website and printed materials that, by logging into the Ultranet, teachers agreed that they understood and accepted the Ultranet’s Terms of Service and rules. So, in uploading content to the Ultranet, teachers faced a dilemma. Whilst agreeing in principle with rigorous copyright requirements by voluntarily ticking the boxes to approve the Ultranet disclaimers, in practice teachers may have broken the letter of the law, as in the example described earlier in which Ann shared third-party materials with her students. There is an interesting comparison here where teachers, like students, became subject to the same tight controls involving fair use of materials they had not themselves created. With copyright issues to the fore on the Ultranet, teachers had to decide if, and how, they would store and share resources. The outcome was that teachers behaved differently, depending on whether they were uploading information on the Ultranet or saving it in other ways, such as on a school network. Thus, responsible use of the Ultranet was written into the software by DEECD in ways that mediated teachers’ relationships with their students, affected their behaviour around copyright, and impacted on their, and their audiences’, eventual participation.

We can see how Ann used the Ultranet to extend her teaching practices by designing learning tasks requiring students to interact and take more responsibility for their learning. In choosing those elements she found to be most appropriate, Ann believed the Ultranet had the potential to increase student and teacher participation in learning over time, notwithstanding her

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159 School technicians had the ability to access school servers for security purposes and to investigate any inappropriate use.
concerns that its rule-bound systems made teachers’ work more complex and time-consuming. As Hammond (2014) has observed, technology is double-edged and “invites difficulties as well as opportunities” (p. 5). For many teachers, the challenges of adhering to privacy and copyright regulations loomed large as they tried to adapt the Ultranet into their work environment.

6.5: FRAMING THEORIES

Teachers had opportunities to design the Ultranet technology around their particular interests and shape its formation in a specific direction. The Ultranet’s construction phase was indeed dynamic, with teachers only just beginning to learn how to use it in their practice. They worked together to solve problems, gave and received technical advice, and asked and answered questions, often with limited and varied Ultranet knowledge. They decided whether or not to continue using the Ultranet based on their reflections, the ease of use of the technology and whether their intended purpose had been achieved. But as we have seen thus far in analysis of other social groups and the Ultranet, technologies are developed through a process of compromise and decision-making that shapes the social environment and the relationship between the state and its citizens.

The Social Construction of Technology (SCOT) perspective

The different meanings teachers gave to the Ultranet are traced in two major stages: before and after the Ultranet’s official launch on August 9, 2010. In this sub-section I analyse how social groups of teachers flexibly interpreted and constructed their own versions of the Ultranet artefact. A major controversy developed for teachers around the performance of the technology, taking many different paths until the Ultranet was ultimately banned by AEU action.

Part of a series of DEECD initiatives under two government Blueprints, a learning platform concept was initially mooted in 2004. A central DEECD official, Aly, explained how support for the Ultranet idea came from teachers who, during DEECD-arranged tours of leading schools that were using intranet technologies, asked, “Can we have this? This would be great. How do we get this in our school?”

The original Ultranet artefact constructed by teachers prior to its official release was based on DEECD rhetoric, articulated through online videos, print materials and word of mouth, that it would revolutionise education. Teachers seemed open to the

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possibility of using it in their teaching and anticipated it would be a fast, responsive and effective technology. Hence, there was a real sense of expectation around the August 9, 2010 teacher training day, spurred on by DEECD, who promoted the Ultranet extensively and was eager to get teachers to register and use it in their practice.

Unfortunately, the one-off Ultranet training day failed; teachers were unable to login to participate in the planned, statewide online professional development activities. After the August 9, 2010 event, they saw the Ultranet as a technology that could not meet their needs. This major controversy around the performance of the technology dominating the Ultranet’s development and overshadowing other important issues in its adoption such as teacher practice, resourcing and embedding it into school strategic planning. The controversy took the form of a standoff; DEECD’s political objectives were to scale up Ultranet use to its maximum number of users, while teachers were more concerned with the reliability of using it in their practice.

After August 9, 2010, teachers lost faith in the Ultranet and no longer interpreted it as a reliable technology artefact that would build their competence and skills with using ICT content or provide networking opportunities with peers and students. They found its technical language, security mechanisms and commercial currency to be “blockers” instead of “enablers”. They did not trust the Ultranet’s digital content interoperability with other DEECD school databases, and felt its use could compromise their professional competence. Teachers found the product had many glitches; DEECD and the CSG HelpDesk systems were too slow at fixing them, and although school technicians had the skills to fix many ICT issues, they had no Ultranet role. As teachers’ dissatisfaction around this lack of technical support increased, the end of the Ultranet coaching program further reduced teachers’ incentive to use it.

Controversy became even more visible following a new government’s ambivalent Ultranet commitment. On the one hand, teachers felt emboldened to explicitly reject the Ultranet, while on the other, DEECD Ultranet champions were asking teachers to give the Ultranet a second, third or fourth chance and accept that the design and technical disruptions of its first year had been resolved. Teachers’ negative experiences with the Ultranet, however, continued to be written off by DEECD as exceptional, even though wait times of between three to five minutes were certainly beyond what teachers had come to expect from their interaction with digital technologies. Even if its first-year instabilities had indeed been overcome, teachers still resisted using the Ultranet because it did not fit their purposes and expectations.
While some teachers continued to report Ultranet errors to DEECD and tried to access more training in a bid to close the performance controversy, the AEU’s decision to focus on the Ultranet as a workload issue forced DEECD into crisis mode and imposed closure. Within a relatively short space of time, teachers’ interpretation of the Ultranet had moved away from acknowledging it as a system-wide innovation toward only using it if absolutely necessary to carry out their duties. The resulting disruption saw the great majority of teachers abandon the Ultranet, with consequences for the other social groups. The union action severely limited DEECD’s ability to meet its original Ultranet goals and prevented school leaders planning how to use it with the social groups in their school communities. There was also uncertainty around the union ban; as an open-ended process, resolution was possible at any time. Following union resolution, the Ultranet interface was simplified and relaunched to teachers in an attempt to resolve the performance controversy. The change of government and subsequent focus on new education priorities, together with a lack of clear Ultranet public support, raised further questions for teachers about the Ultranet’s continuation in schools. By this time, however, state and education department officials had been forced to respond to a different set of political conditions and controversies that led to another iteration of the Ultranet artefact.

Confirming the SCOT premise, teachers did not adopt the Ultranet because it failed to fit their values and purposes, believing it only met the goals of state and education department officials who, as the most powerful social group, needed to make it work for political reasons. Clearly, teachers’ relationships and conflict with individuals and social groups contributed to their design of the Ultranet technology. To what extent the Ultranet’s technical dimension imposed demands on teachers’ material practice, however, is a question not easily answered through SCOT’s concepts of interpretative flexibility and closure.

The Pateman Participatory Theory of Democracy (PTD) perspective

Pateman critiques one-sided, single-actor, decision-making processes in institutions as non-democratic (Pateman, 1970, 2012). Control within DEECD was hierarchical and this organisational structure was also evident in school leadership and teacher teams. Teachers’ participation in decision-making took place at many levels, dependent on their schools’ organisational culture, their roles and responsibilities and the groups of which they were part. In the course of Ultranet implementation, teachers engaged in learning area teams, year level teams, curriculum teams, professional learning teams and with the entire staff. Teachers were also influenced by Lead Users, ICT leadership teams, school leadership teams, parents, School
Council and the AEU. At their school network level, teachers were mainly influenced by Ultranet coaches. This complex organisational picture supports Feenberg’s argument that the nature of modern technical administration work in large-scale technical systems tends to fragment workers into subgroups. It also supports his conclusion that workers’ mobility is constrained and their agency confined to smaller spheres of influence (Feenberg, 1999). The Ultranet experiment was intended to change the equilibrium in schools and to integrate teachers and teaching teams deeper into DEECD’s institutional culture.

Since teachers in this study had opportunities to be involved in a range of teams and gain experience by participating at the local level, they could act in meaningful ways to increase their citizenship. Nevertheless, the nature of these interactions is of interest from Pateman’s perspective. She argues that the provision of information and having workers act in consultancy roles to senior management are not enough to bring about the changes required in authority structures to help build a participatory society (Pateman, 2012). Also, as Somekh (2004) reminds us in her synthesis of theories on institutional functioning, some schools’ teachers and bureaucratic structures unconsciously cooperated to resist ICT changes. If more inflexible and rule-bound technologies such as the Ultranet are introduced into schools in future, it may become increasingly difficult for teachers to develop their participation in self-determining ways.

Whilst Victorian teachers—as public servants—had obligations to carry out some specific duties, such as their legal duty of care or curriculum implementation, they were broadly self-directed within their professional roles. Teachers were continuously making decisions about what technology to use for what purpose depending on the particular context and moderated by their resources, including skills and time. The ability of teachers to self-regulate most of the ways in which they performed their paid duties can be likened to Pateman’s concept of full participation. According to Pateman, workers who can act in such participatory ways are likely to be self-disciplined and have more direct control and influence over their work practices. This in turn builds a democratic “participatory society”, in which workers have increased autonomy in their organisations (Pateman, 1970, p. 20).

When the Ultranet was introduced into their professional lives, teachers thought they would be able to share content with peers and students easily, but they soon became concerned about copyright and intellectual property regulations. With the Ultranet, they were responsible for controlling their own and third-party content while having less control over its accessibility. Pateman argues that decision-making is interactional, requiring the involvement
of two or more parties in order for a working democratic system to operate, and that the necessary information needs to be available to employees in order for them to make appropriate decisions about an issue (Pateman, 1970). The second of these requirements was fulfilled insofar as teachers were made aware of DEECD’s copyright and intellectual property requirements through built-in technical controls each time they uploaded content to the Ultranet. They were compelled, however, to agree to DEECD’s terms before being able to use the Ultranet. So, although there may have been an educative side to this action, if teachers had read and understood the information, their participation was partial due to the risk of possible legal consequences.

Because of such concerns, teachers at West PS and North SS decided to limit the content they shared through the Ultranet. At West PS, in Leah’s case, the decision was made with the input of her teaching team members, in Alesha’s case in consultation with third-party content producers. At North SS, Ann’s content decisions were influenced by advice from Allira, the Ultranet Coach. So, whilst DEECD put in place Ultranet processes to protect national copyright laws, teachers, individually or in teams, could decide whether to participate in this process, effectively controlling the flow of information. This type of participation, based on teachers influencing one another about whether to use Ultranet features, can be interpreted as an instance of full participation, but at the lower level of management in Pateman’s schema. It was the Principal’s (Diana) decision to implement the Ultranet at her school. With influence from DEECD, this was an example of partial participation but at the higher level of management. Nevertheless, in practice the final decisions about the design and configuration of student activities on the Ultranet were made by individual teachers; Alesha elected to use another communication method, Leah decided not to upload content and Ann chose to close the formerly open Ultranet collaborative learning space. These teachers had the power to make these decisions given their generally autonomous role in the classroom. Their decisions also had legitimacy with other teachers, who respected their status and authority as peers.

State and education department officials’ intentions and the hierarchical organisational structure of DEECD were less visible in these examples.

Pateman examines how hierarchy shapes the decision-making processes within authority structures. In the copyright example, teachers who made practical decisions about Ultranet copyright issues as part of their daily practice can be seen as acting at the lower management level, whilst the Australian Government that made the laws and DEECD that developed policies to implement them acted as highest level management. Before the Ultranet, teachers made
general judgements about how they would regulate and share copyright materials and had the final say over what content was shared and how. But once the Ultranet was introduced, they were required to make decisions about copyright and intellectual property each and every time they uploaded content to it, with a consequence being a reduction in their Ultranet participation.

The AEU ban acted to constrain teachers’ personal decisions about Ultranet use. As a group, however, teachers had a central interest in workload, and this was a key reason for the ban and in line with the experiences of teachers trying to work with the Ultranet. The AEU Executive, a core decision-making group, acted on behalf of its large membership and (presumably) in its best interests. This Executive had the final decision-making power to ban the Ultranet, even though teachers could influence this process by voting to endorse or reject the proposition at stop work meetings. Meant to influence the Victorian government’s decision-making, the AEU’s Ultranet ban hampered the Ultranet’s development significantly.

As Pateman (1970) shows through her empirical data on industrial contexts, major decisions affecting workers have traditionally been made by elite leaders occupying senior management representative roles. In a similar way, major decisions affecting teacher work have come through government and department policy, set by state and education department officials. Yet in this case it was the AEU Executive that proposed the ban that affected teachers’ Ultranet participation. AEU members were consulted and a majority voted to support the Executive proposal for a ban reinforcing their right to control their collective life. Also, while not all teachers in Victoria were members of the AEU, most non-members accepted it as part of a larger collective lever to force the Victorian government to complete an Enterprise Bargaining Agreement (EBA). Through the ban, teachers were able to exercise a measure of power denied to them with respect to input into the articulation of specific policies and changes to their practice associated with the Ultranet’s design.

Clearly, the AEU Executive understood the importance that central DEECD officials attached to the Ultranet and therefore decided to use it as a political football in what they considered to be the best interests of teachers. As well as the more obvious influence on teachers, the Union action also impacted Diana’s decision-making. The Ultranet ban placed both the Principal and teachers in a partial participatory situation because the AEU Executive had the power to make the final decision. The AEU acted at the higher level of management because their decision related to issues that affected the whole teaching profession. Teachers acted at the lower level of management because their focus and control was on everyday classroom practice at the
local level. Pateman’s finding—that collective decisions have a significant role in shaping a participatory society—holds true in the analysis of the AEU’s decision to ban the Ultranet. Teachers also benefited as a group when an EBA was eventually negotiated, but what little momentum the Ultranet’s implementation had gained statewide was lost in the meantime.

The teachers in North SS who continued to use the Ultranet were in the minority; Allira had an official school Ultranet position of responsibility, Ann wanted to continue to develop her Ultranet skills, and Stephanie wanted to use it with a high-achieving group of students and did not support the ban. Teachers’ decisions about Ultranet use in their own practice were largely self-determined, but they had little ability to influence the Ultranet’s software design, choose the technologies for use in their school, or impact how students used the Ultranet with other teachers or outside of school.

In this sub-section, I have used Pateman’s theory to provide a deeper analysis of how the process of government technology development affected teachers’ decision-making in their work. I found that teachers could predominantly control their day-to-day activities and work practices and therefore partially participated at a low management level in their schools. Given the influence of teachers on students and parents, the union’s Ultranet ban had far-reaching consequences. Together with the practicalities of teachers’ experience and decision-making, we can see that the Ultranet was shaped by political, legal, social and economic factors and hindered by its technical material inadequacy.

Conclusions

Central DEECD officials designed the Ultranet to mirror teachers’ existing practices and responsibilities and expand their collaborative relationships in an online environment. They believed that teachers would embrace it as “the missing piece of the technology puzzle” [original emphasis] (DEECD, 2010f, p. 2). Such an assumption is representative of a normative policy or ideological view, but not grounded in the practices and ways teachers actually use, or want to use, technology. The Ultranet was never promoted as a replacement for teaching, a point central DEECD officials and principals made clear, but using it to supplement or extend teachers’ existing methods and resources still required fundamental changes in their behaviours and attitudes. During 2010–2013 the Ultranet was ostensibly available to every Victorian teacher’s workplace and home, but the move by central DEECD officials to both

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simplify and revolutionise teachers’ professional work had failed. Well before the Liberal–National Coalition government defunded it, the Ultranet was already an insignificant presence in the classrooms in my study.

The reluctance of teachers to adopt learning platforms in particular is under-theorised because many government agency documents use survey evidence in isolation to make claims about their impact in education (Condie et al., 2007; European Schoolnet, 2010; Hammond, 2014). The result is generalised statements that fail to capture the variety and complexity of school environments and teachers’ experiences. So, what was it that halted Ultranet participation in classrooms, a technology that was supposed to transform the teaching profession?

For Alesha in West PS, open collaborative learning spaces promised new types of participation to students and teachers across all Victorian schools, but the space she developed did not attract a wide audience. Neither did the creation of this space result in DEECD’s idealised community of teachers sharing resources or in students creating new ways of interacting with their peers. She also encountered problems with meeting the security, privacy and copyright goals of DEECD. For other teachers in West PS, providing feedback to parents through the Ultranet was challenging because it required them to complete extra work to set up and change existing, stable socio-cultural parent communication practices and software they were comfortable with.

East PS’s teaching team responded to the external system expectations to adopt the Ultranet into their practice in different ways: Gabriela saw it as a professional but misguided obligation in her practice; Ishan saw it as a possible everyday learning resource only if he first learnt how to use it fully, whilst Jodie viewed it as a form of propaganda, consistent with centralised and standardised one-way forms of participation that she then unconsciously reproduced in her own attitudes toward student use. East PS teachers also felt that the data displayed on it from “elsewhere” was inaccurate and difficult to access. Further, East PS Lead Users did not inspire these classroom teachers with confidence or enthusiasm in their uses of the Ultranet. Given the context of changing Ultranet implementation strategies by Lead Users and the daily demands of trying to integrate a complex and time-consuming technology into their classrooms, it was simpler and less confronting for these teachers to simply leave things as they were.

Teachers were central to the Ultranet’s construction and the most important group to convince of the Ultranet’s efficacy if DEECD was ever to realise its goal for transformational
social change in Victorian education. Despite the difficulties she encountered, Ann did adopt aspects of Ultranet Release 2 consistent with her values and beliefs about the importance of technology’s role in teaching and learning. In contrast, at North SS, the day-to-day problems teachers encountered—the AEU ban, changing school leaders’ goals and priorities and copyright laws—and their attitudes toward sharing staff and student resources online shaped their negative view of the Ultranet. Teachers also questioned students’ ability to self-manage and use the Ultranet effectively and the fairness of mandating student work through the Ultranet where the availability of Internet and computer resources in homes was unknown.

We have seen how teachers’ construction of the Ultranet was a contested process and that their choices were influenced by political, professional, social, ethical and technological factors, highlighting the contingent nature of the Ultranet consistent with SCOT’s arguments about technology. Mapping the controversies encountered by teachers and the strategies they adopted to overcome them confirms the SCOT viewpoint that technology construction encompasses a dynamic, flexible and open-ended phase that is characterised by conflict. I have used Pateman’s PTD to explain that teacher decision-making was limited by broader institutional influences that shaped teachers’ Ultranet activities. I found that contexts and relationships shaped how teachers flexibly interpreted the Ultranet within their relevant social group. Important in influencing these relationships were lines of authority, role definition and decision-making processes. Far from being an autonomous tool, teachers designed the Ultranet around their existing beliefs and values, found their own solutions to problems and eventually resolved to use it only minimally for their own purposes.

Most teachers in my study elected not to use the Ultranet in the end, except insofar as it was required of them by school leaders or they saw it as important in their professional practice. This limited the options available to the group I will discuss in the following chapter: students. DEECD saw students as having a right to use the latest technologies in their everyday learning, but without teacher support this was an empty promise. On the other hand, we have already seen that students’ responses to teachers’ attempted uses of the Ultranet also strongly influenced teacher behaviour.
CHAPTER 7: STUDENTS’ ULTRANET PARTICIPATION

Australian national and state governments and their education institutions have placed a strong focus on providing opportunities for children to participate more in all aspects of their learning, in part to promote a more participatory and democratic society. Language such as “child-centred”, “personalised”, “differentiated curriculum”, “learner-centric” and “student voice” all hint at what new forms of participation might look like. Throughout Department of Education and Early Childhood Development (DEECD) policy documents and statements, children were constructed as technologically advanced, web-savvy learners (DE&T, 2003; DEECD, 2008, 2010d). DEECD officials believed that the dynamic use of new technologies would expand forms of participation and social interaction and create new learning experiences for students, enabling them to share their learning in multiple ways with different audiences in a variety of settings (DEECD, 2010j, 2010k).

Contemporary debates promoting child-centred approaches focus on student self-determination and a need to develop future workers and processes that are flexible, adaptable, creative and innovative. These approaches promote the idea of children as autonomous agents with the skills and mental capacities to increasingly manage their own lives and embrace change through developing personal qualities of self-control, risk-taking and ambition. Each child is constructed as having a voice, enabling them to co-contribute to what school “is”, in contrast to simply conforming to existing power structures (Facer et al., 2001a; Herring, 2008; Selwyn et al., 2010). Instead of top-down control, with teachers having the authority in classrooms, bottom-up processes, where students help to drive change, are promoted as more participatory in a digital era. Such views position the learner as a central and dynamic part of an empowering and social learning environment. DEECD adopted this strong narrative of what learning should look like in the 21st century, with increased participation involving children learning independently or with others, depending on the context or focus of the activity. In this way, student participation would increase through students themselves driving these processes to achieve their goals (DEECD, 2010h; James & Christensen, 2008; Jenkins et al., 2009).

This chapter is presented in four sections, and addresses two important questions: to what extent did use of the Ultranet help students achieve their individual and group goals, and what new social structures did they develop through their Ultranet use (if any) that helped broaden their participation and citizenship? In answering these questions, I analyse how students in
three schools used and responded to the Ultranet. In 7.1, I examine how a group of West Primary School (PS) Grade 3/4 students, aged 8–10, built an Ultranet collaborative learning space as part of a curriculum project. In 7.2, I consider how Grade 5/6 students, aged 10–12, were being introduced to the Ultranet in their learning in East Primary School (PS). In 7.3, I analyse how a group of Year 7 North Secondary School (SS) students, aged 12–14, used the Ultranet to focus on a global issue and build a local peer network. Finally, in 7.4, I apply the Social Construction of Technology (SCOT) theory and Pateman’s Participatory Theory of Democracy (PTD) frameworks to show how the Ultranet was co-constructed by students and the effect this had on their participation.

7.1: STUDENT EXPERIENCES OF USING THE ULTRANET TO COMMUNICATE AND COLLABORATE WITH THEIR PEERS AT WEST PRIMARY SCHOOL

When the Ultranet was introduced into West PS, students already had a range of opportunities to work with digital technology across different learning contexts. School leaders and teachers positively framed computer technologies and online learning as giving children opportunities to experiment with different forms of media, offering more than print-based forms of literacy. Indeed, teachers’ knowledge and skill in using technology and media in teaching and learning was valued by the West PS Principal and promoted as a necessary part of contemporary teaching.  

The desire to provide students with choices in their learning also included varying the context and/or environment in which they learned, and introducing them to new offline and online spaces and places.

School leaders saw the Ultranet environment as one that would continue to develop the skills and confidence of students, allowing them to share their learning and display their knowledge in multiple ways and forms (textual, visual or oral), and where teachers would provide continuous feedback. I start by describing how the Ultranet Reality Group (URG) of students and their teacher built an Ultranet collaborative learning space for their learning centre peers. I then discuss the information production and retrieval practices students engaged in as they tried to navigate the Ultranet technology. I show that, although there were opportunities for URG students to become more skilled and knowledgeable about setting up Ultranet collaborative learning spaces within their own reality group, their Ultranet uses were heavily influenced by curriculum aims, teacher organisation and proprietary content uses.

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162 Timothy, Principal, West PS, interview, March 13, 2012.
163 Anita, Assistant Principal, West PS, interviews, March 9, 2012; May 8, 2012.
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Background to the Ultranet Reality Group

Students at West PS had exposure to a wide range of teachers, peers and learning strategies. Student voice was promoted as a strength in the school, with an independent reviewer reporting that students had had important input into West PS’s personalised learning curriculum. Teachers believed that students, as a vocal social group, would drive the pedagogical and social changes required to improve education. The orthodoxy at West PS was that information and communication technology (ICT), and thus the Ultranet, was a useful tool—a means to an end—and therefore not to be seen as a problem or issue. Indeed, prior to the Ultranet’s introduction, there appeared to have been a close fit between what school leaders expected to be achieved through ICT uses and what actually happened.

In 2009, as a key plank in its student-led philosophy to integrate technology into the curriculum, West PS introduced a wide range of “reality group” electives for Grades 3 to 6. Students could select from different skills-based activities over the school year such as cooking, sport, dance, ICT, photography and local community visits and were placed into groups by teachers. Reality groups were timetabled at the same time for a two-hour block each week, with a single teacher responsible for delivering a particular curriculum to each reality group. The intended learning aims and outcomes were tied to each learning centre’s goals, with students required to research, share and present their learning around a particular topic. At the beginning of 2012, a Grade 3/4 URG was introduced and continued with all of its original 14 students until the end of Term 2. I participated in the URG for all of this time.

The URG used Release One Ultranet applications with web 2.0 capability to develop an open Ultranet collaborative learning space, made available to over 100 students and a team of six teachers in a learning centre. It was a common practice, encouraged by Regional Network Ultranet Coaches (RNUC), for teachers to set up open Ultranet spaces in the first instance to enable their own students to easily join. The space could later be changed to restricted or private so that it was easier for teachers to control.

