Repositioning Teacher Agency in the Discourse of Educational Change: A Study of the Early Socialization of Networked Technologies in Melbourne Schools

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Produced on archival quality paper
Declaration

This is to certify that;

- the thesis comprises only my original work towards the PhD except where indicated in the Preface,

- due acknowledgement has been made in the text to all other material used,

- this thesis is 99946 words as approved by the Research Higher Degrees Committee.

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Abstract

Rom Harré concerned with human agency and Michel Foucault with power relations argue that discourse is of central importance in our understanding of social behaviour’s shaping of our social world. Foucault, in analysing the nature and role of discourse, in order to clarify both his method for examining discourse and the nature of discourse itself, ascribed an autonomous role to discourse in the development of contemporary systems of power. After Foucault, we are told that power is embodied in discourse which encodes institutional knowledge. We know what that means and how it works. But do we? Harré, offering an alternative realist ontology of conversation, asks of Foucault’s ontology reifying discourse, how could discourse possibly have a causal effect, and how could this be reconciled with the causal roles of individual human agents or subjects? The context of this study was the discursive practice of teacher enthusiasts involved in the earliest introduction of networked information and communications technology in their schools in the early 1990s. The study encompasses and relates emergent social structures or educational possibilities, the actual or agential acts and actions of the subject teachers and their psychological positioning in everyday discourses in their schools. This study does not seek to substantiate the theoretical work of Foucault or Harré; rather it seeks to reimagine teacher agency and to reclaim change in teaching embodied and embedded in the process of teacher’s everyday doings and sayings in the early socialization/institutionalization of networked and mobile communications technology in schools.

This study asks how the social order in schools at the time was transformed and maintained. Central to this investigation of the early socialization of these technologies is the question: How can the social agency of teachers, who introduced the new technologies in their schools, be understood and researched? In this study the site-based ontology’s of teachers as change agents, the interdependence of structure and agency the motives of self-improvement and institutional transformation are explored. This work requires a re-imagination of teacher agency and the reclamation of change in social research in education. This is a social, cultural-historical, instrumental psychological study of the positioning of teacher technology-enthusiasts in their own story lines in their ordinary language accounts of the introduction of new information and communications technologies in their schools. An ethogenic perspective was employed in framing the analysis and interpretation of the dialogical and dialectic tensions between institutional and constitutive orders in teaching. These tensions associated with the choices that teacher technology-enthusiasts were forced to make and
live with, were often expressed by the actors in terms of injustice and/or shame.

Harré argues:

By the presentation of self in public one creates one’s social being. One’s personal being is the product of appropriations and transformations of social resources, including the local theory of selves. … [And] under certain conditions one's own personal being can become one’s own project. Personal development takes place within cultural conventions. (1984, p. 257)

Teacher agency, if not deterministic, if non-compulsory, if idiosyncratic, then chaos? Certain person-theories inhibit self- knowledge and self-mastery, others will promote them. Harré’s conceptual system of personal development, in its public-private and collective-individual dimensions, assumes everything psychological comprises appropriations from and perhaps transformations of something social, and that human experience is always an interpretation of the natural. He attends to four processes in psychological and moral development: appropriation, transformation, publication and conventionalization shown schematically here to illustrate the person of the teacher developing dialogically in their everyday discursive practices as teachers in relation to the locus of control of local moral orders of their school.

![Diagram](Identity_Formation_and_Organizational_Transformation_after_Harré’s_Personal_Being, 1984)
Useful as this is in encompassing concurrent individual identity formation and organizational transformation, in treatment of change, Harré's cycle of development, even if seen as non-linear, cannot fully frame teachers’ site-based dialogical accounts in this study of the particular social conditions under which personal transformation may be accomplished, in the socialization of the new “resources” or material change which the societal rhetoric of the time proclaimed foreshadowed a “new age” in education. This study of the agentive spaces of these teachers then required a fine grained analysis of the social structures of the material realm of teachers’ practical intelligence on the subjective as well as the objective side of the Cartesian cut. Through its analysis of the semiotic interactions in the dramaturgical accounts of teachers as agents of change in a particular proto social experiment, the study seeks to broaden the scope of critical realist research and transformational models of social action to encompass both the social ontological and phenomenological dimensions of teaching practice.
Chapter 1  Agents of Change and the Analogue-digital Curriculum: Teachers, Technology and the Transformation of Pedagogical Practice

Putting the Web out on alt.hypertext was a watershed event. It exposed the Web to a very critical academic community. I began to get e-mail from people who tried to install the software. They would give me bug reports, and ‘wouldn’t it be nice if …’ reports. And there would be the occasional ‘Hey, I’ve just set up a server, and its dead cool. Here’s the address.’ … Interested people on the Internet provided the feedback, stimulation, ideas, source-code contributions, and moral support that would have been hard to find locally [at CERN]. The people of the Internet built the Web, in true grassroots fashion.