The URG students generally worked in pairs selected by their teacher, Sarah, mainly because of unresolved Ultranet student password issues at central DEECD and school levels that persisted throughout the project. Each pair had shared responsibility for creating one or two themed pages in the URG collaborative learning space. Students co-owned this space with their teacher, enabling them to edit its content. Each page had a different purpose that reflected

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165 Anita, Assistant Principal, West PS, interviews, March 9, 2012; May 8, 2012.
the distinctive characteristics and expected behaviours in the learning centre and at school. In addition, DEECD required that all spaces in the Ultranet were teacher-moderated. For Sarah, this meant regularly checking students’ work for out-of-date, incomplete or inappropriate content and either editing it or sending emails to students asking them to complete specific tasks, with advice on where to go for examples. 166

The motivation for being part of the URG was different for each student and changed throughout the program as students became more or less engaged in the project and teacher-planned activities. Students worked across grades and had different abilities, ICT interests and skills. Some Grade 4 students chose the URG because they had already developed skills with using the Ultranet in Grade 3. A few had responsibilities as learning centre technology monitors and hence could demonstrate their growing ICT skills within the school. Others selected this elective to be with their friends, meet new people and have fun. Sarah wanted URG students to develop communication skills and Ultranet expertise through the process of building a collaborative learning space for their peers. Her aim was for students to share Ultranet resources as a group and with other students and staff across learning centres, cohering with the school’s Vygotskyan theory that technologies were useful “mediators of human activity” (Somekh, 2004, p. 176). 167

As shown in the previous chapter, teachers believed that embedding children’s learning in local contexts would help them relate it to their everyday lives. It was assumed that URG students would become knowledgeable Ultranet super users who could help other students and teachers across the school and participate in regional Ultranet events. As the URG’s audience, the intent was for the wider cohort of Grade 3/4 students to be able to log into the Ultranet at school or at home and share in the different kinds of content that their peers had specifically produced for their age group and interests. Over time, it was anticipated that this school-endorsed Ultranet online space would grow and become known as a trusted place where students could access learning tasks from home and participate in current classroom curriculum topics to extend their learning. By the end of the project, it was expected that URG students would be able to make critical decisions about the kinds of digital Ultranet content they created, reproduced and shared with their peers and teachers. Part of the group’s final presentation included a whole-school activity in which teams of four URG students taught other children and teachers from across the school how to use the Ultranet. Throughout this process, they were guided by Sarah, who was herself guided by the curriculum, her colleagues

166 Fieldnotes: West PS, Stage One 2012.
and feedback from learning centre students and as yet unknown audiences who would access and view the space.

*Information retrieval skills needed to navigate the Ultranet environment*

As one of the web’s major content access providers, Google was central to the ICT strategy adopted by many teachers and students in my research sites. In West PS, Google search skills were explicitly taught as part of the curriculum, but alternatives to this search engine were not suggested, and students did not appear to be aware of, or use, Google’s advanced search features. Neither did students include search skills as part of a “kids teaching kids” technology event, where the aim was to “see different technology products and programs.”

Speed and confidence appeared to be major factors influencing URG students in online searching. Their priority was to find a computer, type search information into Google and click on a link that looked right in order to complete the task in the minimum time.

Because of their successful experience with Google, URG students expected to be able to access web-based resources straightforwardly through the Ultranet. This was not the case. Using the Ultranet platform to search for content proved frustrating for students as they could access the content they required quicker, and with fewer clicks, through Google on their Internet browser. In using the Google search engine, URG students were mainly “consumers”, but in using the Ultranet they were expected to be “content producers”, despite finding the process difficult and complex and a change that challenged the nature of learning they were accustomed to in web-enabled classrooms.

Searching and viewing text, audio and video content were digital literacy skills students needed to know in setting up their collaborative learning space. Most URG students could use Google to search for information. A popular activity was to find, copy and paste images from Google into Ultranet pages. Some students showed familiarity with the “Google bar” and used it independently and consistently over the duration of the reality group. For example, working with a partner to find content for their collaborative page, Nadir entered the search terms “3D shapes and names” and “3d nets” well ahead of Sarah advising her students to “choose their search terms carefully” as “algebraic images may be too difficult.”

It was evident from speaking with Nadir that his comparatively advanced understanding of searching had been developed through his extensive use of information technologies at school and at home. Other

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168 West PS, 2012 West PS technology event advertisement.
167 Fieldnotes: West PS, Stage One 2012.
students in the reality group also used Google features, such as predicted text, to scaffold their learning and share their knowledge with peers.

URG students Ali and Kyle used Google to make a table of websites for their Numeracy page. Helped by Nadir, they searched by typing “good maths websites” into Google. After previewing the results, they liked the look of Cool Math Games (Constructive Media, New York), Mathletics, Rainforest Maths (3P Learning Limited, North Sydney) and BBC Bitesize (British Broadcasting Corporation (BBC) London), so kept them and dismissed others as being too difficult and uninteresting. Their teacher Sarah approved and told them that she used Cool Math Games sometimes in her teaching. In short, most URG students used Google extensively to evaluate resources in the course of producing content for the Ultranet.

An issue with manipulating content on the Ultranet can be seen in the example of two URG students, Ashlee and Claire, who tried to select and embed content on their Ultranet page through an IFrame. Using an IFrame was a relatively easy skill for these students as they were already competent in using hypertext links in other computer-based activities. Ashlee and Claire liked using an IFrame because it provided them with more choice about what could be displayed on their Ultranet pages. The alternative was to use the approved content available on FUSE (Find, Use and Share quality Education), the Ultranet’s digital curriculum library. The use of any third-party materials, however, required students to be familiar with, and adhere to, any copyright conditions. Intellectual property rights and copyright regulations were a kind of legal participation made more visible for students as they downloaded or uploaded materials to the Ultranet. This was in contrast to the more relaxed ways in which copyright issues had been previously managed, and sometimes obscured, by teachers and school administrators. As an authority structure reinvigorated and reinforced with the Ultranet’s introduction, there was no room for such apathy. Teachers, students or parents as their representatives, faced possible legal consequences if they made incorrect decisions about copyrighted materials. Ultranet use placed more responsibility on users to manage content appropriately. It required students and teachers to rethink old practices and consider new ways of working.

Principles of brand and reputation, together with teacher recommendations, guided students in their choice of media to display on their Ultranet pages. In populating their collaborative learning space, a “Literacy” page, Ashlee and Claire selected content from brands they knew and trusted. For instance, they put links in their learning centre so students could access a

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170 Fieldnotes: West PS, Stage One 2012.
global media corporation, the BBC, and a national library database, the National Library of Australia, although this content was not easily readable for Grade 3 or 4 students; it was complex, text-dense and with few pictures. Ashlee and Claire decided that the brand and authority of authorship was more important than such factors. Sarah also recommended these websites and in doing so strongly influenced what these students produced. Additionally, when the head teacher in the learning centre previewed Ashlee and Claire’s work at the end of that day’s session, she endorsed their choice of Internet sites, but did not view the actual content. In this example, while teachers and students in the URG collaborated in selecting trusted resources, they did so at the expense of making appropriate content available. Students made some decisions about the types of content to display on the Ultranet, but their perceptions of Internet credibility were linked to authority and well-known institutional brands, reinforced by teachers and often also by their peers.

Organising digital content required URG students to learn new skills. Any images or documents uploaded onto the Ultranet were stored in libraries that had quota restrictions based on year levels. Students had at least four different online libraries to choose from and needed to understand, or at least follow, copyright law in order to design effective spaces. Once content was copied into the Ultranet content repository, that same content was displayed in “My Content”, “My Spaces” and “School Content” areas. My Content was personal to the user, My Spaces allowed all content to be shared by those who were members of that space, and School Content was for teacher-sourced content open to teachers and students in that school. Categorising content into topics using descriptive keywords (tags) was designed to make browsing and evaluating resources more consistent and efficient, especially where different users were adding unlabelled content to the same space. Uploading content required users to enter descriptors into mandatory fields. In my observations, however, URG students often entered strings of random text to bypass this “annoying” rule.\footnote{Fieldnotes: West PS, Stage One 2012.} Having done so, it was difficult to then retrieve their content. Some students found this labelling content process problematic and overwhelming. Even Nadir, as one of the most experienced student Ultranet users, disliked My Content because files had to be uploaded and then reloaded into a folder or subfolder, double handling the same content. Organising and managing digital content using the Ultranet was a complex, non-intuitive process that limited students’ ability to quickly search for, retrieve and save data (Borgman, 2007).
Students’ introduction to specialist markets through their Ultranet uses

Some Ultranet Release 1 web 2.0 applications had different requirements about managing and reusing digital content between the Ultranet and other proprietary programs. For instance, Ali and Kyle, who saw themselves as skilled computer users, found a Google image art graphic that they wanted to place on their Ultranet “Publication Display” Art page, one of the Ultranet’s six proprietary applications designed for content management. This application controlled how a page displayed text and images by placing content inside a border. Students could change borders and the layout of the content within a publication display, referred to as “customising” in Ultranet manuals (DEECD, 2010f, p. 4). Ali and Kyle, having not identified whether any third-party copyright issues existed, went ahead and used their tried-and-tested method of copying and pasting images, but it did not work; Ultranet restrictions did not allow the pasting of an image directly into an Ultranet collaborative learning page in this way. Ali and Kyle tried as many strategies as they could to save the image, including “copy” and “save as” an image, “Print Screen” and asking other students for help before they ran out of time. These methods all proved unsuccessful, the result being that Kyle copied the Art graphic into a Word document stored outside of the Ultranet.

Managing and exporting images from the open web for display in the Ultranet was a complex and time-consuming activity, requiring specialised knowledge and practical skills. The Ultranet restrictions may have protected the rights of authors, but the complexity this introduced meant that it was much easier for students to access the digital content from outside the Ultranet. On the other hand, although student experiences with copyright were practically burdensome, they may in principle have alerted them to issues they needed to understand in order to become competent technology users. Learning how to manage, organise and evaluate digital information is a common challenge for youth when participating in digital media practices (Sundar, 2008). This example, whilst highlighting the contradictions inherent in digital technology uses, also emphasises the materiality and social impact of reusing forms of Ultranet content in students’ everyday social lives.

Sarah also used the Ultranet to develop URG students’ online mapping skills. West PS’s dominant way of constructing children—as independent, adaptive learners most able to learn from direct experiences in their local environments—played out in an unexpected way to promote a multinational market model. Google was a constant in students’ search methods and they regularly chose media with which they were familiar, or that teachers suggested or approved of. For example, Sarah told Nadir that his use of Google maps was a “good response”
to a maths problem. During the URG class, Nadir then used Google Earth and Google Satellite to explore his local community, socialise with friends and show them his house online, and Google flight simulator to show where and how to crash-land a plane. Therefore, when it came to choosing suitable Maths resources for the “Maths” collaborative learning space page, Nadir drew on his positive Google experiences and teacher feedback to decide that a Google Map tool of the school’s location would be of use to other Maths students in his learning centre. Google Maps was one of the applications that formed part of the Ultranet’s Release 1 web 2.0 applications list. Nadir’s understanding of web 2.0 media—that it was flexible, could be shared and separated from its original source—made this possible.

Dominant online social networking products, such as Google, position their services as non-threatening, easy-to-use and reliable. On the other hand, Google can be interpreted as taking on the role of the authoritarian teacher, which is frowned upon in 21st-century open learning environments where children are constructed as the “knowers”. My research shows that children obtained their information from sources they enjoyed using and trusted. Unlike social network sites such as MySpace (Viant Technology, Beverley Hills) and Habbo (Sulake Corporation Ltd., Helsinki), limited through filtered Edulists of websites, or Facebook, banned because of its legal requirement around collecting private information from children under 13 (boyd, Hargittai, Schultz, & Palfrey, 2011), Google’s acceptance in schools was growing. It was generally seen as a reliable information source for young people. Clearly, students were developing skills in using Google to search, view and organise digital content to use on their Ultranet reality group’s collaborative learning space. But, in constructing their Ultranet pages around reproduced Google content with sponsored links, they were also practising participation in globally-based commercial authority structures.

The URG’s Ultranet space had very low usage over the duration of my research project with content only created by URG students. The password-protected Ultranet environment was unfamiliar to the majority of the 100+ students for whom the space was developed. Even though a URG member had shown them how to login and join the collaborative learning space, very few students used it, with the result that discussion and poll questions were not answered. Clearly, although the URG students who created the Ultranet collaborative learning space learnt some social and technological skills, the curriculum project’s major aims were not met; the Ultranet’s participatory web 2.0 environment had not engaged or increased the

172 Fieldnotes: West PS, Stage One 2012.
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participation of the wider cohort of students and had not become part of their learning
centre’s language, everyday routines or culture.

The construction of the Ultranet was a new technology open to different interpretations and
not yet merged into practice. By using it in a structured program, URG students were able to
make decisions about what part of the Ultranet to use for what activity, develop skills in
working with their peers both within and outside of the URG, and share their knowledge with
peers and teachers in their learning centre who were involved in other reality group activities,
such as cooking and photography. URG students’ use of the Ultranet in the structured
curriculum activity was strongly linked to their relationships with peers and teachers. In
participating in activities to develop an Ultranet space, each student’s understanding of the
technology was impacted by their experiences. Ultranet reality group students interacted with
the Ultranet and with other students and teachers as they developed content, shaping their
attitudes and values about the Ultranet’s role in learning.

Contrary to DEECD’s promotion of the Ultranet as empowering students, the URG project
supported a model of learning based largely on hierarchical control. Others have similarly
noted that policy formulators’ positioning of young people in society influences their
participation in formal and informal learning activities (Buckingham, 2008a; Burnett, 2011;
Facer et al., 2001a; Herring, 2008; Livingstone, 2009; Stevenson, 2011; Willett, 2008). My
analysis so far has shown that a power paradigm existed in the formation of reality groups;
children made choices based on their social and technological interests, but teachers made the
final decision on the make-up of groups. As outlined in Chapter 4, the Ultranet designers’
political and legal stance in ensuring Ultranet system compliance and safe and responsible
Ultranet use strongly shaped how Ultranet technology was constructed at West PS. The
privacy and school administrative regulations in place for managing the allocation,
maintenance and storage of their passwords limited, and in some cases negatively affected,
students’ learning experience and discouraged their participation as independent producers.
Less obvious influences came through students’ use of commercial branded media and their
required adherence to copyright laws and proprietary software controls as the school tried to
create a community in which students could collaborate and socialise more easily and
extensively. In particular, this section highlights the pervasiveness of commercial media in
students’ Ultranet use. This is not to deny that some students, including younger children,
have sophisticated understandings of how advertising seeks their emotional response to
brands and are well versed in how the language of advertising affects sales of popular
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technology products (Buckingham, 2008a; Willett, 2008). Nevertheless, if the newer kinds of student participation are premised on commercial principles negotiated outside their classrooms or homes, then their experiences will be as passive consumers rather than informed citizenry.

7.2: STUDENT ULTRANET USES AT EAST PRIMARY SCHOOL

Born into an Internet culture, most “millennial” children in my study required ICT competencies to help them develop language and literacy skills in a techno-social environment. As Buckingham (2007b); Drotner (2008); Ito et al. (2010); Jenkins et al. (2009) and Livingstone (2008) have argued, students need to learn skills to use the Internet and manage hardware and software to more fully participate in their own, and their peers’, learning. Central DEECD officials’ vision was that Ultrananet use would help students to be more independent, take increasing responsibility for their learning and self-manage their time through improved organisational skills. Paradoxically, children needed many of these skills a priori in order to effectively use the Ultrananet. The outcome was that students participated less, when DEECD’s assumption was that they would participate more. This section provides a clear example of this paradox, and analyses how Grade 5/6 students at East PS used the Ultrananet software to organise, search for and share content and personalise their Ultrananet spaces. It shows that students were improving some digital literacy skills at the same time as collaborating and socialising in non-participatory web-based global environments.

Building an Ultrananet infrastructure for content

The Ultrananet was designed to act as a content management solution, allowing students to build libraries and save documents, images and videos to manage an ever-increasing amount of digital content arising from a diverse range of sources (DEECD, 2010). This solution was based on the assumption that students would be unencumbered by fixed school-based network drives or manual records that tethered their data to a specific location accessible only at certain times. Rather, each student would have access to, and control over, their school work and information resources, even when moving schools or transitioning between year levels or primary and secondary schools. Indeed, DEECD’s Ultrananet business plan anticipated that 65% of Victorian government school students would be accessing their learning resources on the Internet once the Ultrananet was fully operational (Victorian Auditor-General's Office, 2012).
DEECD wanted students to develop more independent learning skills, become their own administrators and manage their correspondence, student files and learning tasks. Students were therefore expected to prioritise the Ultranet as a valuable communication space to keep and retrieve school records, information resources and email contacts from year to year. Students’ uses and experiences of the Ultranet were negotiated within DEECD’s norms and values. The Ultranet service was the property of the State of Victoria and thus the authority structures students participated in were inherently web-based and institutional. Considerations about what was relevant for children to learn emerged through the moral, social and critical frameworks used by curriculum boards, policy designers, working parties and classroom practitioners (Grenfell et al., 2012).

Accessing and searching for content in Ultranet digital libraries

Students could access content in the Ultranet using either “Ultranet Search”, an internal search engine, or FUSE, the Ultranet content library, two distinct programs that worked together. Ultranet Search users could search for resources by title, key words, date, size, type or by using descriptors called tags. Selecting from such criteria was supposed to save time and make content retrieval more efficient (DEECD, 2010f). Moreover, the “endorsed” “really good” content students could access was quality reviewed by “expert” sources, such as teachers, librarians or eLearning coaches, and promoted as trustworthy (DEECD, 2010l, p. 17). The flip side of Ultranet Search was that students needed time, advanced search skills and access to appropriate technology, optimally a one-to-one Internet-enabled learning device, in order to use it effectively. In East PS, this was problematic because Grade 5/6 students had to share eight laptops per grade of 25 students and required teacher permission to access them. In contrast, students could easily access FUSE content through the Ultranet navigation bar once logged in. Information was sorted and divided into primary and secondary school content. All FUSE content was licensed to DEECD and could be used within the terms of DEECD’s agreements with each content provider. This meant that students could more easily access approved Internet sites or reference their web research materials. When students connected to FUSE through the World Wide Web at home outside of the Ultranet environment, however, they could access websites that school restrictions would otherwise have blocked. Also, because of copyright laws, some FUSE content could not be reused with other content, which made creative expression problematic for students.

173 Fieldnotes: East PS, Stage Two 2011.
The aspiration that students develop time-saving information-searching skills was laudable, but finding digital resources through the Ultranet was not a straightforward activity. Repeated participant observations of Grade 5 and 6 classes at East PS showed that many students did not have the critical evaluative skills required to navigate the confusing and complex Ultranet environment. Also, the Ultranet time-out feature automatically logged students out of the Ultranet, resulting in students losing their search results. The information students found using Ultranet Search often provided results running over multiple pages. As beginning Ultranet users, encountering content of this complexity on the screen was overwhelming. A complex user interface, together with unfamiliar Ultranet terms such as “export” and “import”, made it difficult for many students to navigate the technology, although most were able to describe what they saw. For example, the orange Ultranet Utilities icon was interpreted by one student as a “round thing with bulky stuff on it.”

Moreover, unless they were knowledgeable about the classification system, they were unable to judge the most relevant high-quality information needed to complete the task, often selecting the first entry or skimming, common strategies but ones that only added to the confusion (Carr, 2010).

FUSE online content was sorted into primary and secondary sections, but endorsed content was open for students from Foundation to year 12. Few students knew what “endorsed” meant and the endorsed content found by them was in most cases irrelevant, distracting and disadvantageous to their learning participation. For example, when a small group of Grade 5 students were asked to research fractions in a maths class, they entered the search term “Grade 5 dividing fractions”, spelt in varying ways, and were presented with multiple “hits”. One of the highest-ranked search results linked to a commercial website and an interactive game called Dying for Darfur, aimed at students in the Year 7 to 12 age range. After the first student (Rory) selected this link, five of his group also chose to play it on individual laptops. Class members outside the group became fascinated and, although working on their own maths tasks, wanted to play as well. Students said they enjoyed it and found it “fun” and “addictive.” The game’s link to fractions, however, was unclear. On reflection, Billy said there was something about fractions at one of the game levels but then Rory said the game wasn’t really about fractions. Yet, on multiple occasions, this game slipped under the teacher’s radar because of its provenance. Confusingly, its legitimacy as an education product was sanctioned because it was accessible through the endorsed content library of the Ultranet. Online games were banned during class time and games from home were seen as

174 Fieldnotes: East PS, Stage One 2011.
175 Fieldnotes: East PS, Stage One 2011.
176 Fieldnotes: East PS, Stage One 2011.
unauthorised software. Even so, the search term “games” was a popular search query, and some students used their personal Ultranet library to upload, store and play banned games. These examples show the intersection of student practices with web 2.0 social media and the commercial market, and suggest the possibility of media producers being able to track students’ online behaviour for potential economic advantage.\(^{177}\)

Finding, retrieving and reviewing potentially appropriate sources was time-consuming for students. In 2011 this was particularly noticeable at East PS, where early versions of the Ultranet were unreliable and plagued with slow response times, in part due to underperforming ICT infrastructure (as discussed in Chapter 5.2). While the Ultranet case study highlights an increased focus on using digital content in student learning, it also shows that the software mechanisms designed by DEECD were ineffective: they did not support student decision-making and the content selected rarely assisted in their learning. Students were left to participate in a DEECD structure that hindered, rather than developed, their ability to organise, evaluate and use digital information.

**The social meaning that developed around Ultranet legal restrictions**

Technology Acceptable Use Agreements (AUA) and Ultranet Terms of Service (ToS) framed children as “citizens” but with obligations to behave in a particular way in offline and online spaces. Signed by students—or parents, if children were considered too young to understand the implications of the agreement—AUAs set standards for how they should behave in relation to the Ultranet, Internet and digital technologies at school, and in some cases at home. AUAs required that students use only those websites selected and approved by teachers, and therefore quality controlled, in contrast to openly-accessible Internet resources, such as YouTube (DEECD, 2011a). Ultranet access required users to click a button to say they agreed with the ToS each time they logged in.\(^{178}\) Once checked, students agreed to any content becoming part of their “digital footprint”, a permanent, online record of their actions (DEECD, 2010l, 2011a). This was not a requirement in other systems used by students and many forgot to “agree”, resulting in them having to re-enter their login details.\(^{179}\) Some students lacked understanding of, or interest in, ToS. An example is seen in Grade 5 student Denis’s comment on a teacher-generated class wiki that “Terms and conditions r so boring. Because there is so much to read about.” It was possible to trace student protocol breaches through either their

\(^{177}\) I explore the commercialisation of the Ultranet in more depth later in this section. 

\(^{178}\) DEECD later changed the default. Users had to untick the check box to opt out of accepting ToS.

\(^{179}\) Fieldnotes: East PS, Stage One 2011.
Ultranet user login details—each student was required to login using their own network details, information able to be referenced through school network usage data—or the technology device used. In what seems a strange contradiction, AUAs framed technology and the Internet as a privilege in schools at the same time as promoting a strong narrative that children had the right to use technologies in their learning (DEECD, 2010k). As shown throughout this chapter so far, regulation and surveillance burdens and software limitations constrained the student user group in complex ways. As Buckingham (2008a); Carrington and Marsh (2008); Jenkins et al. (2009) and Livingstone (2010) argue, education decision-makers should focus on how copyright law influences students’ local Internet practices and experiences and consequently their ability to participate openly in new technology environments.

Profiles were a feature of a student’s eXpress space that could be customised to display their name and official school photograph. Similar to social networking sites, student profiles were visible to all Ultranet users within a school. Profiles enabled students to create and publish a description of themselves and tell others about their hobbies, favourite websites or what kinds of technology they owned. It was students’ responsibility to create, edit, store or delete any content on their personal spaces. Even though school AUAs and Ultranet user guides warned children and their parents about the risks of providing personal information such as school, home address, family members’ names and date of birth on online sites, (DEECD, 2010l) some Grade 5 and 6 students routinely shared such details in their Ultranet profiles. For example, Lachlan shared his interest in BMX bikes on his Ultranet profile and described things he owned, but also gave details of his age and school and added a photograph of his friends, listing their names contrary to Ultranet conditions. Another Grade 6 student, Chloe, found her Ultranet profile by accident a year after she wrote and published it. She disliked what she had written at that time so much that she deleted it all very quickly. She decided not to publish a new one because she was starting to distrust the information she found on the Ultranet. Her recent contributions to a network-based Ultranet wiki had elicited an open question from a teacher with “moderator” status that Chloe interpreted as confrontational. Although the Ultranet guide explained how information could be kept safe and how students could limit who had access to their content, there was no guarantee that individual students had read, understood or trusted such information (DEECD, 2010l).

\footnote{180} South PS, Acceptable Use Agreement Policy. 
\footnote{181} Fieldnotes: East PS, Stage One 2011.
These examples highlight that the web of relations constructed through the Ultranet was dynamic and changeable, with learners continuously producing and consuming “active” content and meaning. Even though Ultranet audiences could be partly controlled by students and were represented as safe, students like Lachlan and Chloe were still maturing and learning how to write about themselves and how to manage opportunities and risks in public online spaces.

The early version of Ultranet allowed students to “find” others and send email to teachers or students in their school. Grade 5 student Mali used this email feature to send a message to his friend, Rory, about these ToS using the subject “terms and conditions.” In his message, he gave his interpretation of what the opening lines of the Ultranet ToS meant, writing:

I’m thinking this means you must follow the DEECD rules for email in schools. People may take legal action on cyberbullying, for anyone 18 years and under, the punishment will be minimal. But people 18 years and over may get fines and jail time if bad enough. Things like offensive language/abuse, obscene, threatening or harass will get you into jail. Don’t let people see your password and only use the Ultranet for education purposes.  

Rory quickly forwarded this email with an additional emphasis and new title that urged: “IMPORTANT MUST READ!!! agent 44” to 26 of his friends, writing, “If you think this needs changing, email me and tell me what needs to be changed. If it’s good enough, forward it to anyone you know.” This example highlights how students used Ultranet email to share information they saw as important with their peers, in this case the legal issues around Ultranet use. They were participating in the Ultranet whilst still learning the consequences of that participation. In a later update, DEECD disabled the “find people” search feature, making it impossible for students to see one another’s email addresses. Instead, they had to request the email address from a particular teacher or student. Having little opportunity to send messages to multiple addressees or develop email networks reduced their ability to collaboratively design and share their learning via the Ultranet.

Students faced consequences for inappropriate behaviour on the Ultranet. Designers included language filters in the Ultranet software for any school providing English as an Additional Language (EAL) classes. Language filtering was managed top-down with implications for students if they breached the rules. Carlos, a primary school IT coordinator, criticised the

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182 Mali, student, East PS, Ultranet artefact.
183 Rory, student, East PS, Ultranet artefact.
Ultranet language filter as ineffective. He found that, apart from obvious swearwords, it did not pick up unacceptable common words frequently used by his students. He challenged presenters at a DEECD Lead User training session, “You’re saying that this is a communication thing, how good’s the filter?” Misspelled terms typed into Ultranet search could result in students being logged out of the Ultranet with a warning on their login screen that they had contravened their ToS. It was often unclear to students and teachers why this had happened, as the evidence was not retrievable at the school level. For example, Grade 5 student Mehran received an online warning that he had breached the Ultranet ToS. He was working alone so there was no peer to assist him in his choice of search words, and it was unrealistic to expect the teacher to provide a one-on-one checking service for students searching for information online. Teacher feedback was factored to come at the end, not the start, of a task. The next day, a verbal complaint was made from home, via Mehran, explaining that, as he was from a non-English speaking family, he needed help with spelling words before beginning to search for content. Following this incident, Mehran opted out of any further Ultranet involvement except on the rare occasions where there was social pressure to log in with friends. This example questions the extent to which autonomous learners can develop in uncritical online learning environments. DEECD had obligations to provide safe learning spaces for students, but the technology also needed to have better quality assurance mechanisms built into it to support student decision-making. The same Ultranet rules that guided students’ actions and decisions also acted to limit their participation.

The commercialisation of the Ultranet

There were two ways that students could personalise their Ultranet spaces by adding multimedia. First, they could bring their space to life by choosing from a range of themed backgrounds (DEECD, 2010). These were quick to use; friends could display the same or a different background, and the content was vetted as safe. The second way was through a web-based program called “Ultranet cascading style sheets (CSS) generator”. This application generated a string of text and numbers that could be pasted into the “Advanced styling” tab in the “Look and Feel” menu option in the “Settings” command, enabling students to display different borders, background colours or an image (Google or Facebook for example). Problems in using the CSS generator were experienced on numerous occasions. In one case, several students in the same friendship group chose to display a Rockstar (Rockstar, Inc., Las Vegas) energy drink image that they sourced through Google images. They found changing

184 Carlos, Lead User, Network ICT group, interview, November 11, 2011.
backgrounds using the CSS generator a time-consuming process, made even longer when they tried to reposition the image after their first selection and had to create another string of code. Even after multiple attempts, the CSS code generated did not always work or line up with their current page layout.\footnote{Fieldnotes: East PS, Stages One and Two 2011.} In trying to create new ways to socialise and personalise the look of their Ultranet background, using the CSS generator was problematic for these students.

The Ultranet was explicitly designed to engage students in online learning and have a positive social impact. The time students spent on Ultranet personalisation activities, however, enlisted their participation in interactions that were increasingly mediated by commercial software and of limited educational or social value. In fact, the CSS code-generating method resulted in students spending their learning time and creativity reusing commercial digital content and the skills they were practising provided them with little understanding of the type of infrastructure they were participating in or indeed constructing (Lankes, 2008). Although this CSS practice fitted a DEECD goal to integrate web 2.0 technologies in learning, it also meant that the focus was on the technology, not the pedagogy (DEECD, 2010k). Even within this highly regulated and complex Ultranet environment, some students managed to utilise their “practical horse-sense”, gained through a combination of experience and theory (Hardy, 2012, p. 159). For example, Grade 5 student Denis wanted to make a different background to that of other students and then select who to share his knowledge with. He was eventually successful in displaying a commercial image—animated M&Ms (Mars, Incorporated, McLean)—outside the boundaries of the Ultranet screen, something only possible because of the time he spent editing the CSS code and his pre-existing knowledge of code. CSS could also be used to copy commercial plugins or features created on web 2.0 external websites, enabling students to embed their creative content into personal or collaborative Ultranet spaces. Unfortunately, wider uses beyond copying and pasting were prohibited because the code remained the property of the source’s owner (Berry, 2011).

The types of web 2.0 participation outlined above could be interpreted as technical. The digital infrastructure of the Ultranet was, in effect, set up as an impenetrable “black box” for most students. It provided very limited opportunities for them to participate in ways that built their citizenship, instead embedding them in consumer models of learning. Moreover, this type of participation was taking shape just as educational technologies were being promoted as making students’ social and political lives more democratic. The transition of new digital media practices exemplified in the Ultranet—from a proprietary space concerned with education to a
market model adopted by companies to provide “free” commercial source code to
individuals—is revealing. It is characteristic of a web 2.0 business model that seeks to
maximise profits through easy-to-access and use web-hosting programs, but is inflexible in not
allowing users to modify content (Karanovic, 2012; Warnke, 2013). Even though students could
become producers, consumers and distributors in some ways, ownership of their creative
practices remained structurally controlled by an Ultranet system underwritten by a web 2.0-
enabled social web.

We have seen in this section how students actively participated in constructing the Ultranet.
Through it, they could access digital libraries and resources, including gaming products,
circulate their ideas, share personal media and profiles with peers and engage in proprietary
web-design practices but they had little power to shape its terms of use. Moreover, students
were locked into using a particular version of web 2.0 social technologies that discouraged
open-ended exploration and actually diminished their learning opportunities (Buckingham,
2007a; Friesen, 2010; Fuchs, 2010; Ito et al., 2010; Jenkins, 2006; Warnke, 2013). Overall, the
use of Ultranet technology in Grade 5/6 classes at East PS did not act to disrupt the authority
structures of existing communicative relationships between students and commercialised
education products, nor did it involve students in making decisions about how technology
resources were managed in their everyday lives. In fact, their learning environment became
more bound by rules and permissions such as AUAs and Ultranet ToS. Paradoxically, whilst
each student was celebrated as independent and at the centre of their own learning, they
were in fact more closely monitored through tightly controlled and protected processes that
influenced and shaped their Ultranet participation.

7.3: STUDENT ULTRANET USES AT NORTH SECONDARY SCHOOL

North SS Principal, Diana, saw her school as innovative and extremely well resourced, and
considered the school’s enthusiastic adoption of new technologies, including the Ultranet, as a
strength. She employed an Ultranet coach, Allira, whose role was to maximise student and
teacher Ultranet uses.186 This section describes how a small group of Year 7 students in North
SS participated in their learning through the Ultranet. In it I analyse their use of web 2.0
technologies to customise and manage an Ultranet collaborative space. First, I outline the
design, rationale and operation of a specific Ultranet curriculum project that drew on DEECD

186 Diana, Principal, North SS, interview, December 12, 2012; Allira, Ultranet Coach, North SS, interview,
October 8, 2012.
and North SS teachers’ desire to see students develop more of a global connectedness and expand their social world context (DEECD, 2010d, 2010k). I then discuss the communication processes students used as they undertook learning tasks designed to help them manage documents, ask questions, debate and become more aware of global issues. Finally, I argue that teachers selected the Ultranet and its web 2.0 technologies as a means for students to report on activities, share information and create a permanent record of particular aspects of the curriculum project, but this had the effect of tightening institutional authority structures.

### Future Problem Solvers’ Project Background

The Assistant Principal and Year 7 Level Coordinators identified three groups of around 12 high-achieving students from across the Year 7 cohort and invited them to participate in a Future Problem Solvers (FPS) project. Each group had a dedicated teacher and met for a timetabled weekly two-period block, as well as meeting informally during some lunchtime breaks to organise and run practical activities. The curriculum required students to create publicity articles, share ideas, resources and hyperlinks with the FPS audience, and reflect on their participation in the project. To this end, students could choose from a wide range of Ultranet and non-Ultranet media. Two FPS groups used the Ultranet as the major communication and networking space for the project. I followed one of these groups closely. The third FPS group did not use the Ultranet because their teacher chose to implement the union ban (as outlined in Chapter 6).

Ultranet collaborative learning spaces could be customised by teachers and students to reflect their goals and the requirements of the particular curriculum activity, with Ultranet participation contingent on the type of space set up. The teacher, Stephanie, decided on a private collaborative learning space to control who could view, join, or interact with the content. Prior to the first class, Stephanie selected a Knowledge-Builder template for the space that already included three web 2.0 applications: Wiki, Reference Library and Bookmark. The school’s Ultranet coach added two further applications: Community Chat and Message Board. All applications were chosen to support collaboration and sharing of ideas, opinions and resources between students and teachers. As moderator of the collaborative learning space, Stephanie consulted with Allira and decided that it would be jointly authored and co-designed with all students who had been present in the first class. As co-owners of the space, they could add to it from a range of 30 other web 2.0 applications. As we have seen with respect to
primary school students and the Ultranet throughout this chapter, the reach and visibility of the space was extensive in theory but limited in practice.

School leaders originally designed the FPS project as a means for high-achieving students to represent the school in a competitive, nationwide program. Throughout the project, students similarly interpreted their participation as being aligned with a curriculum for high achievers.\footnote{Fieldnotes: North SS, Stage One 2012.} The program also aimed to promote individual and group skills in team building, decision-making and negotiation. Two weeks into the project, students were involved in the actualisation of these aims. Designing solutions to complex global problems had not engaged them, so the project focus was changed.\footnote{Stephanie, teacher, North SS, interview, December 18, 2012.} This move was supported by student Cameron rationalising that, “instead of doing competitions, we should tackle problems more locally and look to solve those problems instead. That way we are helping problems more close to home.”\footnote{Cameron, FPS student, North SS, Ultranet artefact.} The new project was linked to their Human Rights curriculum and focused on practical activities designed to raise and donate funds to a charity trying to overcome poverty among women and girls in developing countries.

Searching for, and retrieving, Ultranet content

Despite their relatively high-level literacy skills, FPS students struggled to complete their learning task through the Ultranet. The web 2.0 applications used to display their work were not intuitive, and required specialised knowledge in order to interpret written and visual messages and search for content. When students produced Ultranet content, it was first stored and listed in the Control Panel as a draft. In order to approve it, users had first to find it by typing the identification number or the title of the publication and then change the status to “save and approve”. Because publications were only viewable if approved and saved by the author, students had responsibility as content creators. This approval process proved problematic for some students. For instance, student Ebony “forgot to save and approve” her publication. As she had not learned this process, it took her over 10 minutes to do it. First, the school netbook she was using froze and had to be restarted; then, her teacher, Stephanie, had to seek advice about the process from the school librarian and Lead User, Ann. Having Ultranet and database searching experts such as librarians or dedicated Ultranet coaches working close by and available to intervene was the exception rather than the rule in my fieldwork classroom observations. Time was at a premium for students in this group, as they only met once a week.
and this extracurricular FPS workload was in addition to work they were required to catch up on from classes missed. Clearly, having the ability to modify parts of the Control Panel gave students autonomy and voice in how, and with whom, they shared content and editing rights, and allowed them to store, access and edit their publications online at different times and places. In order for their autonomy to develop, however, students needed to be skilled in searching for, finding and saving content within a complex and non-intuitive publishing system. They also needed to understand and trust that their content still existed in the Ultranet even if they could not find it. Students found this idea challenging, which confirms recent research suggesting that youth determine information credibility—the “believability of sources and messages”—in ways that are linked to trust (Flanagin & Metzger, 2008, p. 1). DEECD’s assumption that it was easy for students to use web 2.0 applications to set up a publication to “appear” in Ultranet spaces was challenged by this example (DEECD, 2010).

Even though digital content from curriculum websites was starting to be integrated into classroom practices, Ultranet content did not gain recognition by teachers or students at North SS as a necessary source of information. Although hyperlinked guides for many of the web 2.0 applications were available on one of central DEECD’s Ultranet spaces, to access them, students needed to know that such guides existed, where to find them, and how to interpret them. Yet the complexity of some of the language and tasks, together with a lack of onscreen “help” content, made it difficult for some students to improvise or adapt their existing knowledge and overcome some of these problems. Such frustrations existed for Ebony, a competent technology user, who had used the Ultranet at school on a few previous occasions. Although relatively skilled, she was unable to successfully use the Ultranet; she felt unable to harness it in ways that would allow her to productively reach her intended goals, and needed skills that were not explicitly taught. Indeed, student Ultranet take-up in this FPS class did not match the disruption model Christensen, Horn, and Johnson (2008) promoted in Disrupting Class, in which students would follow patterns of adoption and spearhead changes by demanding to use any and all new learning technologies (Christensen et al., 2008). By positioning them as influential actors of change, competent in their use of devices and technology systems, DEECD problematically expected students would use that influence to demand access to the Ultranet. Ironically, their influence instead contributed to the low levels of Ultranet student participation statewide. FPS students discovered the Ultranet was compatible with other software already used in school and at home, with some opting to create their school work in Microsoft Word and then copy and paste it later into the Ultranet personal or collaborative spaces where it could be shared. Using the practical media and
technology activities and skills with which they were already familiar helped them to successfully switch between commercial technology programs and the Ultranet, but did not extend Ultranet use past basic operational processes.

**Self-expression and creativity in Ultranet learning spaces**

Blogs were a centrepiece of the Ultranet’s web 2.0 applications. They share expression features with common forms of face-to-face classroom interaction, such as talking, and were introduced through the Ultranet to encourage online communication and collaboration practices among students and teachers. Blogs could be tailored to specific audiences, allowing users to add visual and nonverbal social cues, such as “faces”, and coloured text boxes to emphasise meaning (Baym, 2010). DEECD research found that the creation and use of personal blogs enhanced the active participation of students, improved their questioning techniques and increased the information being shared between them. Moreover, it found that students received more constructive feedback from their peers when they published their ideas and opinions to wider audiences (DEECD, 2010k). If we look beyond the government rhetoric that surrounds technology, we do not know what purposes it should be used for in education or how to evaluate its effectiveness (Eynon, 2009; Passey & Higgins, 2011; Somekh, 2004).

DEECD sought to encourage student use of Ultranet blogs by automatically linking a student’s official school photograph to their posts unless parents opted out. This was promoted as important because, “it personalises the communication between students, their teachers and parents” (DEECD, 2011g, p. 101). Publication of their photographs on the Ultranet however, was a contentious issue for students in the FPS group. Some were happy to go along with what they saw as a reasonable use of their image, some disliked their photograph and wanted to change it, and others opted out of having their photograph displayed for cultural reasons, which sometimes meant having to deflect unwelcome questions from other students about why their image was missing.190

FPS students used a blog to report their activities in the project. Taking part in a series of blog exchanges over two months, students joined in a conversation opened up by fellow student Stephen’s question, “(smiley face) Any ideas on a project for next term?”191 Their teacher, Stephanie, took part in the communication, contributing her opinion early on writing, “I think you guys should think about a project that means something to you personally. What are you

190 Fieldnotes: North SS, Stage One 2012.
191 Stephen, FPS student, North SS, Ultranet artefact.
passionate about or interested in? Can you actually make a difference?” In publishing her comments using a conversational tone and asking three more questions, she shared her informed opinion about the topic and showed students that she wanted them to think deeply about their subject curriculum, confirming her participation as an important feature of this blog. Moreover, choosing to post these questions on the blog during class, rather than making an oral statement only to those students who were present, enabled every student in the FPS group to access them. This example shows how teacher-student relations were adapting from all face-to-face to include face-to-screen methods across space and time.

Recent research on young people aged 11–13 shows how they construct their online participation in characteristic ways by recreating genres and shared cultural systems across multiple digital and print media spaces (Weber & Mitchell, 2008). This suggests that young people construct media and digital technologies in ways that they perceive as advantageous to them and often outside of the sanctioned uses or official narratives of such technologies (Facer et al., 2001a; Hope, 2007; Ito et al., 2010; Livingstone, 2010). Such practices were evident in the FPS group. Within the dynamic, yet moderated, Ultranet blog environment, students Megan, and her classmate Claudia, shared their opinions in posts replying to Stephen’s blog question. In exchanges that were spread over six weeks, encompassing school holidays, they discussed the fundraising events that had been planned by the group:

Claudia: ooh man that sounds really cool I want to do the sponge throwing at the teachers...what date is all this stuff going to happen? how is everyone in class? how are you? keep me updated on the things that happen in class okay? thanks!!

Megan: hey [Claudia] we all miss you its weird without a twin um the bake sale is next Thursday and the sponge throw is idk when bro never mind its something I can’t say online.

A reply came the next day:

Claudia: oh why can’t you say it online? anyway it doesn’t matter. don’t worry I’ll be back in around two weeks and then we’ll see each other again!

These interactions illustrate how Megan and Claudia were shaping their participation and sociality through the Ultranet in the context of the wider group. First, they used “text chat” to

192 Stephanie, teacher, North SS, Ultranet artefact.
193 Megan and Claudia, FPS students, North SS, Ultranet artefact.
CHAPTER 7: Students’ Ultranet Participation

promote their interests and motives, with the exchange reflecting their social relationship and shared youth experience. Second, they were integrating the Ultranet into their own practices at the same time as helping to shape the web 2.0 blog being used in their learning. Third, they repurposed the FPS private group blog so as to connect with one another in intimate ways, directly and indirectly, even excluding peers and their teacher. Fourth, they knowingly took risks under the guise of humour whilst still sharing ideas with the class on the blog topic. Fifth, they accepted the Ultranet as a trustworthy space to communicate with one another but within the constraints of institutional forms of moderation, such as the school’s AUA and teacher reviewing. Finally, even though the blog was open to all project group members, this exchange was only between two individuals. This example shows how students could use the Ultranet in diverse ways that challenged existing DEECD structures and policies; in this case, two friends used it to express themselves and share coded messages, albeit in an adult- and peer-moderated online space.

The application of privacy laws through the Ultranet trumped students’ personal creative expression. Any content posted on the Ultranet was identifiable because the first name, last name, school photograph and any other personal information that a student had voluntarily included in their online Ultranet profile was visible in the content. DEECD had a moral and professional obligation to protect the security, safety and privacy of individuals and to promote values of inclusion and equity. Although students could manage Ultranet permission levels to enable feedback, manage their audiences and audit who had viewed their Ultranet pages, DEECD values were materialised into the Ultranet for them by designers through technical controls such as usernames, passwords and mandatory teacher moderator roles.

Ethical and safety issues that impacted on student Ultranet use

FPS students enjoyed relaxed classroom management rules; they worked and talked openly in friendship groups and were taught in informal learning spaces, such as the school library. Because of this culture, the Ultranet did not always meet their social needs. When directed by their teacher to perform activities through the Ultranet, they complied, but intimated that it was an interruption to their learning because they had to break out of their friendship groups to work individually on computers. Students did use the Ultranet to create original articles on the project, plan their activities, start a discussion topic and publicise progress reports for their immediate group, wider project group members and for future FPS-ers. Responding to a request from Stephanie to write a reflection of their FPS experiences, Sonja wrote, “This kind
of work is better suited for the Year 8 students, or Year 8 Advanced classes. The work we have
done on Global problems was more fun to work on, instead of fictional future problems.”
Megan posted, “if FPS WAS RUNNING IN 2013 I would love to participate in the program again. i
would love it if year eights were allowed to i would definately be willing to be in FPS again.”
Students did not, however, explicitly comment on the Ultranet’s role in the planning,
promotion and communication of their fundraising cause at all. They did not interpret it as
an important Internet technology or preferred space for social action.

FPS students’ use of web 2.0 external content on YouTube highlights the intersections of
commercial media structures, the Internet and school curricula. To raise awareness and
develop their knowledge of global poverty issues, students used the main page of their
Ultranet wiki to encourage their peers to view a 2-minute animated YouTube video called The
Girl Effect. The value of short forms of video for attracting and maintaining attention has been
critiqued and referred to as a “snack culture” encouraging a “watch a clip and move on”
mentality (Lovink, 2008, p. 10). The impact of the Internet on literacy and education is a
pertinent concern for educators (Snyder & Beavis, 2004), but I focus here on the issue that
YouTube and other commercial online video content was blocked at the school level. As one
student wrote on the collaborative learning space, “This means you can’t view it at school—
but will be able to see it at home if you want to.” The implications of the significant divide
between students’ home and school uses of Internet technology and how this reinforces and
replicates unequal power relationships is also well documented (Buckingham, 2008a; Eynon,
2009; Livingstone, 2010; Somekh, 2004; Valentine, 2008). Even if YouTube content was
displayed in the Ultranet through IFrames, another web 2.0 application, North SS filtering
protocols were still activated. Diana, in conjunction with the school technicians, drew on local
knowledge and DEECD’s Edulist to blacklist video web sites like YouTube, stopping students,
and in some cases teachers, from using them.

A contradiction can be seen here; at the same time that Diana was deciding to filter and ban
YouTube, DEECD and some of its showcase technology schools were promoting commercial
video sites as a legitimate part of a contemporary curriculum (DEECD, 2010k). There were
regular disagreements among teachers in my field sites about whether or not to ban certain
websites, but the final decision lay with principals. North SS students expressed frustration

194 Sonja, FPS student, North SS, Ultranet artefact.
195 Megan, FPS student, North SS, Ultranet artefact.
196 FPS collaborative learning space, North SS, Ultranet artefact.
197 FPS collaborative learning space, North SS, Ultranet artefact.
that parts of the Internet were inaccessible to them during the school day and were confused about why this was the case. Such debates endure, driven by constant innovation in the education technology sector that results in greater uses of technologies in classrooms and in turn challenges the ability of DEECD and schools to control access or use of such technologies. On the other hand, a UNESCO Working Paper Series on Mobile Learning highlights the inherent problem with adopting a “banning” culture: “Banning mobile phones in education has not stopped children from using them; instead sweeping prohibitions drive a wedge between formal education and the realities of life outside of school” (West, 2012, p. 8). The Ultranet was constructed within these contexts. If DEECD continues to promote educational technologies designed to encourage student self-mastery and autonomy, whilst supporting objectives based more around authority and control, then we cannot expect students to use them other than through obligation, imitation or force. This idea raises key philosophical and moral questions about how young people’s participation was formed through their Ultranet uses and what the purpose of online social interaction in designated curriculum programs should be.

Finally, in this section I discussed how FPS students at North SS used the Ultranet, often disinterestedly, for some of their learning tasks. In creating an online collaborative learning space for FPS students to share information and communicate about their project, North SS teachers chose certain Ultranet web 2.0 technologies to promote their teaching and learning aims. The Ultranet was constructed by teachers, leaders and those students who took on institutional roles as space “owners”. Students used the Ultranet in addition to their existing and favoured modes of communication to interact with other students in their project and their teachers, but used web 2.0 technologies to create and share documents (publication display and video-sharing) and express themselves (blogs) in very limited ways. One reason for this may have been that, although students co-planned and successfully completed their learning tasks, the original curriculum focus and choice of technologies were decided on by teachers, the Ultranet coach and school leaders. This hierarchical design continued to influence the project’s direction, even though students had some input into the revised project and shaped it at the local level. Students developed their knowledge and uses of Ultranet web 2.0 technologies within existing authority structures and boundaries that, as first-year secondary school students, they were only just coming to know. The extent to which these students participated in decision-making suggests they were passive, rather than active, citizens. As Buckingham (2008a); Facer (2011) and others have observed, the significant

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198 Fieldnotes: North SS, Stage One 2012.
democratic possibilities for media or communication technologies in learning require a fuller analytical understanding of their purposes in education. FPS program planners assumed that, if students participated—acted in socially meaningful ways, such as inquiring into issues and presenting opinions and arguments in their local community—then they would become drivers of new media changes in that community. In a similar way, DEECD was promoting citizen learners, responsible for producing their own learning content and sharing it with their peers, teachers and parents. Despite its signature web 2.0 capabilities and collaborative potential, the Ultranet was designed by teachers to be used in a limited way in the FPS project to support and scaffold student learning, but its main participation limitations were shaped by institutional and software concerns.

7.4: FRAMING THEORIES

The Social Construction of Technology (SCOT) perspective

The notion that everyone is a designer is a key idea in SCOT, with social groups coming together to influence the design process. By adopting this definition, we can challenge a technologically determinist notion that users’ behaviours and contexts have no impact on their technology adoption. In fact, my study documents numerous examples in which students were given individual or collective responsibility to make technological choices and decisions, albeit to varying degrees and whilst structured in groups defined by age, grades or teachers. They were required to produce and distribute “quality” content for their peers and teachers, become competent in their use of generic online student Ultranet materials that included visuals but catered minimally for different ages or reading abilities, teach Ultranet skills to their peers, teachers and parents, and spend their learning time searching for, and evaluating, curriculum resources that traditionally their teacher would have sourced for them. Thus, students’ involvement as designers was necessary to the Ultranet’s development and success.

SCOT’s notion of interpretative flexibility can be used to characterise how students constructed the Ultranet. As political and social actors, students held many similar interests, beliefs and worldviews, all helping to shape the interpretive process. This is not to say that all students shared the same sets of values or that students’ Ultranet uses were the same. Indeed, the three schools referred to in this chapter had different values around technology and culture, reinforced and legitimised by written student codes of conduct, AUAs and
celebrations. Further, the URG and FPS were constructed within school values that promoted technology as a major focus, imbued in the curriculum.

The SCOT view that sees technology as successfully adopted only where there is a fit between it and the beliefs, values and interests of the social group is challenged somewhat by the empirical data that also highlights the Ultranet’s technical limitations and secure but complex online learning interface. Students made sense of their social relations through material objects—in this case, the Ultranet software, usernames and passwords and onscreen data representations—and learned through their relationship to a screen representation of their work. This supports recent research of anthropologist Haidy Geismar on the cultural impacts of digital media on participation in public institutions (Geismar, 2012). Students often had difficulty comprehending what they saw on the screen. They struggled to complete their assessment tasks through it, lacked skill in and knowledge about its use, and had minimal interest in fitting it into their existing technology practices at school or at home.

Following SCOT, I analyse the Ultranet as a dimension of the students’ environment and as a support to their learning goals, rather than as an object abstracted from its context. What students constructed emerged from the activities in which they participated and the decisions they came to through their learning. Social factors, including how their peers and other social groups, especially teachers, used it, and what they said about it, influenced students’ interpretations of the Ultranet. It engaged them for longer periods of time and alleviated their negative interpretation of the Ultranet as work when they used it for social interaction. For example, being part of a select group with similar interests, and when the responsibility to design “something special” was reinforced by their teachers, and when selecting commercial media backgrounds to “bling” their spaces, upload images of friends, or access games. But, even when they were using it for social and communication purposes, there was a risk that their Ultranet uses would clash with DEECD policy or school AUAs.