Tim Berners-Lee 1999:51-52

1.1 Towards an Analogue-digital Future in Schools

At the time of the study when the World Wide Web came into vogue outside the institution of schooling, I was an itinerant academic employed in teacher education and President of the local state science teachers’ association with 15 years’ experience as a teacher of secondary school science. I wondered how this new technology of Tim Berners-Lee would and could be introduced in schools? In the time-space, 1994-9, I sought to enter the emerging conversation concerning the shape and nature of a possible analogue-digital future. I was a novice computer and Internet user, and partially sighted. I decided to learn more about the World Wide Web. I learnt to touch type. I attended workshops on HTML (for creating web pages). I established and was the list administrator for an Australian discussion group for teachers of science (ASTA FORUM). I completed a 12-week online course for ‘Facilitators of Online Discussion Groups’, and I established a ‘Virtual Science Education Centre’ (VSEC) web site.

I talked to teachers about what they saw as the transformative pedagogical possibilities, problems and prospects in the use of networked and mobile computing in schools. The institutional decision by some private and public schools, and some individual teachers in State schools in Victoria to embrace such emerging technologies provided me with an
opportunity to investigate ontologies of practice, in *that moment of time and place*. I studied the experience of teachers in an entrepreneurial private school, in a government Navigator school and explored the ‘lived-history’ of three State school teachers who saw themselves as agents of change through research interviews which invited them to reflect on their interests, biographies and perspectives on the potential pedagogical uses of new media.

In deciding to investigate how early adopting teachers and schools of the World Wide Web were planning to use the newly available resource, I was interested in understanding how social orders of teaching were maintained and transformed at the outset of this technological reformation.

The analogue-digital future was viewed in this research as an emergent property of the interplay between structure or culture and agency. It was assumed that the discussion between interlocutors could be explained through action accounts and that the self develops dialogically and that the horizons of significance (Taylor, 1992) that the culture provided were essential references for their sense of self, the choices that lay before them, and the demands, and tensions with which they had to contend.

These horizons of significance are taken to be a valuation system of a historically grown community - the authoritative principles, rules, values and norms that are expressive of the socially prevalent conception of the good life in their school. The structural narrative in the studies emerged from researching the perspectives of policy makers and resource providers, such as those contained within the policies of government, private school principals, universities, teacher associations and providers of new media. However, the teachers’ agentive narratives were not so clearly defined, documented or publicly accessible. The agentive narratives of interest are presented as dialogical constructs of conversations between teacher enthusiasts and the researcher.

These perspectival accounts of their agency of change are constructed at the intersection of their purposes in pioneering the pedagogical use of the new media in classrooms with social necessities at that time and place, and as such, is an exploration of the horizons of significance of the new technologies in their schools.

The guiding question, ‘How was teaching with new learning technologies intelligible to teachers at that time when these technologies were first made available?’ That is to explore how these teachers sought at that time in schools to share the meaning or significance experienced, developed, assigned or attributed to such technologies in their everyday lives of their practice community.
Two dominant perspectives have guided research into these social phenomenological questions. From the first perspective the local classroom uses of these technological artefacts are determined in the process of teachers following new policy structures adopted in their schools. From the second perspective teacher agency is determinate. The stance adopted in this study is that an understanding of the relation between structure and agency is required in an investigation of transformational social action such as this. Policy-based research into the socialization of the new technologies in teaching practice has been effectively anti-ontological. (Bhaskar, 2000) Policy-based research has taken an actualist orientation, presupposing invariant regularities, or constant conjunctions which reify social structures. (ibid) Narrative research on the other hand has typically explored individualist ontologies that seemed limited as a social ontology. In this study a different societist social ontology is explored, that of the site based ontologies of change agents in their schools. (Schatzki, 2002; 2003)

The introduction in the 1990s of networked and mobile computing in classrooms, the locus of this study, is only one instance of the general question of the operation of material objects in the social world. There is a tendency to consider the new educational technologies as being a singular thing. In fact computer based technologies have evolved so much during the past two decades that the current iteration of these social artefacts are manifestly different in appearance and functionality from the desktop or laptop computers in classrooms and staffrooms that originally were connected to the Internet. Today there are a myriad of digital devices, technologies and software applications that collectively are known as ‘learning technologies’, including devices such as graphics calculators, digital sensors, digital cameras, mobile phones, tablets, smart whiteboards; technologies such as blogs, vlogs, email, instant messaging, music-sharing, picture-sharing, torrents, crowdsourcing and voice over IP, and software applications known as ‘social media’ such as Facebook, Myspace, Twitter, YouTube, Podcasts, Vodcasts, Wikipedia, Google, virtual game worlds, and virtual social worlds.

The focus in this study is the discursive practice of teacher enthusiasts who positioned themselves or were positioned in school discourses as agents of change, to encourage the pedagogical use of new media in their schools. Professional development and institutional reform has been seen by Bhaskar’s anti-ontologists to comprise speech acts that have had an inherent goal of establishing mutual understanding and belief in the power of individual human reason to achieve the communicative competence to bring about a new institutional order in the community of practice. This perspective on
professional development and institutional reorganization I associate with Habermas (1992) and see it as an ideological quest for prediction and control. However, professional development and institutional change has also been seen to be a narrative ontology. The teachers in this study are assumed to have teleological intentionality, historically affected and to be embodied and embedded in their particular biographies and practices. At best mutual understanding among teachers in this dialectic of professional development has involved encouraging teachers to embrace each other’s biases in a collaborative constitutive order embedded in a future oriented conversation constructing artefacts-in-use that come to constitute their shared purposes. This position I associate with Gadamer (1995). The postmodern reality, of course, proposes that both of these arguments about transformational discourses are essentially meaningless in that each teacher is bound to their own biography to go their own way - sometimes ending up at the same place, usually not.

When the interviews for this research were conducted in the early 1990s, the social representations of the ‘promise’ of new media and a new horizon of significance associated with public access to an analogue-digital future belonged to other people outside education and certainly not to teachers as agents of change. The teacher-agents were not necessarily conscious of the way in which significant others, in their school and the education sector at large were responding or not responding in their discursive circles to this new horizon and the need to change the historically available resources afforded to teachers. So the teacher enthusiasts in this study, who were exploring the use of the new technology in their own classrooms, were speaking initially of their own self-improvement as the endorsement or warrant for the pedagogical value of the new communication technology and practice order of the “new digital age”. They were aware, often only vaguely of more advanced explorations in other places described in their discursive circles with teachers in their subject area in other schools or with university staff. They were also aware that the future possibilities embodied in the new media, to which they had committed themselves in their school or subject department, were likely to be translated differently, in other conversations in their school and elsewhere. They were also aware that these discussions, occurring elsewhere, about the possible meanings and significances of change to an analogue-digital curriculum would reshape their practice time-space and their future identity, in their absence. Moreover, the teachers in this study understood generally that even if their school’s proclaimed vision of an analogue-digital future was attributed to their pioneering use of the new media, their ‘ideas’ were likely to be reconfigured and themselves repositioned to serve
others’ purposes and meanings. They saw that the technology was continually changing so the previous response to the pedagogical possibilities of the new technologies or applications could never be the ultimate response in a future situation or place. The people involved at a different time and place were likely to envisage an analogue-digital future - the way it might be differently - but the technology itself afforded possibilities capable of subverting the possibility of a shared meaning or of a fused horizon in the here and now in their schools. Shotter (2003) observes:

When faced with a disorienting circumstance, a circumstance in which we do not know how ‘to go on’, instead of turning away from it, and burying ourselves deep in thought in an attempt to mentally and imaginatively construct a way to explain it in ways already familiar to us, we should, so to speak, stay in dialogue with it. We should look it over as we from up close, from a distance, from this angle and that, until we can begin to gain a shaped and vectored sense of the space of possibilities it opens up to us in the responses it ‘calls’ from us. And we should do this in collaboration with the others involved with us in the practice in question. (Shotter 2003, p. 387)

The analogue-digital future and the available new objects would need to be mutually redefined over time and in the process these objects would be socialized and the agency of teachers objectified.