Looking back on the Ultranet project, it is easy to conclude that the Ultranet technology failed because of financial and political constraints (as outlined in Chapter 4), or because Lead Users implemented it hierarchically to follow their own interests (as described in Chapter 5). Certainly, these factors shaped Ultranet participation during its development by central DEECD officials and throughout the time of its implementation into school communities. Nonetheless, the data I obtained through participant observation allowed me to identify how students’ actions in choosing not to use it— their negative exercise of agency— contributed to the Ultranet’s failure. Other than when they worked on it to complete specific and required tasks
CHAPTER 7: Students’ Ultranet Participation

during class, their Ultranet use was limited, sometimes because of the material characteristics of the software itself. Overall, students constructed the Ultranet as an overly complex and uninteresting “work only” technology that held little interest for them and did not meet their personal, social or educational purposes.

This SCOT analysis adds another perspective to debates about current students as “the digital generation”, showing them to have diverse technology skills and interests, with primary students in particular consuming increasing amounts of commercial media to construct Ultranet spaces. Clearly, the Ultranet “failed” because students did not adopt it into their technological, communicative, social or educational practices.

The Pateman Participatory Theory of Democracy (PTD) perspective

The empirical data was analysed using Pateman’s forms of organisational participation: Full, Partial and Pseudo. Even though authority structures may appear less formal in classrooms and homes that support child-centred principles than in other organisations, Pateman emphasises that individuals and authority structures must work together locally in order to create a participatory society (Pateman, 1970, 2012). If authority structures are shaped by institutional concerns rather than providing greater transparency and control for users, then this affects how students develop as active citizens.

At the state level, the major group with significant authority over students was DEECD. This included central and regional DEECD officials who made decisions to invest public education capital into a learning platform with a social dimension and educational purpose. There were also primary and secondary students and teachers across the whole state of Victoria, all of whom could register and log into the Ultranet and therefore influence students.

At the local level, seen by Pateman as critical to the democratic forming process, the relational authority structures in which students participated in their uses of the Ultranet were their friends, other students in their class and school, their class teachers, other teachers, school leaders, and their parents. The peer-to-peer structures, the collaborative nature of students’ learning tasks and the collective responsibility that URG and FPS students were charged with by their teachers and school leaders warrant extension of Pateman’s depiction of a workplace authority structure to children. In a 21st-century participatory society, students are framed as engaging in practices that distribute knowledge away from a single authority, instead including
multiple and different viewpoints and opening up new learning spaces for their and their
peers’ learning, as outlined in this chapter’s introduction.

Hierarchical structures shaping students’ Ultranet interpretations included the curriculum, the
social organisation of their learning—how they were grouped and the timetable they
followed—and DEECD and school rules, such as AUAs, Ultranet ToS and password
management. Also important were the different permutations of software and infrastructure
that DEECD, each school and their families used.

In their promotion of the Ultranet, DEECD claimed that students would have increased
participation opportunities in, and for, their learning and would be able to make more
decisions that had positive consequences for their citizenship. We can understand from PTD
that students aged between 8 and 14 were engaged in forms of partial participation through
their Ultranet use. At both West PS and North SS, students had input into decisions as
individuals and in their curriculum groups about how the Ultranet could be used for different
audiences. At West PS, URG students designed their Ultranet space to reflect their learning
centre group identity, but the final decision about how it looked to other users outside of their
group was the responsibility of their teacher, Sarah, who also closely moderated it. She
organised, planned and supervised their work and time and had expectations about what she
wanted them to learn and how she wanted them to learn it. At North SS, where Ultranet use
was part of a structured curriculum program designed by school leaders, students also partially
participated in Ultranet construction. They could make individual decisions about how to
complete their learning tasks and how to plan and run successful fundraising events with
peers, but their uses of the Ultranet were largely structural, with school leaders, the Ultranet
Coach and teachers making the final decisions.

As outlined in Section 6.2, teachers at East PS saw Ultranet use as a lower priority than
teaching “the” curriculum and felt they had neither the skills nor time to successfully use it
with students. When it was used, it was a teacher decision, with only partial participation by
students in co-constructing the task or activity. Students could access learning resources
through the Ultranet’s one-stop shop digital library, but the opportunity to self-organise or
choose their own materials was bound by hierarchic and in some cases commercial structures.
Initially, some students used their peer networks, knowledge and experiences of other
media—email or games—to assert their independence. Games were banned, however, and
their use resulted in students engaging in unapproved activities or being seen as disruptive in
class. In general, at each school, what teachers asked their students to do, together with the nature of the task, were the strongest influences on their Ultranet participation.

A limitation evident in Pateman’s schema is that the content of the interactions between individuals in authority structures is under-analysed. My participant observation data suggests that many students did not have the digital literacy required to use the Ultranet effectively or evaluate the commercial materials they found in the time they had available. Digital natives or not, students too needed more training. I have illustrated this through examples in which students struggled to: use the Ultranet search engine and language filter; publish profiles; design and set up Ultranet resource libraries; and search and find documents they had themselves created. With restricted competence, participation is necessarily restricted too.

In the ideal democratic Ultranet scenario, teachers, students and their parents would be in a dynamic relationship, with all sides co-operating, participating, and interacting in practical ways. Students would be gaining a sense of independence by developing skills that would enable them to use the Ultranet competently to enhance learning. Parents would be participating more in their children’s learning through knowledge gained about them on the Ultranet. At the same time, teachers would be learning more about what each child (and parent) could and could not do, helping to develop their knowledge and skills as teachers. In this case, these three discrete groups would be building a participatory society at the local level. The Pateman lens helps us see that students in my research were not part of such an ideal participatory process. They did not develop or use the Ultranet in ways that enabled them to significantly expand their capacities and skills. Central DEECD officials set Ultranet rules and expectations and designed the software with technical controls to closely monitor student behaviour whilst they were online, thus heavily shaping students’ Ultranet experiences.

Conclusions

I have shown in this chapter how students in all three schools faced complexities in configuring the Ultranet into their learning. In some cases, students were labelled digital natives, seen to possess the technical and cognitive skills and abilities to effortlessly participate in technology-enhanced environments (Prensky, 2001a). In practice, they had to negotiate a fine line between using the Ultranet to achieve some individual and group goals at the same time as following authority structures shrouded in legal restrictions, technical language and commercial values. In Section 7.1, I described how West PS students used the Ultranet in a
URG curriculum activity to co-develop content so as to communicate more widely with their peers and teachers within their learning centre. Students were developing their technical skills by producing documents, images and writing for other students in their social group, but were subject to DEECD institutional structures that shaped their Ultranet participation and interactions with their peers and teachers. The Ultranet was designed to provide an alternative for children but within a tightly prescriptive online environment. Although developed from a 21st-century Australian child-centred dialogue, participating in Ultranet spaces embroiled children deeper within an institutional-commercial algorithmic-based world.

In Section 7.2, I outlined a range of information and communicative practices that East PS students undertook to develop their Ultranet literacy skills, including searching, evaluating and storing information and resources. Students found unstructured curriculum activities on the Ultranet difficult; they often did not understand the software or language and struggled to find appropriate content to meet their learning task goals. I then discussed the context in which students learnt to use the Ultranet technology and gave four examples of the content that they created, transmitted and reused in participating with peer networks. I highlighted that commercial influences in learning were evident through student production of Ultranet content.

In Section 7.3, I showed how the Ultranet was used in partnership with other teaching strategies, including small group work, visitor talks and fundraising activities in a North SS FPS program designed by the Assistant Principal, leading teachers and Ultranet coach. Their original plan was for students to participate in a national school program and improve their capacity to identify and develop imaginative solutions to global problems. On viewing students’ lack of engagement in this work, the teachers’ changed to a more local project, but still focused on a real-world public problem. This curriculum program met with limited success. On the one hand, uses of the Ultranet enabled different and novel ways for some FPS students to work together. On the other hand, their Ultranet uses were constructed within a project shaped by the school’s existing culture, policies and technologies. In particular, students found the access and permission levels set for web 2.0 communication technologies to be problematic, challenging a view of education system technology designers that saw web 2.0 as easy to use in all contexts. The efficacy of web 2.0 in increasing their communication and creativity, however, depended on a range of diverse social, educational and cultural factors that were institutionally shaped.
Finally, in the theory Section in 7.4, in which I applied the SCOT analytic concepts to my data, I demonstrated that students interpreted the Ultranet in diverse ways, with their decisions shaping Ultranet participation. They were influenced by interactions with peers, teachers, school leaders, parents and (indirectly) DEECD officials. Students in all three schools partially participated in decision-making about its use because the authority structures they were part of did not make full democratic participation possible.

Schools are institutionalised to the point where children are following someone else’s rulebook, be it curriculum, behaviour or school values. Of course, within child-adult negotiations, school is still school and children face explicit consequences for breaching particular rules. The same applies at home, where someone else, a responsible adult, is making decisions on their behalf to varying degrees. With the Internet, but not the Ultranet, pervasive in homes, the dimension of parent participation in schools was changing. Parents wanted to play a more important role in their children’s education through technology and in a participatory society. The role parents played in the Ultranet implementation in Victoria is discussed in the next chapter.
CHAPTER 8: PARENTS’ ULTRANET PARTICIPATION

Building strategic connections and partnerships to improve education was a major thrust in the Victorian Government’s Blueprints, with the creation of holistic “Learning Communities” a key priority (DE&T, 2003; DEECD, 2008). The Ultranet was designed to provide parents with a new perspective on their children’s education and a continuum of services that would enable them to develop better partnerships with teachers, schools and other parents. Through it, DEECD set up the capacity for over a million parents across Victoria to communicate and network and participate in a closed, secure but transparent communication system. By investing in such a specialised technology, DEECD claimed to be meeting a social and educational demand to improve parent participation through adoption of new media technologies.

Parents were the largest eligible Ultranet participation group, with membership of a school Ultranet community restricted to those parents, guardians or carers who had a right to be at that school. Parents were a difficult group for principals, the key decision-makers in Ultranet implementation, to reach. For example, most of the 38 parents in this study were in paid employment across a range of different professions with varying work patterns. This affected their relationship with their local schools, limiting the time they had available to visit or work as volunteers.

During 2010, central DEECD officials circulated an extensive range of online and print-based information promoting how the Ultranet would broaden communication links and streamline information between local schools and their parent communities. A dedicated “Parent” page on DEECD’s Ultranet site assured them that their children’s privacy was protected and that the Ultranet was a safe space, moderated by teachers (DEECD, 2013b). Parents could also access two Ultranet parent manuals that were (problematically) available to view or download only through the Ultranet (DEECD, 2010m, 2011g). Principals were responsible for reproducing, advertising and explaining online content and for distributing printed DEECD Ultranet information that had been written specifically for parent audiences. Schools in my study did this through their websites, school newsletters and by Lead Users initiating opportunities for interpersonal parent interaction. DEECD also expected schools to offer Ultranet training opportunities and thus provide parents with an opportunity to shape the Ultranet development in their school (DEECD, 2011g). Before they could actually use the Ultranet, schools had to send parents a computer-generated welcome letter containing unique key codes inviting each parent to register online and allocate their children to their individual
“Household” (DEECD, 2011g). Thus, the Ultranet reflected and reinforced within its operations the safety, confidentiality, security and privacy arrangements that already existed in DEECD.

Each of the four schools in my research had different cultures, leadership priorities and Ultranet implementation strategies that impacted on the principals’ decision about whether or not to use the Ultranet for parents. West Primary School (PS) and South Primary School (PS) had a strong emphasis on early parent involvement, while East Primary School (PS) and North Secondary School (SS) elected not to engage parents directly. For this reason, results from North SS and East PS are not explicitly referred to in this chapter, but their data have implicitly informed its argument and the overall project results.

Although West PS already had in place highly successful parent communication, access and volunteer training processes, as judged by parent surveys, school leaders planned to use the Ultranet to communicate even more comprehensively with them. Specifically, school leaders sought to improve print-based communications by streamlining all parent content, including any letters and permission forms, on the Ultranet. They believed this would make information easier to manage for the school and simultaneously meet parent expectations. Initially, in mid-2010, the Ultranet was promoted to parents through the school newsletter. This was followed up early in 2011 by sending Ultranet welcome letters to all parents with an offer to provide training and support if requested. Neither of these processes effectively engaged the parent community. The school’s Regional Network Ultranet Coach (RNUC), Anthony, advised the Assistant Principal, Anita, and other Lead Users to wait and reintroduce the Ultranet at the start of the 2013 school year. Parents were informally notified of this decision by their children’s classroom teachers, and some looked forward to the Ultranet’s relaunch.

South PS’s Ultranet goal was to create an online space that would provide more information to parents about their children’s learning, with Lead Users designing a process to introduce the Ultranet to parents that closely mirrored DEECD’s recommended parent communication strategy. Believing that parent, teacher and student involvement should all be encouraged, Lead User Emily developed the My Organisation community space at the start of Term 4, 2010 (discussed in more detail in Section 8.2). Lead Users also trialled the time-consuming parent registration process with school council parent members. Following this trial and an internal

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200 Anita, Assistant Principal, West PS, interview, May 8, 2012; Anthony, Regional Network Ultranet Coach (RNUC), interview, December 8, 2011.
201 Natalie, parent, West PS, parent focus group, October 18, 2012; Stefana, parent, West PS, interview, October 19, 2012.
review, the school then sent home with each child an Ultranet welcome letter inviting all parents to use the Ultranet.

My overall aim in this chapter is to explore parents’ experiences and responses as the Ultranet evolved in their school communities. It is the last of the empirical findings chapters, bringing to a close the comparison and critical assessment of the impact of the Ultranet on distinct groups in the education system. The chapter is in three parts. First, I outline how parents’ expectations, attitudes and values impacted their co-design of the Ultranet technology. Second, I analyse parent Ultranet experiences and argue that a range of issues, some within their control and others not, prevented them from successfully integrating the Ultranet into their, and their children’s, everyday lives. Third, I consider the empirical data through the Social Construction of Technology (SCOT) theory and Participatory Theory of Democracy (PTD) frameworks to explore in more depth the social and cultural values that shaped parents’ construction of the Ultranet and the types of participation open to them through it.

8.1: PARENTS’ ACCESS TO THEIR CHILDREN’S INFORMATION THROUGH THE ULTRANET

This section examines how parent’s goals and social relations with each other and school staff were affected by their involvement with the Ultranet. While parents had ideas about how they wanted to participate more in their children’s education through the Ultranet, I show that their opportunities to do so were limited by their own cultural expectations, the Ultranet’s design, and the failure of school leaders to include them in decision-making practices at the school level.

Parents in focus groups and interviews spoke of the high value they placed on being able to exercise some control over confidential online information. Online distribution of general school information was considered appropriate by some parents, but all wanted specific information about their children to be shared only with them. An Ultranet Privacy Impact Assessment anticipated this concern and recommended that DEECD make explicit “who can see what data in the Ultranet” (Salinger Privacy, 2010, p. 4), a recommendation subsequently adopted and clearly enunciated in the Parent Ultranet User Guide (DEECD, 2011g).

Even though student Ultranet information was protected under DEECD legal and accountability guidelines in keeping with parents’ expectations, their fears about confidentiality remained. West PS parents, Fathima and Sandra, saw positives in using the Ultranet to connect parents,
teachers, students and administrators in new ways but were concerned about ethical issues. They saw that its use might increase the risk of their children’s school records no longer being confidential. They were unsure about how Ultranet access worked and worried that other students might be able to see their children’s assessments and reports. Ultranet users had to follow strict guidelines in accessing any data, with built-in permission levels to ensure privacy and confidentiality. Despite these mechanisms, this social group of parents still interpreted the Ultranet as a risk to them and their children and preferred to participate in schools in ways that were familiar and they felt they could trust. This supports similar findings that show how parents reject policy ideals that do not align with their privacy concerns and attitudes to technology (Facer et al., 2001a, 2001b; Stevenson, 2011).

The security precautions DEECD put in place through the new, self-service Identity and Access Management (IDAM) system sometimes conflicted with family attitudes. West PS parent Jake, a stated non-computer user, was surprised to learn from his wife, Ashlee, that students were responsible for their own Ultranet passwords. He saw no need for his 11-year-old son, Adam, to have access to any computer passwords before he turned 18. He was also concerned to find out that, although teachers could keep a record of student Ultranet usernames for practical purposes, they were not allowed to know students’ Ultranet passwords. West PS parent, Wendy, took a slightly different approach. She liked the idea that her son, Lee, was responsible for his Ultranet password but still wanted to know it to oversee his computer access at home. Managing their own secure learning spaces was intended to be the “new reality” for 21st-century students, but both Jake and Wendy were critical of the IDAM password policy that seemed to them to ignore the responsibilities of teachers and parents in relation to the children in their care. If parents had been given the opportunity to be involved in the design of the IDAM password policy, they may have helped create a technology they and their children would use. As Herring (2008); Livingstone (2009) and Schofield Clark (2013) have observed, children’s ICT participation is contingent on parental ICT attitudes.

Parents and Lead Users at South PS had different values about online communication and how it should be managed. By 2011 Lead Users had made all parent information exclusively available through the Ultranet but few parents were accessing it. In an attempt to encourage wider information channels for parents, Paige, a school council parent representative, suggested to council that all information promoting the school’s learning goals should also be

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202 Parents, West PS, parent focus group, November 28, 2012.
203 Fieldnotes: West PS, Stage Two, home visit, October 18, 2012.
204 Parents, West PS, parent focus group, October 29, 2012.
published on the school’s website. Emily, a Lead User and staff school council representative, made it clear to Paige that this would not happen. Emily explained that reproducing all the information already available to parents through the Ultranet on the school website would require teachers to re-edit documents to ensure no children’s surnames or other private data was made public. From a Lead User point of view, the Ultranet was preferable to the website because it was a private space, providing confidential content to only those with permission. Therefore, as Grant (2009) and Selwyn et al. (2011) have similarly observed, the school’s needs were prioritised and the status quo prevailed for parents.

The school’s intention to support the Ultranet as its main communication method to parents was planned and decided through legitimate school processes, but this frustrated parents like Paige who wanted to access information more easily through the webpage. This situation was at an impasse; although over 500 individual South PS parents were given registration details to access the Ultranet, very few were using it as their main source of accessing information. Only two parents in my study had continued to use it following the initial set-up. One reason given for this was that the Ultranet was being used only minimally by teachers to communicate with parents about their children. As discussed in Chapter 5, after much discontent, parents were offered a choice by the Principal, Ronald, in how they wanted to receive the newsletter. Parents had no input into the original decision to publish school and student information via the Ultranet, a decision seemingly tied more to workload, legal, policy and privacy considerations, than to meeting parents’ needs. Parent unhappiness with the communication decision taken by school leaders clearly shaped their interpretation and uses of the Ultranet; instead of increasing parent participation, it had the opposite effect.

Expectations that the Ultranet would change the existing ways schools reported on student achievement concerned parents. For example, Madelyn liked the idea of the Ultranet for its convenience, detailed record-keeping and the promise that she could log into her child’s classroom regularly. She hoped that the Ultranet would be used to provide regular, online short-term student reports to support the more formal, six-monthly hardcopy reports. She felt fortunate because her son’s teacher, Tiffany, a Lead User, was trialling the Ultranet and using it to provide additional feedback to her about his learning progress. Each time he was tested, a

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205 Paige and Umar, parents, South PS, paired interview, September 12, 2012.
206 Lead Users, South PS, teacher Ultranet meeting, August 15, 2012.
new record was added to his Ultranet history.\textsuperscript{207} At the same time, she felt concerned about what these new practices might mean for her participation in her son’s learning. Even within the context of more information being made available, she thought that moving to a more immediate form of school communication through the Ultranet would be a “loss” if it led to a lack of interpersonal communication. She felt she “should not have to go on the Internet to see [her] child’s report.” Her preference was for the teacher to interact with her and her child in an “old-fashioned way” and “give the report in an envelope to the child to give to mum and say, ‘This is my report.’” Madelyn saw the Ultranet mainly as a database, explaining, “It is not my main information on how [my child] is going [...] child first, and then teacher. Ultranet database is only ‘things’, clues, key points. [Need to] listen, see what the child is doing.”\textsuperscript{208}

Having used the Ultranet to find new and detailed information on her son’s learning, Madelyn shows that she had already incorporated it into her personal meaning system. She wanted to keep what she saw as “authentic” reporting documents and interpersonal communication processes as well as having up-to-date information on her son through the Ultranet.

Parents I interviewed felt they had few opportunities to forge links with one another.\textsuperscript{209} This was in part because of their own changing communication habits and work commitments, but also because of privacy regulations and the practice of children moving up through the grades, requiring them to develop new networks each year. South PS parent Chris wanted to connect with other families, and initially saw the Ultranet as a solution to this communication need. He believed that opportunities to meet other families face-to-face reduced as children grew up. He had recently moved to using networked technologies more in his communication habits and was aware of other families doing likewise. Chris wanted to access parent telephone numbers in order to set up face-to-face “play” events and neighbourhood visits for his younger children. He felt that the Ultranet could be “a good place for us to be able to find out what your [parent] contacts are because [Sally, his daughter] wants to come over for a play or vice versa.” He had seen a contact-detail-sharing system operate successfully at his children’s previous primary school. Victorian State privacy legislation, however, did not allow schools to share parents’ private information (DEECD, 2011d).

With over 10 years of experience as a parent with children in the public system, Chris saw this as over-regulation and something that limited parents’ communication and participation.

\textsuperscript{207} Tiffany, Lead User, South PS, interview, October 2, 2012; Madelyn, parent, South PS, interview, September 7, 2012.

\textsuperscript{208} Madelyn, parent, South PS, interview, September 7, 2012.

\textsuperscript{209} Parents, South PS, parent focus group, August 27, 2012.
Realising that he could not use the Ultranet to exchange parent details, he circumnavigated the privacy issue by writing a letter to all parents in his children’s grades asking if they would like to share their contact details with one another. He explained, “We print out a request to other parents, ‘Would you mind going on a class list? Please fill out the details,’ and generally 99% of people fill it out.”210 He asked his children’s class teachers to hand out the request forms and later collect those returned, which he then collated to produce a single document. Copies of this document were then distributed to parents, again through the class teacher, who gave one to each child to take home. Chris wanted parents to know each other’s home contact details, information he found difficult and time-consuming to access via his own children or from public records, such as phone books. It was not his intention to make this information more widely available, nor did he see a need for other parents in other grades to see it. He did not see sharing such information as a privacy risk, arguing that the individual had the right to waive privacy rights and needed to judge the validity of any requests themselves.211

By putting your contact details there, you will be giving access to everyone in Sally’s class to your details. It’s not breaking the privacy act because I am authorising everyone to see in Sally’s class our contact details [...] I think the whole thing with all of this is work on the KISS principle—keep it simple stupid—and the more spider webs you send out, the less people are going to use it [the Ultranet].212

This example shows how Chris worked around DEECD and Ultranet restrictions to build an informal, peer-to-peer network with those parents he needed to associate with for that year, a network that would presumably grow over time if his family continued as members of that school community. Chris was strategic in the information he wanted to access. If there was an issue to which parents needed to respond quickly, having access to one another’s contact details made it easier to do so. The request for parent contact details early in the school year had a high return rate, suggesting that families saw value in such a network. Also, because the request for information was via the class teacher, it was seen as credible in the community. Even though he understood it was “illegal” for the school to share certain types of information with him, Chris found a legitimate way to do so that the school could support. The Ultranet was of no use to him because it remained subject to strict legal requirements and privacy laws.

210 Chris, parent, South PS, parent focus group, September 11, 2012.
211 Chris, parent, South PS, interview, November 14, 2012.
212 Chris, parent, South PS, parent focus group, August 27, 2012.
This inability to use technology as a solution to meet his needs negatively shaped his interpretation of it.

Chris had also hoped that, through the Ultranet, his own time-consuming ad hoc methods of managing information at home would be simplified. He had already linked his family’s personal details as one household on government web portals, and could automate ehealth and egov services, such as Medicare and Centrelink. Chris’s preference was to receive and manage all communications in the same way through the Ultranet. Moreover, he wanted to co-ordinate his family’s activities by synchronising the school’s website calendar with his family’s multiple mobile and fixed devices, saving time and giving immediate access to the latest information from “anywhere”. He had a very clear idea of how to manage such information and how to streamline and distribute it to his home network. He acknowledged not all parents would have his skills or technology resources, but he reasoned most parents would like to do the same.213

Chris was highly committed to fitting technology into his everyday life, but the Ultranet was not the solution he had hoped for to help him communicate with other parents or within his own family.

South PS parent Mikayla participated in every type of home school communication so as to support her son’s learning. She received the school newsletter by email, had access to the Ultranet parent portal and she, or her husband, visited the school every day on at least two occasions. She regularly spoke informally with other parents and the classroom teacher. Generally, these methods worked well for her family so she felt no need to access the dedicated Parents and Friends’ Association (PFA) Facebook page, citing a lack of time given her involvement with other forms of school communication, saying, “If Facebook was the only means of communication and the expectation, I would have to log into Facebook.” Mikayla already devoted “10–15 minutes a day” to read school information but felt that, as someone who did not want to use the Internet at home frequently, having to use the Ultranet was an imposition: “I will look at paper and do it, may not go onto Internet as I only use it for work.”214

Her existing social structures and expectations, drawn from personal and work experiences, shaped how Mikayla viewed communication with the school and the minimal role she felt the Ultranet should play in her family. Using the Ultranet to communicate between school and home was not an option she saw as beneficial to her participation needs at that time.

213 Chris, parent, South PS, interview, November 14, 2012.
214 Mikayla, parent, South PS, interview, September 12, 2012.
We have seen that parents’ ethical, legal and cultural values, together with their interests and beliefs, helped shape how the Ultranet was constructed at South and West PSs. A complex series of requirements, including the law, had shaped central DEECD officials’ actions in developing the Ultranet. These made it impossible for Chris to have his Ultranet expectations met as it was not designed for the goals he wanted to pursue. Similarly, parents’ lack of understanding, or devaluing of the privacy and policy environments underpinning the Ultranet design, led them to incorrect assumptions about how, and with whom, information could be shared. DEECD operated within ethical and legal requirements to keep children safe and information confidential. We can see, however, that communication was a contested notion for parents and Lead Users, with disagreements over how and where information should be displayed to enable parents to better participate in the school. Also shaping parents’ views on the Ultranet were students’ self-management of Ultranet passwords and changes from print to web-based school reporting structures.