This study of teachers in their school settings affords a reconceptualization of the curriculum discourse about teaching as process to teachers in action: moving the focus from the instrumental process of instructional implementation to a focus on how teachers move from envisioning to enacting the curriculum. (Oram, 1978) By proposing a curriculum of practice the discourse focus can shift to the aesthetic, characterizing curriculum as ‘art in action’ where the teacher as artist or the teacher as dramatist acts as a metaphor for teacher as change agent. The re-conception of curriculum discourse as social action, from proposed to enacted, needs to be explored within the social context of actual communities of practice. However, clearly while drawing on dramatic theory there is also a need to acknowledge material objects and their significance in envisioning and enacting the curriculum. In the dramaturgical accounts of the teachers in this study there is a sense in which each of the teaching-with-technology enthusiasts, in their separate ways, are illustrating their reflexive reasoning in respect of their intentional action - a teleological grammar of motives - as they interact with networked
and mobile computing and collaborate with others in envisioning and enacting an emergent analogue-digital future. It is a study of the socialization of pedagogical objects. (de Certeau, 1984) The critical challenge to practice theory is to explain how practices remain the same and how practices change. The early meaning of an analogue-digital curriculum had to be continually constituted and reconstituted through the daily activities of teachers.

In this study the dramaturgical narrative accounts of the social action of teacher change-agents are concerned with two social orders, the practice order to do with maintenance and the expressive order to do with the organization of honour. (Harré, 1983) Both structure the norms of what teaching is for, what responsibility teachers should have for their students’ learning, and the characterization of ideal and material forms of the teaching in different subject disciplines in the school curriculum. These have to be captured, analysed and interpreted from an ethogenic perspective.

1.2 The Emergence of an Analogue-digital Curriculum in Victoria, Australia

As Australia integrated its economy into the Global economic marketplace, social commentators explained that the transformational effects of globalisation would become evident in our lives through the decline of traditional employment and the emergence of new opportunities (Giddens, 1999; Toffler and Toffler, 1990; Jones, 1998). At the macro level, capital reconceived employment categories in terms of a “mind-work spectrum” (Toffler and Toffler 1990, p. 75), from workers who only use information to generate more information, through to workers who combine both physical labour and information handling, to workers engaged in purely manual tasks. At the micro level, also from the perspective of capital, education (primary, secondary, tertiary, apprenticeships, and on-the-job learning) was required to meet the requirements of new employment ensuring workers had a range of skills, and were provided with ongoing training. If we assume after Giddens (1999) that these changes that were “shaking up our existing ways of life” were not a “global order driven by collective human will” but rather they were “emerging in an anarchic haphazard, fashion, carried along by a mixture of influences”, then we might have felt “in the grip of forces over which we ha(d) no power” and wanted to “reimpose our will upon them” (Giddens 1999, p.19).
For the first fifteen years - 1980-95 - after the emergence of personal computers in Victorian schools there was little or no Government investment in computers as a learning technology (State of Victoria, 1994a) until a “critical event” (Woods 1994, p. 309), namely, the advent of browser technology in the early 1990s (Berners-Lee and Fischetti, 1999). In making access to the Internet via the World Wide Web (WWW) possible, and in capturing the imagination of those educators who were inspired by the potential for pedagogical transformation afforded by networked and mobile computing, Berners-Lee’s ‘new object’ unintentionally set in motion changes that would shake up our existing ways of life.

At the time, the rhetoric of the global free-market had increased pressure on Australian schools to improve their productivity (Beare, 1994). Australia’s mainstream education community was engaged in the development and implementation of a National Curriculum welded to a central ‘outcomes’ management approach to educational and economic development (Commonwealth of Australia, 1989; Hannan, 1995). During the 1990s, all public schools were quasi-privatized as “self-managing schools” (State of Victoria, 1994b). Marginson (1997) observed, as centralized state education bureaucracies were dismantled recentralized control was asserted through national curricula which benchmarked outcomes and frameworks of accountability established through national testing of student achievement. (Commonwealth of Australia, 1989; 1994)

In Victoria, during the 1990s, some private schools had imported working models of systemic computerization, networking their entire school: investing at unprecedented levels in hardware and software for teachers, students and administrators (Carrucan and Crewe, 1996; Fleming, 1996; Taylor, 1996). The emergence in 1994 of a user-friendly Web browser (Netscape Navigator) for use with the online technologies of the Internet had afforded some school communities (private and public) the opportunity to engage with the new technology: to explore pedagogical possibilities and in the realization of an analogue-digital curriculum turn. Computers were then for the first time networked, providing access to information from databases, CDs and the World Wide Web. Computers had undergone a transformation from machines to be programmed, operating as general productivity tools such as word processors; to a technology for learning. In these pioneering schools networked computing afforded teachers and students possibilities to actively create and find information that they could present in a dynamic and non-linear format. Several Victorian private schools, such as Methodist
Ladies’ College (MLC), Presbyterian Ladies’ College (PLC), and Kilvington Grammar School, were ‘early adopters’ (Rogers, 1962/1995) of these networked technologies (Loader, 1997; Spender, 1995; Taylor, 1996; Fleming, 1996). Teachers redesigned the curriculum, so that classroom learning activities included the use of multimedia software applications, and the inclusion of information from encyclopaedias and other CD-ROM databases. These were later published on school websites which also connected students and parents at home.