This section has illustrated the wide-ranging views and beliefs parents had around the Ultranet. I also examined some of the tensions and difficulties evident between parents—a group over which DEECD had no explicit authority—and institutions in the implementation of a new participatory technology. These findings add to extant critical research on the impacts of state regulation on learning activities in homes (Facer, 2011; Facer et al., 2001a; Livingstone, 2009; Stevenson, 2011). In the next section I examine parents’ Ultranet participation in more detail.

8.2: BUILDING WIDER RELATIONSHIPS THROUGH THE ULTRANET

Changes to information access, service demand and social media practices were broad factors reshaping domestic/home and work environments in varied ways in different countries at the time of this study (Broadbent, 2012; Grant, 2009). In particular, schools were transitioning from paper-based to digital forms of communication in the belief that this would better meet the needs of their communities. This section looks at the ways in which parents could participate in their children’s education through the Ultranet. I analyse parents’ desire to supplement existing communication processes, and provide examples of how they wanted to use the Ultranet to access and action information about their children’s learning.
Making stronger connections

Sabrina, a parent at West PS, thought that using the Ultranet would “lift the bar” in how state schools communicated with parents. She was very familiar with the school’s communication processes and received a weekly bulletin, a fortnightly newsletter and a term calendar of key dates. In relation to her child, she received biennial written reports and met her child’s teacher at the start of the school year and at the end of each semester, in student-parent-teacher conferences. In addition to obtaining information through the official channels, as a daily visitor and regular classroom volunteer, she participated in structured reading skills programs and was able to build relationships and share information with teachers and the school leadership team. Sabrina believed these relationships, and her active participation in the school community, helped to maximise the potential for one of her children, who was dyslexic, to learn in the most effective way. While at school, she had to negotiate institutional boundaries and comply with classroom access restrictions but had more opportunities than most parents, to speak with her children’s teachers. With this background, Sabrina assumed that the invitation from the Principal to register for the Ultranet would lead to new and exciting opportunities for her to communicate with, and participate in, the school.215

Sabrina saw the Ultranet as a resource to enable her son, Lucas, to participate in a “learning environment of the future” (DEECD, 2011g, p. 5). Lucas’s doctor had recommended the adoption of a daily home-study program involving computer-based learning software. Sabrina wanted Lucas to be able to access specific written and visual exercises, delivered in an ordered linear format and provided through a safe environment, something she believed the Ultranet could provide. She also imagined Lucas joining a dyslexic support group, hosted on the Ultranet and moderated by a teacher from a different school within Victoria with whom he could communicate through email.216 Moreover, Sabrina’s views matched DEECD’s brochure rhetoric of the Ultranet as a technology that would contribute to building and sharing knowledge and skills beyond the boundaries of a school’s local geographic community and “enable students to become confident, creative, active and informed citizens of the 21st century” (DEECD, 2010d, p. 11). Hence Sabrina’s and DEECD interests converged around the possibility of using networked communities from homes as valuable learning opportunities for children.

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216 Sabrina, parent, West PS, parent focus group, October 18, 2012.
CHAPTER 8: Parents’ Ultranet Participation

Even though Sabrina discursively outlined Ultranet strategies that she hoped might support Lucas in his learning, she had several concerns. She felt that DEECD’s Ultranet claims were likely to be exaggerated and knew that the school had not committed to using the Ultranet in the ways she described. She also found the Ultranet very awkward to use, despite having a high degree of proficiency with computers at home and work.217 Sabrina believed herself to be an “expert” on what parents should do with technology to help their children. With her volunteer status, she had some influence with other parents and expressed to them her negative views on the Ultranet software.218 Sharing these Ultranet disappointments with school leaders may have encouraged them to review their Ultranet strategies. In not sharing them, the school’s dominant interests in keeping the established print, electronic and interpersonal communication methods were reinforced (Facer et al., 2001a; Selwyn et al., 2011). No transformation occurred in the way information was shared between Sabrina and Lucas’s teachers. Although the Ultranet had the potential to provide parents with personalised reports to support their children’s learning and change the way the school used technology to add to the well-accepted, existing parent communication processes, using it in these ways was not the priority of leaders, and thus of teachers, at West PS.

Despite her Ultranet-related concerns, Sabrina still supported the school. In many other ways, her and Lucas’s needs were being met. She felt part of the school community and, as long as she complied with parent access rules, was able to move freely around the grounds and parent areas and witness first-hand the school’s culture. She was happy with, and an advocate for, the technology-rich education provided by the school, stating that adults “can’t be afraid of the future” because “we have no idea yet of what these kids are capable of.”219 In retrospect this comment was ironic, as Lucas’s Ultranet use eventually breached her home network’s security. In our discussions, Sabrina had stressed that her network security was so strict that Lucas could not access Internet pages, even from within the Ultranet. The security protocols she had instigated at home, however, were compromised when Lucas accessed the Ultranet to participate in open collaborative spaces. Sabrina sent me a text message saying Lucas had “discovered that he can email and enter onto the group pages. The Ultranet bypassed my security system, so we had to have the cyber stranger danger talk.”220

217 Sabrina, parent, West PS, interview, May 18, 2012.
218 Sabrina, parent, West PS, interview, May 18, 2012.
219 Sabrina, parent, West PS, interview, May 18, 2012.
online risk. Sabrina had a positive attitude overall to education changes involving technology. Even so, the ways in which she wanted to access information through Ultranet teacher-modulated collaborative spaces to advantage her and her son were stymied for social and cultural reasons.

A commonly expressed hope among parents in South PS was that the Ultranet would make it easier for them to access other parents’ contact details. For instance, Adrianna (a parent representative of the school’s graduation committee) wanted to use the Ultranet to access the contact details of other parent committee members because she had been unable to do so through the school office due to confidentiality requirements. Adrianna—similar to Chris earlier in this chapter—argued that the decision to share personal details should be made at the individual, not government, level:

> The Education Department make the decision as to allow permissions on there but I think the contact page should have the availability of giving each of the following details and you either put in your phone number or a yes, no. ²²¹

Like several other parents in my study, Adrianna had expected that the Ultranet would support a form of open access communication, but this expectation conflicted with DEECD’s ethical requirements about privacy that shaped not just the Ultranet but its organisational, cultural and communication environment.

At the time of my study, principals had the final say in whether to provide teachers’ email addresses to parents. Three South PS parents thought that the Ultranet would provide a private email service and offer a welcome alternative way to contact their children’s teachers. As Lewin and Luckin (2010) note, successful outcomes have been achieved where schools try to meet parents’ complex communication needs but government-style technology interventions are designed to appeal to policymakers and educators as well as parents. In a paired interview, Rhiannon and Monica explained how they hoped this would work. Both were reluctant to ask teachers informally for help after school, preferring to use the school protocols and make an appointment:

> I don’t like going in there, even after school. Not to pester them, I’m sure they don’t think that, but I don’t like going in there every day about what’s going on. You know, their day is finished and they want to get home. They’ve got things to do, you know,

²²¹ Adrianna, parent, South PS, parent focus group, August 27, 2012.
but if you could shoot them an email and as you [Monica] say, they could perhaps answer it in their own time, when they’ve got time and you could communicate a lot better that way.  

Monica went further, saying, “If this [Ultranet] was more user friendly. I’m on [my child’s record]. I’ve got a problem. I need to speak to [teacher], bang, straight to his email. But it’s not helping a parent at all.” Similarly, Adrianna, a parent who worked full-time during school hours, felt that being able to communicate with her son’s teacher by email from a device, time and place of her choosing would be extremely useful. To highlight why, she summarised the complex negotiations she had to manage in order to access school information:

I have to go to the school and when I drop him off [say], “I’m sorry I’ve got to come in and talk to the teacher this morning.” I needed a reference letter from her, so I sent my husband in yesterday. She sent it home last night, but we had to go and ask. There’s no phoning, there’s no emailing, there’s nothing. You either send a letter with your child and you hopefully get a response or you go physically to talk to them, which is kind of good in that they’re trying to keep up face-to-face communication, which in today’s society doesn’t happen as much and they need to allow for that fact.

Adrianna’s positive experiences in using email at work led to her belief that a similar form of direct and personal communication could be used in the Ultranet. As was the case with most parents who had limited interest or knowledge of the Ultranet, it was difficult to pinpoint where communication broke down about what the Ultranet could, or could not, “do”. Adrianna had unmet needs and attributed blame for the Ultranet’s lack of flexibility to meet her requirements to the school, where many of her existing communication issues lay. Clearly, DEECD and school communication strategies, together with mixed messages about Ultranet performance, decreased parents’ Ultranet participation. The platform did not assist them to build online networks with teachers or other parents.

South PS’s Lead Users set up an Ultranet Community (My Organisation) space in the hope that it would build online relationships with parents and act as their main repository for school information. As shown in Chapter 5.1, however, parents had minimal opportunity to interact in this space; they were unable to exchange ideas with other parents online and were restricted

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222 Rhiannon, parent, South PS, paired interview, September 14, 2012.
223 Monica, parent, South PS, paired interview, September 14, 2012.
224 Adrianna, parent, South PS, interview, September 14, 2012.
225 Adrianna, parent, South PS, interview, September 14, 2012.
to read-only documents. Further, some parents regarded this space as confusing to navigate and uninteresting. The Community space could be accessed through a common interface, but did not support parents to develop networks in ways that built their social capacity. Two information technology-savvy parents in my study, Monica (a school councillor) and Chris, did take advantage of the Ultranet site, accessing it to download portable document format (PDF) files of the school newsletter as they liked to refer to earlier editions to check details of events. They were unable, however, to access web 2.0 options to add opinions or share their views with other parents or teachers, thus were denied more active participation. Lead Users managed to streamline institutional online content but this did not increase participation or open up new authorship possibilities for parents.

As we have seen so far, parents were keen to take advantage of technological and social applications of new technologies in their everyday lives, anticipating that the Ultranet would enable them to successfully pursue their interests. Their values and expectations around how the Ultranet could be used to support their children and improve their communication with teachers shaped their dissatisfaction with its actual uses. Some of these conflicts of interest were not, however, resolvable at a technical level.

*Seeking evidence of student learning “to keep on top of things”*

Parents’ assumptions about information and communication technologies (ICT) in general shaped their expectations and attitudes about the Ultranet. South PS parent Chris believed that the Ultranet’s adoption was being stymied by those who were resisting technological changes, not just in schools, but in broader society. He also identified two examples of what he saw as problems at the school end. The first related to accessing his daughter’s art work at home. He knew that the school had good technology and computer availability for students, and felt a simple solution would be for his daughter or a teacher to scan the work and forward it at the time she created it, rather than waiting for it to come home as hard copy. Further, he wanted her teacher to provide written feedback on the work and send the comments to him at the same time. He argued that such a streamlined method would be environmentally sound, save the school money and avoid reams of paper being brought home at the end of a year by which time any artwork would most likely be lost or damaged. The second example related to the Grade 6 Ultranet page. Chris said its information was out of date, not specific enough.

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226 Paige and Umar, parents, South PS, paired interview, September 12, 2012.
227 Parents, South PS, parent focus group, August 27, 2012.
228 Chris, parent, South PS, interview, November 14, 2012.
about his daughter, and that teachers were not using the page to share student work with families. Managing documents on the Ultranet, however, was a far more complex operation than Chris suggested. Users had to be skilled in naming, describing and retrieving content for reuse. Further, where such content was shared collaboratively between parents, children or teachers, copyright restrictions applied (DEECD, 2011g). Chris assumed that his daughter had rights about how her online artwork was managed on the Ultranet and that he had a right to view and re-publish what she had produced for his own uses. As illustrated in Chapter 6, however, copyright was an issue about which Ultranet users had to be constantly aware. Ownership and distribution of student content took on different meanings once published in collaborative spaces on the proprietary Ultranet.

Parents such as Emily at West PS were concerned that the school’s increasing uses of digital technology to create and distribute information would reduce or replace existing face-to-face teacher–parent communication interactions. She tried to make strategic use of school visits when dropping off and collecting her children, often gaining relevant and timely information about them from their teachers. One of the concerns she and other parents had was getting important information second-hand from her children or other parents, sometimes after the event. Emily felt that the more information exchange became the responsibility of the child, the less accountable teachers would be and the less knowledge and ability she would have to actively participate contemporaneously in her children’s learning. Once the Ultranet was used more extensively, she assumed that both the quality of information and her interactions with teachers would reduce and therefore saw little value in using it.

Parents had already witnessed an example of a school decision being taken ostensibly to enhance communication, but which actually resulted in the removal of an element of contact they considered valuable. They believed that a recent decision to introduce children into biennial, three-way parent-teacher-student conferences removed the privacy they required to confidentially discuss their children’s progress. Parents such as Emily wanted to keep the familiar qualitative, locally based forms of interpersonal communication. They believed the existing processes gave them greater flexibility to contact teachers, better control over information exchange and kept the communication responsibility with the adults. As Valentine (2008) notes in relation to the wider social impact of home–school links, parents did not trust that increased use of digital technology would automatically result in an improvement in their

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229 Emily, parent, West PS, parent focus group, October 29, 2012.
230 Parents, West PS, parent focus groups, October 29, 2012 and November 28, 2012.
participation. Overall, parents felt that the changing priorities in communication systems at West PS did not meet their needs with respect to supporting their children’s learning.

The Ultranet Parent Guide emphasised the ease with which parents would be able to access new types of data “in just a few clicks” and provide “a window into your child’s learning” (see Figure 3). Promoted in DEECD Ultranet resources, the Ultranet Learner Profile in Release 2 was an example of this professed new facility. It displayed content from multiple sources, collated in one centralised location, to provide “up-to-date information about each student” (DEECD, 2010f, p. 4). Indeed, the Ultranet Learner Profile dashboard (Figure 3) was intended to make it easier for parents to see a snapshot of their children’s learning achievement, attendance and timetable through contemporaneous numerical and graphical data (DEECD, 2011g). These objectives were mostly unrealised for parents in my study.

Figure 3. Integrating student learning data into one online space
Source: (DEECD, 2010m, p. 7).

The reality of interaction with the Ultranet dashboard was illustrated in a paired interview at home with South PS parents, Monica and Rhiannon. Monica, a School Council parent representative, had followed the school’s Ultranet implementation through School Council meetings and had received feedback from other parents on their Ultranet experiences. With two children at the school, she had elected to receive the newsletter through the Ultranet. She accessed it each week on the day it was released to read it during her lunch break at work.231

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231 Monica, parent, South PS, parent focus group, August 27, 2012.
Rhiannon had four children at the school. She was critical of the Ultranet, saying, “My experience with it probably wasn’t a positive one and I think it needs to be more user-friendly.” She felt it was “not needed at primary school age with enough computer time [already] at school and home.” During the paired interview, Monica offered to log into the Learner Profile dashboard to view the information on one of her children. As she clicked on the options available, the slow loading of Ultranet pages caused repeated short delays. Monica and Rhiannon commented on what they saw:

Monica: Attendances, timetable but [that’s] not even up there. Submissions, which is what the teachers aren’t using. So that’s their [student’s] projects and things like that that they’re meant to be doing. None of it is really useful. You can only see attendances, learning items. Detailed information on progress. What’s that?

Monica expanded the ‘Progress’ feature to navigate to another window.

Monica: This is all new on the Ultranet, I haven’t seen this.

Rhiannon: [reading from the screen] Student markbook, trend report and confirmation report.

Monica: [making selections] Nothing on that, I’ve never seen that before.

In fact, the “Progress” feature was not new. It was part of the original Ultranet’s design, but teachers were not inputting the assessment data that would then allow parents to view their children’s graphical reports through it. The term “mechanisms of mutual constraint” coined by Somekh (2004, p. 168) revealingly explains the data reported here: where those with the formal authority to introduce new technologies, such as policymakers and school principals, are stymied by micro-networks of teachers operating within highly bureaucratised structures and frustrated by ill-fitting, externally-designed principles that they fail to apply to their concrete teaching practices.

The DEECD expected that teachers would use the Ultranet to report more regularly to parents and provide formative feedback as each school term progressed. The value of providing such information to parents has been well documented (Clinton et al., 2007; Flanagin & Metzger, 2008; Hattie, 2012). Indeed, South PS’s Ultranet plan envisaged that internal processes would

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232 Rhiannon, parent, South PS, parent focus group, August 27, 2012.
233 Monica and Rhiannon, parents, South PS, paired interview, September 14, 2012.
be developed over time to allow parents more timely and ready access to student assessment. Most parents I interviewed for my research hoped they would receive meaningful information about their children’s learning through the Ultranet earlier than in the past, allowing them to respond sooner to any problems.\textsuperscript{234} Lewin and Luckin (2010); Passey (2013) and Selwyn et al. (2011) all observed the value of schools sharing timely student assessment information with parents, but the information that might have mobilised their participation and engaged them more in their children’s learning did not yet exist on the Ultranet for these parents. Some student achievement data was recorded and stored on school databases systems and in teacher’s private records but was not shared with parents through the technology. Although Monica and Rhiannon shared common interests, they remained outside of the communication loop with regard to digital information about their children’s learning. The Ultranet was designed to display it, but the school had not inputted the relevant data for them to retrieve through its self-service facility.

Monica and Rhiannon’s concerns were not unique to South PS, with East PS parent Karen also seeking more online information about her children’s progress. Although the school had not yet invited parents to register, she had witnessed the Ultranet’s introduction in 2010 while working as an integration aide in a large state secondary school and was keen to access feedback on her children’s learning through it:

\begin{quote}
They [East PS] need to give the parents more access and I think the teachers need to upload a lot more on it so that the parents can see what’s going on more. They need to upload each day’s lesson plan, or for the week, but they don’t have to comment to every student because I understand they are busy teachers. They’ve got meetings after meetings and it’s long hours and correcting work and everything like that, but just a little more feedback on a more regular basis.\textsuperscript{235}
\end{quote}

Parents were concerned about their children’s progress and what they could do to support them at school. They had understood that the role of the Ultranet was to enable “more detailed and timely” information, but had yet to see any positive outcome in this regard. With schools not focused on these aspects of Ultranet use, their experience and construction of the Ultranet was as a technology that did not enhance their ability to assist their children’s learning.

\begin{footnotesize}
\textsuperscript{234} Parents, South PS, parent focus group, August 27, 2012; parents, West PS, parent focus groups, October 18, 2012 and October 29, 2012.
\textsuperscript{235} Karen, parent, East PS, parent focus group, November 18, 2011.
\end{footnotesize}
As a newcomer to the state education system, West PS parent Stefana hoped that the Ultranet would increase the information she received about her child and support her role as a parent. She obtained a paper copy of her son’s timetable from his class teacher but said she would love to have it available on the school website or through the Ultranet as promoted in DEECD publicity materials (DEECD, 2011g). In particular, she wanted to see more details about his curriculum and see evidence of his development and coping mechanisms published regularly on the Ultranet. For example, she knew that her son was playing sport at a particular time on a set day, but was keen to know how he was progressing with a particular sport and, more importantly, what he needed to learn that she could help him with at home. After overcoming password and home operating system compatibility issues, Stefana eventually logged in but found that the Ultranet “didn’t really match [her] expectations. It’s just blank.” As a result, she was “not as keen” to use it and had “given up.” Stefana was proactive and wanted to take action to support her son’s specific learning needs “the sooner the better” so he could see how the seriously she took his education. She also wanted to be assured that teachers were prioritising lesson planning and not just “using that [Ultranet] and not teaching.” Stefana believed that, as more digital student data became available, the school should employ someone who could enter it regularly on the Ultranet and provide the sort of information she was looking for without increasing teachers’ workloads. Stefana also argued for the government to invest more money in the Ultranet so it could benefit children, stating, “It [Ultranet] is a nice thing to have but at the moment the infrastructure is not supporting it.”

Even though the Ultranet project was advertised in the Ultranet parent handbook as already costing over $60 million (DEECD, 2011g), Stefana believed more resources were necessary in order to make it effective.

As with all parents discussed in this section, Stefana expected the Ultranet to provide increased access to more relevant information about her children so that she could participate more effectively in their education. Even though DEECD and schools provided a range of mostly generic student information, parents I spoke with wanted much more specific, individualised and detailed information about their children. The richer student data that could have been captured through the Ultranet to build an accurate record of their children’s development over time may have enabled them to engage more productively with teachers as previous research on new technology and home–school relationships has demonstrated (Facer et al., 2001a; Grant, 2009; Selwyn et al., 2011; Stevenson, 2011). In most respects, what these

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236 Stefana, parent, West PS, interview, April 24, 2012.
237 Stefana, parent, West PS, interview, April 24, 2012.
parents wanted might have been eventually possible; instead, they were left feeling disempowered, believing that the Ultranet was poorly explained, had minimal information and was of negligible benefit. The Auditor-General’s report supports this finding. It was strongly critical of the Ultranet implementation, stating that parents were not appropriately trained or supported in its use (Victorian Auditor-General’s Office, 2012).

This section has examined how diverse interests, knowledge, expectations and personal goals shaped parents’ Ultranet interpretation and participation. In imagining a specialised online Ultranet collaborative learning space that would support Lucas’s development, we can see that what Sabrina saw as possible and what could actually happen through the Ultranet did not match. Despite being a strong advocate for increased digital technology use at home and in school, her lack of knowledge about how the Ultranet could be used to develop collaborative spaces, her demanding time commitments and a dissonance between her and the school’s Ultranet priorities meant she could not achieve this goal. Adrianna’s expectation that the Ultranet should have been designed to make it more convenient for parents in a local community to contact one another was inconsistent with DEECD ethical constraints. The Ultranet was not designed to allow the same level of collaboration for parents as it was for teachers. Moreover, parents could not customise or edit Ultranet software because central DEECD officials had designed it for them. Yet some parents argued that connecting and building online networks to link parents with similar interests could have increased their Ultranet engagement and community participation. Providing email through the Ultranet was also something that parents saw could advance their interests by allowing personal communication with teachers. Lead Users created South PS’s Ultranet Community space to share documents and archived materials with parents, but the fact that they could only view—not contribute to—this space resulted in very low engagement. Even as parents were opting out of using this space, Lead Users continued to develop it, highlighting a disconnection between parent and school goals. Simple-sounding tasks, like sharing a child’s artwork online with family, were complicated by copyright regulations and the difficulties of integrating the Ultranet into existing classroom practices. In fact, socio-technical factors shaping the Ultranet design were broader and more powerful than many parents imagined. Despite the Ultranet being promoted to replace existing student reporting, DEECD claims that parents would be given new opportunities to view or comment on their children’s learning goals and progress were not realised. Notwithstanding that school leaders chose not to make this information available on the Ultranet, some parents believed that such changes would negatively affect the quality of their existing communications and personal interactions with the school. The overall
outcome was that parents’ participation in the education of their children was hindered, not helped, by the strategies schools employed to implement the Ultranet.

8.3: FRAMING THEORIES

The Social Construction of Technology (SCOT) perspective

Parents’ capacity to pursue their interests was driven by their goals and value systems, in turn shaping the strategies they adopted in accepting, challenging or resisting the Ultranet technology. The overriding concern shaping parents’ construction of the Ultranet was meeting their children’s education needs. Legal and ethical considerations around safety and confidentiality—combined with parents’ wishes to maintain personal interactions, maximise the efficiency of personal technologies, and manage their time and physical resources—also affected how they interpreted the Ultranet. Parents tried to fit the Ultranet into the existing ways they related to schools but could not use it to build wider democratic social relations; DEECD’s ethical regulations and design of parent access though IDAM constrained their involvement, school Lead User ‘experts’ designed Ultranet communication spaces without their input, and relevant student data was not made available to them. Parents resisted what they saw as an undemocratic version of the Ultranet by reducing their already minimal use of it over time, dismissing it as an unviable communication option and by continuing to use communication processes and practices with which they were already familiar.

The SCOT account assumes that conflict between social groups is a necessary part of the technology design process. As well as the examples of social conflict described in this chapter, however, parents shared some common interests with other social groups in trying to construct an Ultranet technology to develop greater participation. This is evident in the example of Adrianna, who had a view similar to that of school leaders on the issue of retaining interpersonal communication methods as part of parents’ social experience. Similarly, Stefana and teachers shared a concern about the impact of digital technologies on teacher workload. Parents and central DEECD officials cohered in their views around child safety and confidentiality, conflict arising only when the same ethical regulations around confidentiality were applied to parents, restricting their ability to communicate with teachers and one another. Parents’ compromises and negotiations around the Ultranet eventually contributed to rejection as an ineffective technology.
Conflict between parents and public education institutions was evident as parents tried to fit the Ultranet into their existing communication systems in order to support their children’s learning. For example, South PS parent Chris could not use it to network with other parents, something he perceived would be socially advantageous, because of privacy regulations. Neither could he use the Ultranet to network his home and school communication systems nor to access his daughter’s classroom work—the latter point challenging one of the Ultranet’s advertised purposes. These examples show the conflict that Chris encountered with other social groups in trying to fit the Ultranet into a “networked information economy” (Benkler, 2006, p. 3). Similarly, Adrianna could not fit the Ultranet to her preferred ways to contact teachers and other parents because of institutional legal regulations and a DEECD decision that parent-teacher email contacts would not be available through it. Indeed, Chris and Adrianna’s experiences appeared to be framed by a common value set that was challenged when they tried to participate more in their children’s education using the Ultranet. School councillor Paige’s request to have important information published through the Ultranet also placed on the school Internet webpage was denied by school leaders, not the Ultranet design, again illustrating conflict between parents and the social group of school leaders.

Other parents, including Madelyn at South PS and Emily at West PS, wanted to receive specific information about their children’s learning by combining their use of the Ultranet with the dominant interpersonal ways they related to teachers. They resisted and then dismissed the idea of using the Ultranet as the main means of distributing formal information, such as student reports, or as a substitute for their interaction with teachers. Similarly, South PS parent Mikayla saw no value in adding the Ultranet into her existing communication systems, even though participating more actively in her child’s education was a priority. While some West PS parents were dissatisfied with existing forms of digital communication, feeling that it standardised and duplicated information to a point where it lost relevance or meaning, overall they wanted to keep what they already had. Their personal goals, previous experiences within the school’s communication environment and cultural expectations around school reporting shaped how these parents constructed the Ultranet technology.

Parents felt the Ultranet was inflexible and limited the ways they could interact with the available information. Combined with a lack of information about its use, this shaped their interpretation of the technology. They quickly realised that the Ultranet did not have the resources to meet their needs. In particular, the inability to gain access to teachers through the Ultranet left them feeling disempowered. Even though most parents saw classroom teachers
as allies, these perceptions did not translate into strong, coordinated and shared goals that would maximise the interests of both groups. As described, contrary to their Ultranet expectations, school councillor Monica and Rhiannon at South PS and Karen at East PS had to draw conclusions about their children’s learning from very limited information sources. The inability to communicate with teachers through the Ultranet shaped it as an ineffective technology for them. Parents were not involved in the design of a South PS Ultranet Community space and thus had no stake in the decisions made about its use for them. In fact, parents in my study had little input into how they could use the Ultranet. For these reasons, DEECD’s vision—that the Ultranet technology could be used to help support broader parent participatory opportunities—did not eventuate.

The SCOT concept of closure can be seen in parents’ deferral to school authority structures with respect to Ultranet use, even when not benefiting from such use. Even though Sabrina and Stefana saw the Ultranet platform as under-utilised by West PS Ultranet leaders, they were reticent to challenge the status quo. They reached a point of resolution and chose not to make their objections known, despite having clear goals to support their children’s learning that reflected the school’s curriculum goals. In this regard, their participation was shaped by their own behaviours, together with the conscious and unconscious actions of central DEECD officials, school leaders and teachers that acted to minimise their involvement.

Some parents did re-socialise the Ultranet into their everyday lives, using its introduction as an impetus to modify their existing behaviours. For example, Wendy and Sabrina used the fact that children were responsible for their own Ultranet password to support their children’s development and identity as independent computer users, while Madelyn learnt more about her child’s progress by viewing teacher assessments on the Ultranet. Modelling positive behaviours to children is seen as a successful strategy for parents to adopt when appropriating digital technologies into family life (Schofield Clark, 2013). In principle, all these parents wanted what DEECD had promised the Ultranet would deliver: faster, broader and more efficient ways to participate in their children’s learning. Their differing attitudes and beliefs about complex issues however—such as the professional role of teachers, access to privately-owned content and how best educational technologies might be used to improve education and the home—school partnership—impacted diversely on their shaping of the Ultranet technology. For parents to have realised their goals, school leaders needed to have seen them as more equal partners and involved them in decisions about issues such as technology access, training and what meaningful information the school could provide through the Ultranet.
Further, both groups should have explored more creative Ultranet possibilities prior to any community strategies being implemented. Through the SCOT lens, we can see the conflicts parents encountered and identify the complex inter-relationships that shaped the Ultranet technology.

The technical dimensions of the Ultranet and its digital content (as encountered by them as material artefacts) also hindered parents’ Ultranet participation. Their access was constrained by the Ultranet design that required principals to supply parents with an 8-digit key code allowing them to register through IDAM. If this process failed to occur, parents’ Ultranet participation was nil. Even if they were able to register, teachers had to first create specific information about children on the Ultranet in order for parents to make use of it. For teachers to create this digital content, however, they needed the skills, time and motivation to adapt to a new system. The requirement of such a circular and interdependent process, together with technical constraints, adds to explanations of how and why the Ultranet failed for the parent group.

Finally, despite many shared interests with DEECD, I found parents to be on the periphery of schooling, “outsiders” with limited influence on how schools adopted the Ultranet and reliant on other groups of “designers”, such as school leaders and teachers. As potentially the largest social group of Ultranet users but with the lowest participation rate, its purpose and value to them was unclear. Although their ideas about Ultranet use rarely came to the direct attention of school leaders, they remained discerning about the ways they participated in schools and acted to shape the Ultranet, even when their involvement was mediated by other social groups’ goals.

The Pateman Participatory Theory of Democracy (PTD) perspective

At the local level, which Pateman sees as critical to the democratic forming process, parents participated in authority structures in their use of the Ultranet with other parents in their school community, their children’s class teacher/s, other teachers and the principal.

At the state level, DEECD exerted significant authority over parents’ Ultranet participation. Parent voice had been represented by Parents Victoria in DEECD Ultranet stakeholder consultations, but this group was not active in my field sites.

Parents at South PS were only partially involved in school leaders’ decisions made about their Ultranet interaction. For example, Lead Users’ rejection of school councillor Paige’s request to
have curriculum documents shared on the school website was defended on the basis that such work would need to be undertaken by a specialist in a time-consuming process of designing, editing and updating Ultranet content. Further, Lead Users had set up the Community space following DEECD implementation guidelines, enabling parents to view, but not contribute meaningfully to, the content. This decision effectively minimised parents’ involvement and highlights how the design of a technology can work against the successful achievement of a government goal, as described in Chapter 4. Similarly, because of Lead Users’ decision not to use certain aspects of the Ultranet, Chris was unable to view or share his daughter’s artwork and Rhiannon and Monica were unable to access relevant information about their children. In addition, parents were unable to discuss learning issues by email with their children’s teachers through the Ultranet. These institutional decisions ignored the kind of two-way decision-making that Pateman advocates as advantageous to the creation of a participatory society.

Many parents were involved in aspects of school life, such as acting as committee representatives or volunteering with special programs, but their involvement did not extend to decision-making with respect to Ultranet implementation. Parent participation was a significant part of DEECD’s rhetoric in promoting the Ultranet’s purpose and design, yet the possibility of parent involvement in any substantive sense, even if they actively sought it out for the benefit of their children, was slim. Even where “parent helpers” participated in classroom activities that involved teachers using the Ultranet, the potential for them to support student learning was negated because they had no legal rights to access collaborative student spaces. Sabrina tried unsuccessfully to use Ultranet collaborative learning spaces at home to support her son before returning to the direct interpersonal method of face-to-face discussions with teachers. Her attempts had been time-consuming and she still had to make decisions based on verbal information. Other parents were concerned that an increased emphasis on computerised forms of participation, such as the Ultranet, would result in less emphasis on continuing with established forms of interpersonal interaction, the implication being that their ability to be involved in their children’s education would become more constrained.

The form of authority structure evident in schools in my study was asymmetrical. Pateman’s idea of full participation requires that individuals and groups can access the resources and technical systems they need in order to control decisions that influence them. The benefits promoted as being available within a participatory society were not evident for parents at East

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238 Fieldnotes: West PS, Stage One 2012.
PS or North SS. Because principals elected not to engage them directly, they were denied access to the Ultranet, leaving their capacity for participation in their children’s learning in the ways promoted by DEECD impossible. Moreover, low parent involvement blocked opportunities for longer-term benefits for individual schools and the Victorian education system as a whole.

With a range of different technologies and media in their lives, but with little or no attempt being made to engage them in present or future thinking about socio-technical change in schools, parents’ creative input was absent and their participation in Ultranet decision-making minimal. They were not consulted about whether they wanted to use the Ultranet or about what aspects of the software they would use or develop if given the opportunity. While a parent stakeholder group did represent the interests of all parents at central DEECD meetings, this was merely partial participation (as discussed in my analysis in Chapter 4.4). Given so few parents statewide were accessing the Ultranet, it might appear on the surface that parents themselves were apathetic. Instead, my study shows that parents were not adequately consulted about Ultranet decisions that more powerful actors made on their behalf.

But would the Ultranet have produced more successful outcomes if parents had had more involvement in decisions made about their involvement? They certainly wanted to understand how the Ultranet could support their children’s education and thought it could extend existing communication practices. An alternative “democratised” Ultranet version might have eventuated if individual parents or groups had: been persistent in logging on (Jake and Mikayla); pushed principals for teachers to use it in all of their children’s learning (Sabrina, Stefana and Karen); given feedback to school leaders about the type of content they wanted on Ultranet Community spaces (Paige and Madelynn); been able to view specific learning outcomes for their children (Monica and Rhiannon); shared their skills in using it with other parents (Chris and Adrianna); and reported technical issues (Sabrina and Stefana). Undertaking these actions may have developed more interdependent relationships between parents and schools rather than reinforcing authority structures or sanctioning top-down processes. In some respects, parents forfeited opportunities.

Even though the State of Victoria legal, financial and contractual obligations constrained DEECD in its implementation of the Ultranet, the project’s performance failure rested partly on the assumption that all users, including parents, would have the potential to contribute to building a valuable communication and learning infrastructure over time. Disenfranchisement from decision-making processes lowers involvement, ownership and therefore participation.
(Pateman, 1970, 2012). The parents in my study had little scope to participate in decision-making about the Ultranet. This may be why they downplayed their level of technical expertise or specialised knowledge and accepted, rather than challenged, some existing school policies and processes.

Applying arguments from Pateman’s participatory society theory, it is clear that the communication structure relationship was uneven, with officials, principals and teachers having more power and control than parents. My conclusion is that, in order for changes to communication processes to be effective, the relationship between home and school needs to be reciprocal. Parent involvement in their children’s education through the Ultranet may have been more successful if they had developed a voice to effect change at a local level from the bottom up rather than being imposed from the top down (from government, DEECD and commercial interests). While the Ultranet has come and gone, the challenge remains for parents to find effective ways to participate in decisions about their children’s learning in terms that advantage their family’s goals and increase citizenship.

The importance of decision-making in shaping participation processes has been a key theme in understanding the extent to which the Ultranet was the product of unequal power and socio-cultural differences. For parents, their capacity to make decisions about the Ultranet and its use in their children’s education was low. Moreover, the types of pseudo and partial participation opportunities parents did have in decision-making were shaped by central DEECD officials and by principals and Lead Users in schools. Most notably, the institutional structures in which parents already participated were reinforced by East PS and North SS principals, who chose not to include them in their Ultranet implementation strategies. Central DEECD officials had a similar effect, limiting actual parent influence on decisions about Ultranet component design to a parent stakeholder group which had limited influence in schools. Despite these influences, parents were both capable and interested in expanding their decision-making and Ultranet participation to improve outcomes for their children’s education (Pateman, 2012). Pateman’s theory sees decision-making as pre-eminent, but in my project parent participation was also shaped by other important factors, including social interaction and the technologies they used. I drew on SCOT theory earlier in this section to overcome this limitation.
Conclusions

While the Ultranet was promoted in DEECD literature as an effective means of communication for parents, its bureaucratic and legally constrained design, together with the minimal parent involvement in decision-making about its use in schools, did not help parents become more knowledgeable about the issues shaping their children’s education. The Ultranet was introduced into South and West PSs before parent communication needs had been canvassed. Therefore, their requirements were not fully understood or were taken for granted, adding another layer of complexity to these already dynamic school communities.

Section 8.1 outlined the conflicting values evident in how parents constructed the Ultranet and highlighted that the control of information and communication processes were their key concerns. As interpersonal school communication systems were migrating toward digital systems, it was less clear to parents how, and by whom, information resources would be accessed and managed. It also highlighted how parent’s expectations and experiences of using the Ultranet software were starting to change the way they related to teachers. Parents wanted to access private information they felt would help them build networks, but had to reluctantly accept the legal and ethical security protocols developers had built into the Ultranet software.

Section 8.2 showed that schools organisational goals were prioritised over parent needs and relationships. Schools did not use the Ultranet to offer relevant two-way communication processes that parents believed might improve their children’s learning, leaving it marginally beneficial to a small minority and largely redundant as a communication alternative. Parents were able to access very few Ultranet features, rendering overstated claims that the Ultranet would be transformational in providing them with a rich array of information. Spaces DEECD promoted as being useful to parents were either empty of content or inactive. Given the dynamic changes in web 2.0 technology and the pervasiveness of social media, the slow and piecemeal attempts by schools in my study to take advantage of this environment resulted in a lack of parent engagement with the Ultranet. While each school wanted to improve its parent communication practices, the changes they made were predominantly adopted because they were seen as more efficient from school leaders’ perspectives. The outcomes were that home-school communication methods continued much as before, despite the everyday digital and social changes families experienced.

In Section 8.3 I analysed the complex and contradictory nature of socio-technical change through which the Ultranet was constructed. The fact that parents already had important roles
in schools did not translate into broader decision-making opportunities for them that may have transitioned into new ways of participating. Instead, parents were constructed by central DEECD officials and school leaders as users, but not yet as partners of education.

In the concluding chapter of this thesis, I identify seven factors, developed into three themes, that explain stakeholder groups’ response to, and embrace or rejection of, the Ultranet and thus contributed to its overall failure. I reflect on the value and limitations of the theoretical approaches adopted and provide some recommendations for policymakers and education stakeholders based on lessons learnt. Finally I consider the broader implications of my findings by exploring some ideas on future web-based education technology developments.
CHAPTER 9: THE ULTRANET: LESSONS LEARNT

The focus of this study, the Ultranet, was owned, operated and developed by the Victorian government’s Department of Education and Early Childhood Development (DEECD). This initiative was a response to the expanding digitisation of public education through the deployment and widespread use of personal computing devices and the Internet in classrooms and schools. It was a major development for school education in Victoria that had to be planned for, understood, experimented with and evaluated for what it provided teachers, parents and students in their everyday professional and personal lives. The empirical findings presented above can help explain why and how individuals and social groups involved in the Victorian education system did not adopt the Ultranet learning platform, despite significant social and political impetus for it to succeed. By focusing on the ways in which different groups participated in the Ultranet and the outcomes, we have seen how the social positioning of these groups was detrimental to how the Ultranet was used. Moreover, DEECD did not achieve its intended aim to widen the range of stakeholder voices in the education conversation, which also contributed to a lack of stakeholder support.

Two theories were employed for the purpose of analysis: the Social Construction of Technology (SCOT) theory was used to analyse and make sense of groups’ micro relations in the process of technology construction, and Pateman’s Participatory Theory of Democracy (PTD) helped to provide a comprehensive and robust explanation of Ultranet decision-making processes.

The Ultranet seemed to offer the potential to build users’ capacities and skills in novel ways. With collaboration as one of its main themes, state and education department officials believed the Ultranet would provide a context for web 2.0 media to be used socially and organisationally in learning. After all, its web 2.0 technologies had been designed specifically to make it easier for individuals and groups to create content and share it in collaborative spaces. Central DEECD officials’ claim was that, in contrast to other learning technologies, use of the Ultranet would transform teaching and learning and enhance reciprocal relationships between students, their parents and teachers. Throughout their narrative, central DEECD officials had expressed their hope that members of the different stakeholder groups would act in ways that supported DEECD’s participatory vision for the Ultranet. This is not what happened. The expectation that the Ultranet would bring about a transformation toward greater participation
was not met, and hence its implementation failed to achieve the government’s or citizens’ desired outcomes.

There are several key lessons to be learned from the failed Ultranet experiment. The Victorian government and its departments must confront the issues that contributed to the Ultranet’s failure, as detailed below, if it is to develop better ways to introduce new technology to improve communication and participation in the public education system. The solution is not straightforward. My aim is to promote better design principles for educational technology and spaces that will allow different forms of democracy to emerge and thus help create an information and communications technology (ICT)-enabled participatory society.

In Section 9.1, I identify seven factors that contributed to the failure of the Ultranet that have emerged from the analysis of the empirical data, organised into three main themes. These factors and themes connect the key insights from the selected education, social science and media and communication literature and the theoretical explanations from Chapter 2 and return to my definition of participation as a dynamic process in Chapter 1. This explanatory framework helped to shed light on the interrelatedness of the power relations between technology, users and society. It also provided specific focus on the complex processes involved in participation and the decisions of individuals and groups in their response to, and embrace or rejection of, the Ultranet. In Section 9.2, I reflect on the value and limitations of the theoretical and methodological approaches central to this research. In Section 9.3, I present some recommendations for policymakers and education stakeholders based on the lessons learnt in the Ultranet experiment, as revealed by my detailed analysis. These recommendations may be helpful when, or if, any future learning platform technology is being considered. In the final Section, 9.4, I consider the broader technical, ethical, political and social implications of this research by looking to the future of web-based technology in education.

9.1: KEY FINDINGS

Despite federal and state policy commitment to promoting and funding digital technologies in education, my research shows that the Ultranet learning platform failed to be adopted by specific groups involved in the education system due to a wide variety of factors, such as:

- hierarchical power relations between stakeholder groups;
- conflicts of purpose between these groups;
- differing expertise across and within the groups;
• lack of a sense of ownership leading to a negative exercise of agency (non-cooperation) of Ultranet User Groups;
• technical problems embedded in the materiality of the Ultranet;
• cumbersome legal strictures; and
• rigid, rule-based administrative structures.

There is significant overlap and interaction between these factors and they cluster around three main themes. The themes are: (1) Structural Constraints (political, legal, technical, financial and contractual); (2) The Variety and Complexity of Different Groups’ Purposes; and (3) The Differently Restricted Ways in Which Agency was Exercised (the ways in which participants responded to constraints).

Theme 1: Structural Constraints

Structural constraints manifested in various ways for state and education department officials. Whole-of-Victorian Government regulations and DEECD’s own internal governance processes around transparency, procurement and protection of state resources set limits for the design of the Ultranet in ways that caused a departure from the initial aim of meeting the needs of user groups. The limited Victorian State budget reduced the scope of the original Ultranet design and its functionality. Legal requirements of privacy, copyright and the protection of children changed the Ultranet artefact to a more moderated iteration as design specifications were tightened, contrary to central DEECD officials’ expectations. Being locked into an initial 3-year contract compelled DEECD to use the CSG technologies they had initially selected to build the Ultranet, even though they were no longer cutting-edge. Finally, this group’s direction was initially guided by two Blueprint policies, but new policy directions resulting from the change of government and short-term political cycle created a sudden drop in support for the Ultranet.

For school leaders, structural constraints included: accountability processes, DEECD’s top-down design of the Lead User structure, and a material crisis of resources. Ultranet implementation targets and expectations were written into principal performance and development plans and overseen and audited by regional DEECD officials. Principals were expected to implement the Ultranet in their schools as well as being designated by DEECD as motivated Lead Users. In their practical operation, Lead Users made decisions and worked together in a collective formation, but the Lead User structure was designed by DEECD and

239 Their actions in these matters (outlined in Theme 3 later in this section) provoked external review processes (IBAC, 2017).
needed to be adapted by principals to fit each school’s particular context. At South Primary School (PS) this imposed structure confirmed existing hierarchical power relations between stakeholder groups and at East Primary School (PS) it resulted in an unstable Lead User group that was unable to realise its various goals. Although DEECD positioned Lead Users as system-wide change agents with the technical capacity and specialised knowledge to change practices, in actuality they operated within rigid, rule-based DEECD structures. Finally, technologies were critical school resources and part of a material context that was in turn subject to state policy regulation and financial control requiring principals to make trade-offs between availability and reliability.

The structural constraints for teachers included imposed, politically charged change and technical limitations. The Ultranet was only one of multiple Blueprint interventions introduced in the Victorian Labor government’s tenure (1999–2010) that required teachers to develop specialised knowledge and adopt new teaching approaches. At a school level, they were expected to write Ultranet goals in their performance and development plans, enact school Ultranet plans, supplement existing assessment and reporting systems with the dominant Ultranet model, use Ultranet collaborative spaces, share their planners and promote Ultranet use over other forms of ICT. Teachers had little input into the kinds of data collected and shared through the Ultranet or how reports generated through it could track their use. By voluntarily logging on and accepting the Ultranet Terms of Service (ToS), teachers’ individual online activities and any copyrighted content could be tracked and reports on work practices and usage patterns produced. Principals could already access a range of data sources to monitor individual teacher performance, but could now also legally collect and use data showing which Ultranet practices were being embedded by teachers in their school. Most teachers in this research thought that the Ultranet represented increased surveillance, additional impost on their professional practice and a new level of state and networked control. Material and technical constraints were also important with the majority of teachers in my study finding the Ultranet time-consuming, overly complex, clunky and unreliable to use. In short, they felt they were being asked to cope with non-performing software.

For students, structural constraints took the shape of overly regulated security and acceptable use requirements and technical limitations. Morally, professionally and legally, DEECD had a responsibility to protect the security, safety and privacy of all students and to promote the values of inclusion and equity. When combined with societal concerns about children’s online interaction, the result was a highly regulated Ultranet system. DEECD ensured that students
had rights and obligations over security and privacy, but students perceived strong rules controlling access to the platform as constraints. For example, Ultranet password protocols imposed a more stringent set of technical criteria than those already used to manage computer and network access in schools, hampering students’ Ultranet participation and disrupting the teaching and learning experience. Moreover, restrictive usage policies, Ultranet ToS and school rules banning some websites and types of content all acted to tighten students’ educational uses of technology. Exposed to external monitoring and potential data mining, their Ultranet experiences challenged a recurrent theme in knowledge economy opportunism: that technology use increases student empowerment by placing them at the centre of their learning. Paradoxically, many of the Ultranet’s regulations mitigated against students being more in charge of their own learning, thus defeating one of DEECD’s and the state government’s major goals in introducing the Ultranet. Furthermore, students’ Ultranet participation was often as consumers and content producers, caught up in the political and economic structures of education technology markets.

Structural constraints for parents were political, legal and technical. They included an inability to freely access the Ultranet; the Ultranet’s under-promotion by school leaders; and the Ultranet’s closed platform design. Parents had to rely on their school principal to invite them to register for the Ultranet and then rely on their children’s teachers to upload content for them to view. As shown, North Secondary School (SS) and East PS did not invite parents to use the Ultranet at all, even though this was possible and the Victorian government and DEECD were promoting it as a state-wide resource for teachers, parents and students. The uncertain and piecemeal nature of schools’ Ultranet implementation rendered any consistency in parent Ultranet involvement problematic at best. Further, none of the four schools in my research offered online student progress reports to parents, something that could have been provided through the Ultranet. Such decisions may have been strategic from a school’s perspective but school leaders, anxious about growing resistance toward the Ultranet and the extra work its implementation required of teachers, acted to exclude parents as valuable partners. The closed design of the Ultranet meant that, although they could in theory develop and join local school parent networks, they were unable to develop regional or state-wide parent clubs or special interest groups through it. Similarly, its restrictive school-based systems did not allow them to join a community or collaborative space where children were members. This reinforced schools as closed institutions, set parents apart from their children’s practices, and led parents to use private social media platforms instead. On the other hand, parents supported aspects of the closed platform because of the legal, safety and security protections
they saw it provided for their children. Finally, even if they had been aware of these Ultranet possibilities, their lack of training and knowledge about the technology was a major constraint.

**Theme 2: The Variety and Complexity of Different Groups’ Purposes**

State and education department officials concerned with modernising the system, simplifying work processes and achieving Blueprint policy outcomes were pre-eminently influential in setting the direction of the Ultranet’s design, production and implementation phases. In particular, an inner core of DEECD officials moderated in a middle layer of government and had very specific interpretations of the transformative benefits of learning platform technology when embedded in everyday learning and teaching practices. These officials capitalised on the public funds available for ICT development in the Victorian education system to create a central database that they promoted as a one-stop shop for education consumers. Central DEECD officials’ goals were to provide a technology that would be student-driven, promote individual responsibility and allow schools and Ultranet User Groups to create and share multiple information sources. This group’s overall purpose was to create a platform to integrate education services across government, school and home levels to encourage particular citizen behaviours. In reality, it provided users with few meaningful options.

School leaders’ goals and purposes were generally consistent with the policy directions of DEECD in regard to improving teacher collaboration, setting up open learning spaces and introducing more technology, such as the Ultranet, into students’ learning. Ultranet strategies were moulded around school leaders’ goals and purposes to reflect a school’s culture and specific local context. South PS Lead Users wanted to control and streamline communication, while East PS Lead Users were focused more on using the Ultranet to embed technology into teaching and learning to keep pace with technological change. The Ultranet strategies they adopted, however, were not successful in effectively engaging their communities with the Ultranet or in developing enhanced communication and collaboration practices. This was more the result of hierarchical patterns of communication and their cost-efficiency strategies not meeting Ultranet User Groups’ needs rather than any failure with the technology itself. Moreover, even though Lead Users understood the larger strategy and vision, they did not necessarily understand how to embed the Ultranet into their school within the short time frames DEECD imposed.

Teachers seemed initially open to using the Ultranet to meet their responsibilities towards students and the DEECD, particularly as it was promoted as enabling them to source quality
teaching and learning materials and reduce their workload. They were ambivalent about sharing their work with a wider networked public through it, however, concerned about their professional standing and how any student content or reports would be viewed, particularly by parents. Also, the lack of Ultranet training opportunities together with inconsistent direction and leadership placed teachers under pressure and left them lacking confidence that they would be able to successfully use the Ultranet to fulfil their duties or meet their goals. Further, in contradiction to DEECD’s promotion, Ultranet use actually increased teacher workload and required them to manage students’ online behaviours. DEECD predicted that teachers would positively lead the Ultranet’s development, pushed to do so in part by optimistic Lead Users, student enthusiasm, improved ICT infrastructure and increased collaboration across schools and networks. Teachers’ actual experiences, however, led to Ultranet resistance and subsequent rejection, and shaped its construction in ways unfavourable to state and education department goals.