During 1996-99, the Victorian Department of Education established two science and technology pilot schemes known as the Navigator Schools’ Project and the Mag-Net Virtual Science and Technology Centre, with which to explore the feasibility of computerising schools in the government sector. These science and technology initiatives were envisaged as research sites for teacher professional development and school reform. (State of Victoria, 1998a, 1998b, 1997a; Mag-Net, 1999). While education systems set in motion school reform, it was the school community (principal, teachers, parents and students) that had carriage of implementation. Nationally, school communities were responsible for implementing the Government’s school reform initiatives even though the work environment had become more demanding and complex (Fullan, 1991). Teachers were expected to cater for the needs of their students which included for the first time supervision and effective use of an increased diversity of instructional technologies in their later years of teaching. North American technology projects, Australian universities and professional teacher associations also contributed to the discourse on the pedagogical use of new media (Dwyer, Ringstaff & Sandholtz, 1991; The Virtual University?, 1996; OZeKIDS, 1996; OZ-TeacherNET, 1995/2004; Using Multimedia in Science Investigations, 1999).

This is the macro-social backdrop to the discursive behaviour of the teachers in this study of their verbatim accounts of their agency.

1.2.1 Discursive circles: becoming aware of unknown knowns

I have sketched below outlines of 6 events/projects as ‘unknown knowns’ – events or projects that cast a “shadow over the secret garden wall” in schools in the 1990s in which the teacher/actors/agents were employed. These were some of the events/projects – the scenery for the staging of the dramaturgical accounts - that were happening against
which teachers accounts can be understood. Teachers would have become aware of these events or projects when talked about by others in their discursive circles in or between their schools (i.e. the discursive circle that the headmaster /principal is engaged with, the discursive circle in the staffroom in which teachers are involved, or the out-of-school discursive circle of the researcher and participating teacher-agents).

The study does not describe the social episodes in retrospect – the teachers are telling me directly – verbatim - what their life is like at that moment, as equal partners in the conversation. Normative discourses in which teachers were engaged, I argue after Elder-Vass (2010), are causal in the realist social construction of the analogue-digital future. These projects or events when talked about, elaborated, challenged or ignored in normative discursive circles, afforded moral contexts of intentional action in schools that will be explored in the actors’ autobiographical accounts. The knowledge of these events or projects was more propositional than dispositional. The practical intelligibility of what was proposed was emergent rather than transcendent. Participants In discursive circles had attended conferences, visited other schools, and participated in the discussions of their subject-professional association(s), talked socially with friends who worked in other schools, contributed to technology-based industry projects, and so on. What is important in the discourse is the social construction by teachers of an analogue-digital future and their place and the place of students within it.

For instance, the Methodist Ladies’ College (MLC) experiment was public knowledge in Melbourne, circulating around government, business and education circles, though very few teachers and none of the actors in this research had direct working experience of the project. The teachers in this study at the time had a feeling that something was happening at MLC. They were richer in societal rhetoric than in any specific knowledge of the institutional practices or the personal positioning of the MLC teachers, nevertheless, there was a sense amongst these teachers who were disposed to an analogue-digital future that normative discursive circles in and about the MLC project and other projects were going to make things happen in their life-space.

Is talking about new technology in discursive circles sufficient for the technology to be socialized via the discourse? Does experience or non-discursive practices play a part in socialising new technology?
In 1986 the Apple Classrooms of Tomorrow (ACOT) project was initiated in classrooms in five American schools as a program of research on the impact of interactive technologies on teaching and learning. Teachers and students who participated in this project had access to an Apple computer at home and at school and immediate access to interactive technologies: printers, scanners, laser disc and videotape players, modems, CD ROM drives, and hundreds of software titles (Dwyer, Ringstaff & Sandholtz, 1991). This was a significant event as change was felt throughout each school community.