Most students in my research used technologies relatively competently at school and home, but using the Ultranet was a new experience. Students’ varied but often minimal Ultranet competence reduced their ability to manage their learning or work collaboratively with peers through it. Also, like their teachers (who had reservations about the Ultranet’s purpose) students considered the Ultranet to be overly complex, slow, and inferior to and less flexible than existing technologies or software they used every day. The Ultranet was not designed to challenge the traditional decision-making or authority structure of schools and homes, where principals, teachers or parents made decisions that students had to follow. Students understood that the Ultranet was a shared, moderated space and that they had to use it appropriately for learning purposes. DEECD officials hoped that student enthusiasm would push teachers to use it; ironically, their disinterest had the inverse effect. In dominant discourses (outlined in Chapter 2), children were framed as having innate skills and knowledge to take advantage of the potential of web 2.0 technologies, but in actuality were not competent with using the Ultranet software and stymied by the technical problems embedded in its materiality.

Parents’ main goals related to the Ultranet revolved around how it could be used to help their children’s learning. They wanted a secure, web-based technology that was easy to access and would provide them with the flexibility and convenience to communicate with, and respond to, teachers about their children’s school work at any time. Parents were disappointed that they could not interact online or access other parents’ contact details to help build
relationships through the Ultranet. They felt frustrated at being unable to use technology
(telephone, email, Ultranet) to communicate directly with their children’s teachers, but lacked
influence to effect change over school communication systems, organisational processes and
content development. They liked the idea of teachers providing more specific and pertinent
information about their children’s learning and having school information, such as school
goals, curriculum, calendars and timetables contemporaneously available. Their concern,
however, was that these possibilities should not lessen the existing, face-to-face interaction
they enjoyed with their children’s teachers. Parents’ beliefs about, and experiences with, their
children’s online technology uses together with their attitudes about privacy, safety and duty
of care (that parents and teachers had particular responsibilities towards children) shaped
their uncertainty about the Ultranet. Where parents were given some opportunities to use the
Ultranet, the types of decisions they made related to their children’s everyday interests and
needs. Generally, parents seemed to be outside of the institutional tent, not necessarily
sharing the values and beliefs espoused by those within the system.

**Theme 3: The Differently Restricted Ways in Which Agency was Exercised**

Structure and agency interacted in the practical implementation of the Ultranet in complex
ways. The different decisions made and outcomes achieved across multiple settings or places
reflect how the intentions of different stakeholders clashed with the constraints they
experienced.

Victorian state politicians, together with education and other state department officials, were
the key decision-makers in the construction of the Ultranet but also operated within structural
constraints. Central DEECD officials had to change their preferred Ultranet design in order to
create a stable, secure, system-wide technology resource that met the policy, bureaucratic and
technical values prioritised by DEECD and the state government. Although important decisions
were made at different levels of government, central DEECD officials most prominently shaped
the development of the Ultranet through their specialised roles and high decision-making
capacity, positioning web 2.0 platform technologies as unique. This authority provided central
DEECD officials with the legitimacy to choose the technologies used to build the Ultranet and
to define the criteria about what knowledge could be created and shared within and between
different groups, therefore shaping the kinds of teacher, student and parent participation that
emerged. The Ultranet Project Board was also an important decision-maker: it controlled the
design, roll-out and implementation of the Ultranet and managed the stakeholder process.
With the change of government in 2010, central DEECD officials continued to promote the untapped potential of the Ultranet but had to further adapt their Ultranet goals and resources to fit the new political direction.

The social alliances operating between DEECD and government institutions and commercial and professional organisations constantly shaped the process of Ultranet design. External review processes by Victoria’s Auditor-General and the Independent Broad-based Anti-corruption Commission (IBAC), however, strongly criticised central DEECD officials’ non-adherence to government financial and contractual processes concerning the Ultranet project (IBAC, 2017). They found that decisions taken by those managing the program were ineffective, over-extended public spending, and contrary to the Victorian treasury regulations on minimising public risk. This scrutiny provides valuable insight into the internal and external constraints shaping central DEECD officials’ behaviour at the same time as revealing the extent to which they made decisions and acted independently within the system. Clearly, public documents relating to DEECD’s accountability culture during the period of the Ultranet’s development highlight a failure in the democratic government system of checks and balances and raise questions about the efficacy of using internal, non-expert public servants to design and manage large-scale ICT projects.

School leaders’ Ultranet influence was limited in comparison to the decision-making and actions of state and education department officials and Ultranet coaches, but much greater than that of Ultranet User Groups. By the time the Ultranet was introduced to schools in 2010, the key design and policy decisions had already been made. School leaders had little influence on these processes, but their support (or lack of support) for the initiative was highly influential in shaping how other groups in the school community perceived it. Opportunities to participate in decision-making processes and influence the path of the Ultranet’s development were affected by their leadership styles, hierarchical roles and the legal circumscription of schools and principals as to what information they could make available to others. Generally, individual Lead Users had unequal decision-making capacity as power was distributed unevenly—consistent with their existing positions and actual levels of responsibility. Although Lead Users did not have the same authority as principals, they were more influential when principals delegated Ultranet roles and responsibilities to them.

South PS leaders introduced an Ultranet Team Committee to implement its Ultranet goals, reproducing DEECD’s Lead User model and reflecting their school’s decision-making structure and culture. The Ultranet direction this committee endorsed reinforced Lead Users’ goals to
control the communication methods for the entire school community. Parents challenged this direction perceiving it as a form of censorship. East PS leaders succeeded in pragmatically updating school-based Ultranet infrastructure and including the Ultranet in school accountability documents and performance and development plans, but did not see its implementation as a major priority. Principals were hampered by the vagaries of a short-term political cycle and the lack of bipartisan support for a core ICT policy and coaching program that unfolded over multiple political cycles. Having followed a very structured implementation approach and short time frame in responding to the Ultranet initiative, they were left to make their own decisions about ICT systems when the Liberal–National government unexpectedly took office. This instability highlights the impact of fundamental and rapid change on principals’ decisions, where state funding of new technologies is tied into government structures underwritten by public policy.

As many teachers pointed out, they had no opportunity to contribute to the Ultranet’s design and production phases. In a very real sense, however, teachers were the key group of Ultranet decision-makers because they were charged with the responsibility to use the platform to improve teaching and learning. Teachers’ agency shaped Ultranet implementation, greatly influencing, and in turn being influenced by, student use and feedback. They were influential in Ultranet development in situ in relation to their own practice, one another, their students and parents (if their school had involved them) once they could add content, develop lessons and create and own spaces. This influence varied based on each teacher’s personal and professional motivations. Within the confines of any school-determined Ultranet strategy, teachers could largely choose the extent to which they integrated it into their practice. The Victorian Branch of the Australian Education Union’s (AEU) Ultranet ban, an expression of teacher dissatisfaction, was a major setback to the realisation of the state’s, DEECD’s and school leaders’ Ultranet goals. Supported by a democratic majority of teacher members, it shows the impact of a negative exercise of agency on the government’s attempt to modernise their profession through an imposed technological innovation.

Students were influential with their friends and peers when working together on the Ultranet but they had no direct impact on its design and production; in short their agency was very restricted. Students most often decided not to use the Ultranet when given the option, instead preferring dominant commercial software they found easier to use and media (games, websites and social networking sites) they could share with friends. When students did use the Ultranet in their learning, it was sporadic and largely because their teacher had set curriculum
tasks on it; in other words, when authority structures were involved. The rhetoric from principals and teachers in all my field sites was strongly in favour of increasing student decision-making in their learning, but there were relatively few examples of the Ultranet being used to this effect.

Parents’ influence on Ultranet development at the macro level was negligible. They had limited input or influence into Ultranet design and production other than through being represented by Parents Victoria at DEECD’s Ultranet stakeholder group meetings. They also had no meaningful input into, and were not consulted about, Ultranet school strategies, policies and decisions (even those concerning them such as changes to existing home–school communication strategies) unless they were members of school councils. Neither were they invited to experience Ultranet possibilities, such as online student reporting and feedback systems, that would allow collaboration with their children’s teachers. Even though parents were interested in participating more in their children’s education in general, they had fewer opportunities to use the Ultranet than other user groups. They could challenge school strategies they saw as not working but rarely raised any concerns. A notable exception was when parents’ unhappiness at an imposed decision requiring them to access information via the Ultranet persuaded South PS leaders to revert to previous online communication practices.

In general, DEECD, school leaders and teachers constructed parents as passive users with no great role to play in shaping the Ultranet environment. They adopted a narrow interpretation of parent involvement that reinforced existing hierarchical authority structures.

Parents who met regularly as a group had some influence with one another. Parents also influenced their children’s Ultranet behaviour and use at home through their control of technology resources. Their micro-decisions had significance within their communities and families but little impact on shaping the Ultranet technology, given that it was configured and designed centrally within DEECD and local strategies were prescribed by school leaders. Of particular concern, parents became less important in DEECD’s Ultranet priorities over time, and almost invisible once the Ultranet contract shifted to a new provider with a different focus. The dissatisfaction resulting from the state government’s broken promise was exacerbated when no parent participation figures were published in the Auditor-General’s report (Victorian Auditor-General’s Office, 2012). Parents were highly valued stakeholders in rhetoric but not in actuality.
Summary

Taken together, the seven factors described through the three themes help us to understand the Ultranet’s failed adoption from multiple perspectives as implementation and adoption issues were emerging. The social positioning of groups affected their capacity to interact with one another and with the technology to successfully pursue their goals and positively enact their agency. The Ultranet case study shows how different kinds of power shape different aspects of technology development. While state and education department officials had more influence on Ultranet policy and design and school leaders on implementation strategy, Ultranet User Groups (teachers, parents and students) had practical influence with respect to whether, and how, to use the Ultranet. Teachers, represented by their union, imposed workforce demands on the government, and students, guided by their interactions with teachers, chose not to use the Ultranet. Parents were the least empowered group as they had little opportunity to access or utilise the Ultranet. Different groups’ capacity to pursue their interests and develop the Ultranet in particular ways was defined by their ability to respond to a broad range of structural constraints. Specifically, the opportunity for user groups to challenge existing institutional structures and freely participate in Ultranet design, development and transformation was stymied by narrow and authoritative conceptions of the purposes and practices of different groups in such an innovation.

9.2: THEORETICAL IMPLICATIONS OF THIS STUDY

In this sub-section, I reflect on the value and limitations of the theoretical and methodological approaches used in helping to understand the process of the Ultranet’s introduction into Victoria’s public education system.

The value of the SCOT concept of interpretative flexibility is that it reveals how different groups influence an artefact’s development (in this case, the Ultranet). While certain social groups with political types of power (state and education department officials) had most opportunity to influence and shape the technology’s development, other groups with managerial and professional types of power (school leaders, teachers and the AEU) had influence to shape its use in situ.

The groups most impacted by asymmetrical power dynamics (students and parents) played a less active role in Ultranet development. It is difficult for a group to negotiate as partners in technology design when their involvement is constrained to realising another group’s goals (in
this case: parents were asked to learn new technical skills, utilise private technology equipment and share personal data online to meet DEECD and school goals). Public education institutions face challenges from a range of actors in developing new technologies. These include existing actors, such as state political parties and departmental audit groups, and the emergence of new influences, such as commercial technology producers and privately-owned consultancy groups, all of whom want to establish a particular technology that reflects their economic, legal and governance values. Further, problems with legal and security restrictions related to the acceptable use of a technology are not necessarily transparent to, or understood by, designers and users until they arise. Even groups at the highest levels of government may see their advantage diminished when having to comply with legal and privacy strictures shaping new online environments. If the process of technology design is to be as open as possible so as not to disadvantage particular user groups, then the ways social power bases change for different groups in each new technology initiative and the complex social structures of legitimacy and authority in shaping social power need to be considered.

Drawing on the SCOT theory to highlight the active role of users, the research revealed technology design as an interrelated and dynamic cultural process. It has confirmed that the different socio-cultural purposes and practices that users apply to a technology strongly affect its eventual success or failure. Users’ interpretations add value to technology design because their meanings are contextual and reflect their particular circumstances. Paying heed to cultural meanings can reveal the different values and attitudes of individuals and result in technology designs that more closely fit the values of the different groups and are therefore more successfully adopted.

This study has also revealed the institutional externalities that prevent groups from participating in technology design. Schools are affected by factors such as public sector agreements, education department directives and government priorities that steer technology projects and social expectations in particular directions, requiring all groups to adapt to these circumstances regardless of their own motivations and interests. School leaders had to follow central directives despite having relatively high levels of autonomy. Similarly, Lead Users, legitimised by DEECD, had to follow central communicative Ultranet processes (Ultranet implementation plans, acceptable use policies and Ultranet role descriptions) but could adapt them to fit the school setting. By recognising the impact of external, structural factors, particular groups should be better able to co-design strategies that would see a technology successfully implemented in their local contexts.
A limitation in the SCOT approach is that it discounts a technical dimension as important in shaping users’ interactions in the development of a technology. My research shows the materiality of infrastructure, digital technology and digital content play significant roles in how an artefact is constructed in people’s lives. Mapping the different ways that groups socialise through cultural artefacts in different places reveals how human expression is articulated through particular technologies. In this case, the Ultranet’s technical inadequacy hindered its use in communication practices and collaborative learning activities. This finding—that the technological built infrastructure has social consequences—opens up future research possibilities to theorise learning platform software in terms of its potential structuring power. The notion of a shifting and emergent “actor-network”, that defines human, non-human, animate and inanimate, natural and artificial actors as “actants” (Latour, 2005), may be particularly useful to decentre the focus on the social put forward in this thesis. Consequently, it should bring benefits to the SCOT field if its researchers give more consideration to the material dimension in the process of technology design. Technologies are constructed socially at the same time as being encountered as material artefacts. Depending on what is at the heart of the research question, opening up the boundaries of SCOT to include the social-material network, however, must factor in valid criticisms of actor-network theory (ANT) from inside its own class. ANT analyses social power as constituted through the configuration of a particular problem—an extremely technical view that distorts our understandings of power asymmetries and inequality (Hearn, 2012; Latour, 2005; Wajcman & Jones, 2012).

Using Pateman’s different forms of participation, I was able to reflect on how influential groups closely aligned to the state are able to utilise decision-making as a political action to reinforce social structures of hierarchy and legitimacy. This study confirmed that the relative power of different groups reflected their hierarchical position in the system and consequent capacity to shape Ultranet decision-making and participation processes. It showed how political elites and school leaders utilised institutional norms, practices and their professional roles to bolster their position in complex social structures, with consequences for other groups’ technology use. At the school level, sub-groups of trained Ultranet experts and teachers with new Ultranet Administrator User roles (who had previously been marginal to technology implementation decisions) aligned their goals with those of management to shape day-to-day Ultranet innovations. Created by system leaders but supposedly representative of their peers, these new groups had more influence to shape decision-making, with negative implications for expanding participation and citizenship opportunities for all groups.
Pateman’s schema is based on practices that assume face-to-face relations but lack a mechanism for assessing the role for technology in human interaction, which is not a realistic approach in today’s societies. From an empirical perspective, we have seen that technology should not be theorised as separate from everyday life because of its dynamism in shaping and reshaping social relations. My study has shown the importance of technical objects in shaping participation and decision-making, with texts, laws and technologies all contributing to social meaning and the pursuance of individual and group goals. The technical dimension informed high-level decisions that in turn shaped budgets, policies, institutional designs, authority structures and day-to-day workplace issues. Thus, any framework researchers select to analyse social relations needs to provide a means to analyse the technical dimension of those relations, particularly as technologies have become increasingly important in work and home environments and more broadly within government, education and health.

Pateman’s forms of participation, however, are inadequate for revealing covert interests; they take no account of the professional and ethical intent of major decision-makers who may be acting to protect personal or group interests. In the case of competing and overlapping public sector and commercial values, powerful groups or individuals may use technology development initiatives for strategic self-interest. As a later external review process revealed, public officials made illegitimate decisions that did not adhere to Whole-of-Victorian Government rules and this non-compliance shaped technology development and participation opportunities for users. Had bureaucrats given different groups with diverse perspectives suitable opportunities to contribute to technology decisions as local experts, the conflict emerging out of such interactions may have acted as checks and balances on high-ranking officials. The Governance and New Public Management theoretical approach could be innovatively combined with PTD to better analyse the role of political elites in steering the structural factors shaping public government technology initiatives, particularly as the social and economic costs of ICT failures are so high for all citizens. Until citizens can participate more effectively in the design of and decision-making about technologies, powerful groups and their motivations will continue to determine the kinds of technologies developed and will influence how they shape the communicative environment. I offer recommendations in the following section about how this social change might be enacted.

The benefit of using an innovative multi-site and multi-group approach in my research was that it helped identify important local variables. It confirmed the significant differences between various “inside” perspectives, even among people constantly interacting in the same
location. This may be something ethnographers need to consider more in future research, given that all societies are to some degree heterogeneous, and have different experiences and perspectives to bring to any particular issue (in this case, Ultranet use). While ethnographers know this well enough, this kind of group-based perspectivism is not always built into the research design from the start, as it should be, particularly if their study of a society focuses on heterogeneous views on a particular issue. Only by being alert to the potential diversity of group perspectives can one hope to detect the empirical evidence necessary to actually confirm their importance.

9.3: CALL FOR ACTION IN POLICY AND PRACTICE

The central insight that arises from my social constructionist approach is the importance of the often conflicting purposes and practices of different groups in the success or failure of an initiative, such as the Ultranet. Negotiating a balance between potentially competing values may reinforce or undermine different groups’ purposes and expertise in the short-term. The overall goal, however, is to create sustainable change in practices or behaviours and to bring others into co-operative power relationships. Below I have compiled suggestions for any policymakers who may be asked to design a government-funded learning platform technology, organised by the primary unit of analysis: groups.

State and education department officials

- Understand that individuals and groups adapt technologies as part of a social process to fit their purposes and culture.
- Adhere to clear and publicly transparent governance processes. This will ensure a wider discussion about factors leading to the success or failure of a technology rather than attribution of reasons for failure solely to governance problems.
- Recognise obsolescence as a key factor in the commercial development of technology and enter into more flexible contracts.
- Engage recognised commercially independent technical experts to provide advice to system leaders.
- Develop a clear and defensible rationale for use of technologies in education based on justifiable principles and evidence rather than politically-driven values of efficiency and effectiveness.
- Ensure an appropriate, benchmarked level of digital literacy for students.
• Design education technologies to enhance children’s capacities to develop their skills and support them to build social relationships in ways that contribute meaningfully to their everyday lives.

• Establish user account registration systems that have relevance and practical application in school and home contexts.

• Resource comprehensive and ongoing training programs to build teachers’ capacity, skills and confidence in using ICT in their practice and as a new form of communication.

• Institute more democratic forms of decision-making so that all groups in the education system have the opportunity to influence the quality of technology design.

School leaders

• Advocate for bipartisan, long-term education technology policies so that schools can invest in resources more securely.

• Take a more active system role in designing any government-funded technology intervention in schools, moving away from a passive “servant of the government” attitude.  

• Develop agreed school processes to make information about student learning more immediate and accessible to students and parents through technology.

• Ensure all members of the school community have opportunities to participate in the design, implementation and use of technologies.

• Collect, analyse and publish findings on technology uses and attitudes in the school community to identify needs and support planning.

Teachers

• Agitate for increased teacher training opportunities in the use of ICT to improve teaching and learning and enhance communication with students and parents.

• Understand the structures controlling technology systems if online teacher collaboration again becomes a policy-driven expectation of the job. For example, find out who owns the copyright of online content produced by teachers and to what extent teachers’ intellectual property rights are protected in government-commercial contracts.

Timothy, Principal, West PS, interview, May 29, 2012.
• Look for opportunities to participate in early stages of decision-making at the local level to influence technology design, selection and uses.
• Provide students with more opportunity to participate in discussions and decisions about the curriculum and the types of technology that might best be used to support their learning.
• Provide meaningful and timely online student assessment and reporting information to parents without adding to existing workload.

Students
• Reach an appropriate, benchmarked level of digital literacy capability within the curriculum.
• Obtain relevant learning resources through all devices used at school or at home.
• Participate in discussions and decisions about what and how technology could be used in learning, in turn influencing school and system eLearning leadership plans, technology provision and teacher practices.
• Participate in discussions and decisions about the role and purpose of legal structural constraints on ICT use, such as Acceptable Use Agreements, ToS and Codes of Conduct.
• Be able to communicate online with, and provide feedback to, teachers about learning.
• Use technology to communicate and share ideas with peers and wider networks of students.

A child’s positioning within societies—their unequal power relationship with adults, protective societal norms and their inability to organise politically—constrains their ability to shape their Internet-mediated learning environments. Nevertheless, policymakers need to understand and consider the practices, ideas, attitudes and beliefs students have about using technology in their learning. This will improve ICT design and act to increase students’ agency.

Parents
• Participate in appropriate ICT training at the local level.
• Ask for a range of online and interpersonal home–school communication options.
• Find opportunities to participate in decision-making at the school and system level about technology design, implementation and use.
• Lobby for meaningful and timely online student assessment and reporting information.
• Understand how particular technologies can be successfully used in support of children’s learning outside of school.
• Challenge the policy constructions of parents as passive partners within the education system.
• Build links and networks with other parents and groups.

These suggestions are ways forward for governments, educators and families to give wider consideration to the roles of diverse groups in new technology design and the relevance of the different social purposes and practices of these groups to the eventual success or failure of such public policy-driven innovations.

9.4: FUTURE DIRECTIONS

Technologies and software arise out of scientific knowledge that is itself developing in response to social and technical applications and uses of digital technology. The rise of education technologies is increasingly visible in schools and homes, but their possibilities and consequences are largely unknown. As individuals, groups, organisations and institutions within digitally networked societies absorb each new technology, it is important to analyse the kinds of social relationships and institutional and regulatory definitions that inform and/or change as a result of its introduction. New technologies do not just appear; instead, they are introduced into a complex, multifaceted framework of existing technical, political, legal, contractual and financial contexts by people with specific goals in mind. Networked technologies increasingly shape and influence school and home environments, making it critical to describe, analyse and confront the changes that arise out of their adoption and use. As new personal and work technologies are introduced and need to be learnt, they can just as quickly disappear or fall out of fashion. As Lovink (2013) pointed out, it is not intentional change that is the driver here, but obsolescence. This is no less true of the Ultranet. Even after considerable public investment, it was defunded.241 Had this not been the case, it may have soon become obsolete or required further government investment to upgrade it.

Just as work on the dialectical relationship between policy and practice demonstrates (Facer et al., 2001a; Hammond, 2014; Somekh, 2004; Stevenson, 2011), even though ICT policy may fit closely with the innovation and knowledge economy of the 21st-century teaching and learning reform agenda of governments, it also has to meet the expectations and demands of particular

241 The total Ultranet investment was perhaps as high as 240 million dollars (IBAC, 2016).
social groups to be successfully implemented. As became evident in this research, there was a disjunct between policy formulators’ framing of the Ultranet based on their worldviews and cultures and the actuality of its appropriation into the everyday lived experience of individuals and groups. The challenge for the emerging sub-field of democratic participation in digital technologies is to find new ways to evaluate technology use in education to ensure that policy debates are informed by local knowledge grounded in the multiple constructed realities of different stakeholders.

As a first step, my findings point to the contradictory nature of digital technologies and call for a larger dialectical analysis of the impact of the digital on how policy and practice unfold. This theoretical approach should seek to identify the positive and negative effects inherent in different kinds of learning platform technology. With the advantages of both a little distance since learning platforms were introduced into public education settings and their novelty (in and out of education systems) being less celebrated, the likelihood of producing both a critical evaluation and a valid explanation of their impact is stronger.

The competitive influence of the public and private sectors in shaping secure online learning environments provides little opportunity for wider citizen debate or involvement in technology design. The extent to which state-initiated digital technologies will generate new forms of participation that act to challenge established social patterns will become clearer as online learning continues to gather pace. A question we are left to consider is what kinds of technology governments and citizens should co-design to maximise opportunities for Victorian government school students to become experts in managing their own learning and enhancing their social and political participation? The design of the privacy and safety protections controlling Ultranet use in Victorian schools and homes turned the Ultranet into a gateway that blocked children’s learning participation and seemed to ignore the responsibilities of teachers and parents in relation to the children in their care. If government regulatory frameworks in any future design of learning platform technologies include privacy and security restrictions similar to those adopted in the Ultranet project, access to some ICTs in schools and homes will remain constrained and users will look for alternative ways to participate online.

The demise of the government-funded Ultranet learning platform left principals with the responsibility to buy or develop their own technology solutions. Interestingly, in the wake of the Ultranet some secondary schools introduced commercial, password-protected learning platforms hosted on virtual cloud servers, such as Edmodo (Edmodo, Inc., San Mateo), Compass (Compass Education, Balwyn North) or Moodle (Moodle Pty. Ltd., Perth), that include
assessment and reporting and administrative modules, but that do not have DEECD endorsement. Even after the Ultranet experience, these school leaders remain convinced of the cost and time-saving benefits of using the digital medium to communicate with their school communities. According to Aly, a central DEECD official, however, none of the commercial platforms available in the year of the Ultranet’s decommissioning met the needs of schools:

We’ve got a missed opportunity [...] there’s a whole lot of tools out there that are free that schools can use. So the opportunity we’re missing out on is about a student-centred system that knows the student no matter where they are because the other systems, like Edmodo, people can collaborate. Global2, [DEECD’s digital learning social networking site] it actually doesn’t connect that person as a learner to everything else they do. So that’s what we’re missing out on, that pivotal learner. It’s about the learner, and everything about the student’s learning is connected in one spot. That’s what we are losing.

The autonomy to determine the technology used in their schools is a powerful reinforcement of principals’ authority. At the same time, if principals are expected to develop the capacity of state education through ICT, they need it to be less affected by electoral and business cycles. The global education environment that school leaders, teachers, students and parents are moving towards is far from stable. Just as one government’s education technology policies are implemented, a change of government sees new public policy introduced due to a lack of bipartisanism. Expectations and cultural values are relative, depending on who is making the rules and implementing the decisions, but they are also impacted by universal concerns. We should view technologies as contextual, as having meaning and relevance in people’s rich and diverse lives. But we should also be aware of the propensity for them to be used as a top-down mechanism to create a particular social order. Correspondingly, citizens need to participate in decision-making on issues affecting work and family institutions so as to have influence in national and state political processes.

More research that combines qualitative and quantitative methods should be carried out on the digital divide that exists in education between users and non-users of the Internet. This could help identify and clarify ambiguous claims or arguments about the use of learning platforms in schools and homes. The potential impact of wider social factors—age, level of

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242 Global2 (DE&T, Melbourne).
education and Internet skill—across and within groups raises important questions about technology and equity in schooling (Eynon, 2009; Kennedy et al., 2010).

Examining the richly diverse contexts of schools’ institutional settings using an ethnographic lens could valuably identify how under-served groups might better influence curricula and school decision-making practices. Such an integrated perspective could offer insights into the inherent tensions evident when parents are seen as partners in schools and their children’s education at the same time as being a disengaged group with little understanding of complex or technical issues. Such an inquiry could yield insights about the extent to which Internet technology shapes this separation.

The knowledge economy’s intersection with education is driven by a technocratic belief in the potential of web 2.0 and learning platform technologies to transform communication practices. A 21st-century participatory learning agenda and technology being positioned as progressive and neutral promote such claims and decry past and present education structures as no longer legitimate for young people’s education because they reproduce social disadvantage, spurred as they are in part by regimented and inflexible structures. The integrated and complex social structures in education, coupled with groups’ capacity to influence technology development, indicate that users will need to be given more recognition in decision-making processes, together with designers, if digital technologies such as the Ultranet are to become successfully embedded in education communities. While the language and ideology of a participatory society can be seen in aspects of DEECD’s Ultranet project, it was missing in practice. As governments and multinational technology corporations stake their political and commercial futures on their own participation in society, they seek to produce and distribute learning technologies that satisfy their aims but do not necessarily meet the interests of digital-era citizens. Only when we recognise what shapes this process can we hope to change its outcomes.
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References


Hello! My name is Veronica Fitzgerald. I am a student at the University of Melbourne. For the remainder of this school year, I am doing a university project at your school to find out how students use computers to communicate between home and school. When I went to school, there were no computers or an Ultranet so I want to find out how young people, such as you, use these new technologies in school and at home.

I have been given permission by your principal to carry out observational work in a classroom for two days a week over two terms. I will not be taking a teaching role but may, at times, participate in group activities with the students. Of course, if you choose not to take part in my project, you will still remain in your classroom when I am there and do your normal classroom activities.

Once I have been in your classroom for a few weeks getting to know you, I am going to randomly pick and write to four students and ask you and your families for permission to observe what kinds of things you use the Ultranet for when you are 'out-of-school'.

From time to time, with your permission, I may take photos of you working in the classroom. I will not take any photos of your computer screen that identify you. I will also not publish any photos where you can be clearly identified without asking for your permission again.

I may also collect copies of student work done on the Ultranet. Your name won’t be used anywhere in my final project so no-one will be able to tell which work is yours. In my final report, you will be referred to by a pseudonym which is a made-up name.

My project will have nothing to do with your school report or grade. At any time it is totally acceptable for you to say “I do not want to be involved.” This will not be held against you in any way. Only my supervisor and I will discuss what I see or you tell me, so please don’t worry that your teacher or principal might want to know or look at anything I collect. In a few years from now, I would like to publish my university project at conferences and in an e-book!

This project is not related to any other school research projects that you may be involved in from time to time. Only your parent/guardian/carer, your principal, your teacher and the researchers (who have signed this letter) will know who is taking part in this project. Of course, if you choose to discuss your participation with your friends and classmates then that is your decision.

During my project your name and contact details will be kept in a separate, password-protected computer file from any other information that you share with me. I will keep all my
research notes in a locked filing cabinet. After the project is over, all my research notes will be locked away safely in the Asia Institute at the University of Melbourne for 5 years. I have to do this because it is a University rule. After that time, my supervisor will destroy them.

Once you have read this letter, you and your parent/guardian/carer can talk it over and decide if you would like to take part. Remember, you don’t have to take part unless you want to. You can also leave the research at any time during the year with ‘no questions asked’. If that happens I will ask you if I can still use the information that I have already collected.

If you have any questions either now or during the year you should talk to your teacher or your parent/guardian/carer. If they don’t know the answer to your question, they can contact me, or my supervisor, or the Human Research Ethics office on ph: 8344 2073 at the University for you.

If you would like to be part of my project this semester, and your parent/guardian/carer agrees, please sign your name on the next page where it says “Student”, and get your parent/guardian/carer to sign as well. We would also really appreciate it if you could return the consent form regardless of whether you wish to participate so that we can work out the level of interest in this project.

Thanks for reading this letter.

Best wishes,

Professor Thomas Reuter (Supervisor)  Ms. Veronica Fitzgerald (Ph.D. Student)
Ph: [Redacted]  Ph: [Redacted]
email: treuter@unimelb.edu  email: v.fitzgerald@pgrad.unimelb.edu.au
REVISED: PLAIN LANGUAGE STATEMENT – STUDENTS STAGE TWO

Project: “Unpacking the Ultranet: Home-School uses” – Stage Two

"How do students in Victorian government schools use the Ultranet?"

Hello again! As you may know, I am a student at the University of Melbourne. Your school principal and teacher have given me permission to send you this letter because your name has been randomly selected, along with three other students in your school, to take part in the second part of my project. Just a reminder though, this project is not related to any other school research on the Ultranet. Once you have read the letter, you and your parent/guardian/carer can talk it over and decide if you would like to voluntarily take part.

In about two weeks from now, I am going to start to visit some students in their homes. I will visit your home five times in total. Each visit will be for one hour. When I am in your home, I will spend time sitting in front of a computer observing your use of the Ultranet. Of course, any ‘out of school’ observations will be voluntary. Remember, whenever I am in your home, your parent/guardian/carer will always be there.

I may also collect copies of work you do on the Ultranet at home. Your name won’t be used anywhere in my final project so no-one will be able to tell which work is yours. Also, my project has nothing to do with your school report or grade. Only my supervisor and I will discuss how you use computers to communicate between home and school.

Remember that only your parent/guardian/carer, your principal, your teacher and the researchers (who have signed this letter) will know who is taking part in this project. Of course, if you choose to discuss your participation with your friends and classmates then that is your decision. Remember, in my final report, you will be referred to by a pseudonym which is a made-up name.

Just a reminder too, that you don’t have to take part unless you want to. You can also withdraw from the research at any time during the year with ‘no questions asked’. If that happens I will ask you if I can still use the information that I have already collected.

If you have any questions either now or during the year you should talk to your parent/guardian/carer or a teacher. If they don’t know the answer to your question, they can contact me, or my supervisor, or the Human Research Ethics office on 03 8344 2073 at the University for you.

If you would like to be part of this exciting in-home study, and your parent/guardian/carer agrees, please sign your name on the next page where it says "Student", and get your parent/guardian/carer to sign as well. Then, please give it back to your teacher.

Thanks again for reading this letter. Looking forward to seeing you at school next week!

Best wishes,

Professor Thomas Reuter (Supervisor)   Ms. Veronica Fitzgerald (Ph.D. Student)
Ph: [number]   Ph: [number]
email: treuter@unimelb.edu   email: v.fitzgerald@pgrad.unimelb.edu.au
Dear Parent/Guardian/Carer,

You are warmly invited to participate in an exciting research project on home-school computer uses and relationships. This project's aim is to analyse home-school communication and new media technologies and its intention is to provide extensive insight into home-school relationships and patterns of using computers. Today's generation of children will grow up in a manner that will make them take interactive media for granted as a part of their every-day life, their social interaction, and their learning and work environments. We believe that this study has the potential to provide insight into the ways schools engage parents in an interactive conversation about broadband technologies in homes and classrooms.

I ask permission to carry out observational work in your child's classroom for two days a week over two terms. My visits would be scheduled at a convenient time to your child’s teachers and Principal, and of course would only be carried out if the teacher and parents concerned give permission for the research. I will not be taking an instructional role but may, at times, participate in group activities with the students. It is an important part of this case study’s objectives that I can observe certain phenomena from a child’s perspective. However, it is also important that any participation does not interfere with children’s natural uses of the Ultranet. I will be guided by the classroom teacher to ensure that any participation is non-intrusive.

Of course, any student who chooses not to participate will not be disadvantaged by the school or the researchers in any way. These students will remain in their normal classes for all classroom instruction.

From time to time, with your permission, I may take photos of students working in their classroom so that I can analyse my research once my project finishes at your school. No photographs will be taken where there is a possibility that confidential information on a computer screen is identifiable. If I wish later to use a specific photograph for publication, then specific permission will be sought again from the parent and student in that particular case.

Parent/guardian/carer participation ends at the end of Stage one unless you are randomly selected to participate in Stage two which involves four children and their families and consists of a series of in-home observations and focus group discussions.

This project is unrelated to any Department of Education research or evaluation on the Ultranet. This research is being conducted by Ms Veronica Fitzgerald (Ph.D. student) at The University of Melbourne and is supervised by Professor Thomas Reuter and Dr. Robert Hassan in the Arts faculty and Professor Lyn Yates in the Graduate School of Education. Your school principal has given permission for you to receive this letter and Ms. Fitzgerald also has a current Working with Children Check and National Police Certificate.

Project data (discussion transcripts, work samples, student photographs and written observations) will be kept securely in the Arts faculty, Asia Institute for five years from the date of publication before being destroyed. Should you or your child wish to withdraw at any stage, or to withdraw any unprocessed data, you are free to do so without prejudice. Once this thesis has been completed, a brief summary of the findings will be available to you on

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application to the Asia Institute. It is also possible that the research findings will be presented at forums, academic conferences and/or in research papers, newspapers and education magazines such as Inspire.

In the final written report, your child will be referred to by a pseudonym to protect their anonymity. We will remove any references to personal information that might allow someone to guess their identity. However, as the number of people involved in this project is relatively small, it is possible that someone may still be able to identify them in the final report.

Should you require any further information, would like to meet Veronica or have any privacy or other concerns, please do not hesitate to contact either of the researchers; Dr Reuter: [redacted] or Ms Fitzgerald: [redacted] Should you have any concerns about the conduct of the project, you are also welcome to contact the Executive Officer, Human Research Ethics, The University of Melbourne, on ph: 8344 2073, or fax: 9347 6739.

If you agree to your child participating in Stage one of the research project at school, please complete and return the consent form to your child’s classroom teacher. We would also really appreciate it if you could return the consent form regardless of whether you wish to participate so that we can gauge the level of interest in this research.

Thank you for your consideration.

Best wishes,

Professor Thomas Reuter (Supervisor) Ms. Veronica Fitzgerald (Ph.D. Student)
Ph: [redacted] Ph: [redacted]
email: treuter@unimelb.edu email: v.fitzgerald@pgrad.unimelb.edu.au
Dear Parent/Guardian/Carer

Your child has now been participating in the ‘Unpacking the Ultranet’ university project at your school for several weeks and we hope this is an enjoyable experience for them.

Earlier this week, in a process designed with your child’s teacher, your child’s name was one of four randomly selected to take part in Stage two: an in-depth case study. If you would like to participate in Stage two of the project, we would like to invite you to consent to researcher Veronica Fitzgerald to conduct in-home observations on your child’s Ultranet use. This project is not related to any Department of Education research or evaluation on the Ultranet. The tasks in Stage two for students are:

- five, one-hour student observations at home, one hour of which requires involvement of a parent/guardian/carer but all of which require at least one parent/guardian/carer to be present in the home.

The time commitment for students for Stage two will be around five hours over 14 weeks in Terms 1 and 2, 2012. During the student researcher’s three-weekly visits, time will be spent informally sitting with children in front of computer screens observing their use of the Ultranet. This observation is in no way related to parenting and/or your computer skills. If families have no home access to a screen connected to the internet or do not wish these observations to take place at home, these sessions can be held in another mutually-agreeable place such as a public library. No photography will be used in Stage two.

The discussion and time commitment for each parent/guardian/carer for Stage two will be around four hours and 15 minutes over 14 weeks and is again limited to the first half of one year, 2012. Please note that at least one parent/guardian/carer needs to be willing to attend the in-home observations and two additional small focus group discussions during the semester. Specifically, I invite you to:

- Firstly, participate in a telephone call or face-to-face meeting for up to 15 minutes with the student researcher to discuss your appropriate times for the student researcher to visit your home or observe your child in a public library for example.
- Secondly, you will be invited to take part in two, one-hour, focus group discussions at the start and end of the project.
- Thirdly, you will be invited to take part in two one-hour individual semi-structured interviews with the researcher at a convenient time and place for you. With your permission, and with appropriate protocols to preserve anonymity, focus group discussions and interviews may be taped and comments used in the final report.
- Lastly, we would ask you to participate in one parent/guardian/carer-child observation at home.

Researcher Veronica Fitzgerald will be moderating the focus groups discussions and interviews. With parent/guardian/carer permission, and with appropriate protocols to preserve anonymity, focus groups may be taped and comments used in the final report. Please also be advised that your participation in any of the focus groups is completely voluntary.

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Project data (interview transcripts, work samples and observations) will be kept securely in the Asia Institute for five years from the date of publication before being destroyed. Should you or your child wish to withdraw at any stage, or to withdraw any unprocessed data, you are free to do so without prejudice. Once this thesis has been completed, a brief summary of the findings will be available to you on application to the Asia Institute. It is also possible that the research findings will be presented at forums, academic conferences and/or in research papers, newspapers and education magazines such as *Inspire*.

In the final written report, all participants will be referred to by a pseudonym to protect your anonymity. We will remove any references to personal information that might allow someone to guess your identity. However, as the number of people involved in this project is relatively small, it is possible that someone may still be able to identify you in the final report.

Should you require any further information, would like to meet Veronica if you haven’t already done so or have any privacy or other concerns, please do not hesitate to contact either of the researchers; Dr Reuter: [phone number] or Ms Fitzgerald: [phone number]. Should you have any concerns about the conduct of the project, you are also welcome to contact the Executive Officer, Human Research Ethics, The University of Melbourne, on ph: 8344 2073, or fax: 9347 6739.

If you would like to participate in Stage Two of this research project, please sign both the Student and Parent/Guardian/Carer consent forms sent home with your child to indicate that you have read and understood this information. Please return both consent forms to your child’s classroom teacher. Ms. Fitzgerald will then contact you through your child’s teacher to arrange a suitable time to speak with you.

Thanks again for your time and interest in this exciting university research project.

Kindest regards,

**Professor Thomas Reuter (Supervisor)**  
Ph: [phone number]  
email: treuter@unimelb.edu

**Ms. Veronica Fitzgerald (Ph.D. Student)**  
Ph: [phone number]  
email: v.fitzgerald@pgrad.unimelb.edu.au
Dear Staff member,

As a teacher with current experience in using the Ultranet in a Victorian government school, we warmly invite you to participate in an exciting research project. This project's aim is to analyse home-school communication and new media education technologies and its intention is to provide extensive insight into home-school relationships and patterns of using computers. The participation I am seeking from you is explained further below but is limited to involvement over the first half of one year, 2012.

**What will I be asked to do?**

Should you agree to participate, you would be asked to contribute in four ways:

- Firstly, I ask permission to carry out observational work in a classroom for two days a week over two terms. My visits would be scheduled at a convenient time to you and other teachers, and of course would only be carried out if you give permission for the research. I will not be taking an instructional role but may, at times, participate in group activities with the students. It is an important part of this case study’s objectives that I can observe certain phenomena from a child’s perspective. However, it is also important that any participation does not interfere with children’s natural uses of the Ultranet. I will be guided by you to ensure that any participation is non-intrusive. There is a possibility that I may ask you to share lesson materials and/or work samples, however, any decisions to do so are entirely at your discretion.

- Secondly, you will be invited to take part in two one-hour focus group discussions with other teachers in semester 1, 2012 at the beginning and end of the project.

- Thirdly, you will be invited to take part in two one-hour individual semi-structured interviews with the researcher at a convenient time to you. With your permission, and with appropriate protocols to preserve anonymity, focus group discussions and interviews may be taped and comments used in the final report.

- Lastly, we would ask you to assist administratively. This could include distributing and collecting any student and parent/guardian/carer consent forms.

**How will my confidentiality be protected?**

We intend to protect your anonymity and the confidentiality of your responses to the fullest possible extent, within the limits of the law. Your name and contact details will be kept in a separate, password-protected computer file from any data that is generated as a result of Veronica’s research. In the final report, you will be referred to by a pseudonym. We will remove any references to personal information that might allow someone to guess your identity; however, you should note that as the number of people we seek to involve is very small, it is possible that someone may still be able to identify you. The data will be kept securely in the Asia Institute at the University of Melbourne for five years from the date of publication, before being destroyed.

**Who is carrying out this research?**

This project is not part of DEECD research or evaluation on the Ultranet. Rather, as a Ph.D. project, it takes a deeper focus over several years on a particular issue of concern to schools in
relation to computers, and aims to produce knowledge that will be complementary to the research and evaluations carried out by DEECD. This research is being conducted by Ms Veronica Fitzgerald (Ph.D. student) at The University of Melbourne and is supervised by Professor Thomas Reuter and Dr. Robert Hassan in the Arts faculty and Professor Lyn Yates in the Graduate School of Education and has the approval of your principal.

How will I receive feedback?

Once the thesis arising from this research has been completed, a brief summary of the findings will be available to you on application at the Asia Institute. It is also possible that the results will be presented at academic conferences and that future publication opportunities may arise.

Will participation or lack of participation prejudice me in any way?

Please be advised that your participation in this study is completely voluntary. Should you wish to withdraw at any stage, or to withdraw any unprocessed data you have supplied, you are free to do so without prejudice. Your decision to participate or not, or to withdraw, will be completely independent of your dealings with your employer. It is also important to note that any data you provide will in no way prejudice your position of employment.

Where can I get further information?

Should you require any further information, or have any concerns, please do not hesitate to contact either of the researchers on the numbers or email addresses given below. Should you have any concerns about the conduct of the project, you are welcome to contact the Executive Officer, Human Research Ethics, The University of Melbourne, on ph: 8344 2073, or fax: 9347 6739.

What do I do if I would like to participate?

If you would like to participate, please indicate that you have read and understood this information by signing the accompanying consent form and returning it in the envelope provided. I will then contact you to arrange a mutually convenient time to meet with you.

Kindest regards,

Professor Thomas Reuter (Supervisor) Mr. Veronica Fitzgerald (Ph.D. Student)
Ph: 9035 4281 Ph: 9707 4289
email: treuter@unimelb.edu email: v.fitzgerald@pgrad.unimelb.edu.au
Ph.D. Research Project: Unpacking the Ultranet: Home-School uses

Researchers: Professor Reuter, Professor Yates, Dr. Hassan and Ms. Veronica Fitzgerald

CONSENT FORM FOR PARTICIPANT TO GIVE INFORMED CONSENT TO TAKE PART IN A RESEARCH PROJECT

Stage One: Student: Starting in Semester 1, 2012

- I have read and understood the Plain Language Statement about the above project and this information has been given to me to keep.
- I understand that the project is for university research purposes and is not related to any DEECD research.
- I have had an opportunity to ask questions and I am happy with the answers I received.
- I have been informed that the confidentiality of the information I provide will be kept safe, subject to legal requirements.
- I understand that I am free to withdraw from the project at any time without explanation and to withdraw any information which has not already been used by the researchers.
- I understand that if I withdraw at any time that this will not affect me or my school work or assessments.
- I understand that the researchers have agreed not to reveal any information involving me or my school work or assessments.
- I understand that the researchers will not reveal my identity in any published material.
- I understand that the researchers may ask my permission to collect samples of my class work.
- I understand I may be photographed but that the researchers will not publish any photographs where I can be clearly identified without asking for my permission again.
- I understand I can 'opt-out' or say 'no' at any time to having my photograph taken.
- I understand I can 'opt-out' or say 'no' at any time to having my photograph taken.
- I understand that this project follows the guidelines of the NHMRC National Statement on Ethical Conduct in Human Research (2007).
- I understand that this project has the approval of The University of Melbourne Human Research Ethics Committee and my school principal.

I (Student Name) __________________________________________________________(Please print) voluntarily consent to take part in the above research project.

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"OPT-OUT" SECTION: I do not agree to participate in this project

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"OPT-OUT" SECTION: I do not agree to my child's participation in this project

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I agree to my child's photograph being taken

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Ph.D. Research Project: Unpacking the Ultranet: Home-School uses

Researchers: Professor Reuter, Professor Yates, Dr. Hassan and Ms. Veronica Fitzgerald

REVISED: CONSENT FORM FOR PARTICIPANT TO GIVE INFORMED CONSENT TO TAKE PART IN A RESEARCH PROJECT

Stage Two: Student: Starting in Semester 1, 2012

I (Student Name) ______________________________________________________ (Please print) voluntarily consent to take part in the above research project.

- I have read and understood the Plain Language Statement about the above project and this information has been given to me to keep.
- I understand that the project is for university research purposes and is not related to any DEECD research.
- I have had an opportunity to ask questions and I am happy with the answers I received.
- I have been informed that the confidentiality of the information I provide will be kept safe, subject to legal requirements.
- I understand that I am free to withdraw from the project at any time without explanation and to withdraw any information which has not already been used by the researchers.
- I understand that if I withdraw at any time that this will not affect me or my school work or assessments.
- I understand that the researchers have agreed not to reveal any information involving me or my school work or assessments.
- I understand that the researchers will not reveal my identity in any published material.
- I understand that the researchers may ask my permission to collect samples of my work.
- I understand that this project follows the guidelines of the NHMRC National Statement on Ethical Conduct in Human Research (2007).
- I understand that this project has the approval of The University of Melbourne Human Research Ethics Committee and my school principal.

Signature ______________________________________________________ Date
(Student)

Signature ______________________________________________________ Date
(Parent/Guardian/Carer)

“OPT-OUT” SECTION: I do not agree to participate in this project

Signature ______________________________________________________ Date
(Student)

“OPT-OUT” SECTION: I do not agree to my child’s participation in this project

Signature ______________________________________________________ Date
(Parent/Guardian/Carer)
Ph.D. Research Project: Unpacking the Ultranet: Home-School uses
Researchers: Professor Reuter, Professor Yates, Dr. Hassan and Ms. Veronica Fitzgerald

REVISED: CONSENT FORM FOR PARTICIPANT TO GIVE INFORMED CONSENT TO TAKE PART IN A RESEARCH PROJECT

Stage One: Teaching/Non-Teaching staff: Starting in Semester 1, 2012

I (Participant Name) ________________________________________________________(Please print) voluntarily consent to take part in the above research project explained to me by Mr/Ms/Dr/Professor ______________________________________________________

- I have read and understood the Plain Language Statement about the above project and this information has been given to me to keep.
- I understand that the project is for university research purposes and is not related to any DEECD research.
- I have had an opportunity to ask questions and I am satisfied with the answers I received.
- I have been informed that the confidentiality of the information I provide will be safeguarded, subject to legal requirements.
- I understand that I am free to withdraw from the project at any time without explanation and to withdraw any information which has not already been used by the researchers.
- I understand that if I withdraw at any time that this will not adversely affect me or my employment in any way.
- I understand that the researchers have agreed not to reveal any information involving me or my employment history, subject to legal requirements.
- I understand that interviews and focus-group discussions where indicated may be audio-taped, with appropriate protocols to preserve anonymity, and that I can refuse permission without prejudice.
- I understand that the researchers may ask me to share lesson materials and/or work samples and that the decision to do so is entirely at my discretion.
- I understand that the researchers will not reveal my identity in the resulting thesis or any publications or presentations.
- I understand that this project follows the guidelines of the NHMRC National Statement on Ethical Conduct in Human Research (2007).
- I understand that this project has the approval of The University of Melbourne Human Research Ethics Committee and my school principal.

Signature ___________________ Date ___________________ (Participant)

I have explained the project to the participant who has signed above, and believe they understand the purpose, extent and effects of their involvement in this project.

Researcher’s Signature ___________________ Date ___________________ (Researcher)
Ph.D. Research Project: Unpacking the Ultranet: home-school uses

Researchers: Professor Reuter, Professor Yates, Dr. Hassan and Ms. Veronica Fitzgerald

REVISED: CONSENT FORM FOR PARTICIPANT TO GIVE INFORMED CONSENT TO TAKE PART IN A RESEARCH PROJECT

Stage Two: Parent/Guardian/Carer Involvement in an in-depth case-study:

Starting in Semester 1, 2012

I (Participant Name) ____________________________ (Please print) voluntarily consent to take part in the above research project explained to me by Mr/Ms/Dr/Professor ____________________________________________

- I have read and understood the Plain Language Statement about the above project and this information has been given to me to keep.
- I understand that the project is for university research purposes and is not related to any DEECD research.
- I have had an opportunity to ask questions and I am satisfied with the answers I received.
- I have been informed that the confidentiality of the information I provide will be safeguarded, subject to legal requirements.
- I understand that I am free to withdraw from the project at any time without explanation and to withdraw any information which has not already been used by the researchers.
- I understand that if I withdraw at any time that this will not adversely affect me or my family in any way.
- I understand that the researchers have agreed not to reveal any information involving me or my family's history, subject to legal requirements.
- I understand that interviews and focus-group discussions where indicated may be audio-taped, with appropriate protocols to preserve anonymity, and that I can refuse permission without prejudice.
- I understand that the researchers will not reveal my identity in the resulting thesis or any publications or presentations.
- I understand that this project follows the guidelines of the NHMRC National Statement on Ethical Conduct in Human Research (2007).
- I understand that this project has the approval of The University of Melbourne Human Research Ethics Committee and my school principal.

Signature ____________________________ Date ____________________________

(Researcher)

I have explained the project to the participant who has signed above, and believe they understand the purpose, extent and effects of their involvement in this project.

Researcher’s Signature ____________________________ Date ____________________________

(Researcher)
“OPT-OUT” SECTION: I do not agree to participate in this project

Signature (Student)
Date

“OPT-OUT” SECTION: I do not agree to my child’s participation in this project

Signature (Parent/Guardian/Carer) Date