In 1990 MLC linked new technologies with whole-school curriculum reform when they adopted and implemented a student Laptop program. (Shears, 1995; Spender, 1995) The pilot laptop program was introduced in 1990 for students in Year 5 and Year 7. By 1995 all students to Year 11 owned a laptop computer that they used in class and at home. The whole-of-school technology project was significant in showcasing to other school communities the scope and nature of change. Visitors observed new learning spaces, devoid of tables and chairs, where students after connecting their laptop to the network were observed lying on the carpeted floor talking and typing. (Spender, 1995)

In recognizing that students entering a “knowledge economy” that would require skills in both information and communications technology, the Victorian government established The Classrooms of the Future project in 1995, to assist schools make appropriate use of learning technologies by encouraging and facilitating collaborative learning experiences among teachers and students across Victoria and internationally through electronically based educational projects (State of Victoria, 1997a). Participation by schools, in publishing their home page on the Internet, in creating a presence of the school community on the Web, in developing an understanding of the new information and communications technology, was considered important as a means of understanding the changes taking place in society and in the culture of education (Figgis, 1995).

In 1997, Victoria’s Minister for Industry, Science & Technology, in repositioning the priority of Science, Engineering and Technology, in acknowledging the need to raise the acceptance of the value of science, engineering and technology and its importance for the future of Victoria and
Australia, in signalling the need to promote technology diffusion, ensuring rapid adoption of new processes and new technology, in launching the State Government’s Policy Statement, in giving the engineering and science community, via the newly established Science, Engineering and Technology Taskforce, real proximity and real access to the Government’s policy making mechanisms for setting the science, engineering and technology agenda, introduced a co-ordinated and integrated way of working, both across the whole of government and in consultation with educators, researchers, professional associations and business leaders from high tech firms. (State of Victoria, 1997b)

- In prosecuting a project known as The Schools of the Third Millennium, Victoria’s Minister of Education released the Statement: Learning Technologies in Victorian Schools (1998) which inextricably linked Victoria’s education system to the future economic development of the State via the implementation of the Victorian [Liberal Coalition] Government’s communication and multimedia agenda (p.8). The Statement required all Victorian schools, by the year 2001, to have implemented a Learning Technologies Plan for principals, staff and students, which was to be linked to and [their] vision, charter, curriculum plan, level of resourcing and range of teachers skills (p. 17). The incorporation of ‘objectives’ in school charters, professional goals for principals, Principal Class selection criteria, and Teacher Class performance plans were intended to facilitate compliance with the learning technologies implementation strategy in schools. This situation was significant as it exposed the limits of Government control and school autonomy. (State of Victoria, 1998c)

- In the 1998-99 State Government of Victoria’s Budget papers which related to school education several strategies were announced to improve the quality of teaching and learning in science education and the use of learning technologies, including (1) the funding of local professional development through science teacher networks, and (2) the provision of Laptop or notebook computers, software and training for teachers and principals via a salary sacrifice leasing agreement. The budget provided for government funding for 5/6 of the cost of the lease of a multimedia Laptop or notebook computer and teachers were required to contribute the remaining 1/6. Additionally, teachers had to undertake and complete 40 hours of training in the use of learning technologies in delivery
of the curriculum as set out in the schools’ Skills Development Matrix - and endorsed by the Principal. (State of Victoria, 1998d)

By the end of the decade, the various Federal, State and Territory curriculum documents that had earlier focused on agreed standards and learning outcomes and state wide testing of student attainment without any explicit or implicit requirement for the systematic use (or otherwise) of information and communications technology (ICT) now explicitly drew on government policies on the pedagogical use of new media: The Adelaide Declaration (Commonwealth of Australia, 1999); Switched On Curriculum (State of Victoria, 1997c; Global Classrooms (1996/2015) in reflecting the global trend towards new media in education: from computers in classrooms to classrooms in computers; from student learning about technology to learning with technology; from a technical object to constituting teacher practice as an analogue-digital hybrid.

Schools were transformed, such that their familiar external appearance belied the personal or collective memory held by past teachers and students. Teachers experiencing the transformation often felt in the grip of forces of intensification often defined for them as professionalization (Hargreaves, 1990) over which they had little or no control, feeling unsettled, insecure, anxious and scarred by past interpersonal conflict, associated with the redistribution of authority in the local moral order over new resources which were frequently offered parsimoniously and expediently to State schools, looking for ways to manage these social changes and regain control over their lives.

While recognizing that Australia’s place within the globalized economy provided the wider context for socio-economic and socio-political debates, about choice, agency, and the protagonists, the specific domain of this study is technological change at the local or micro level, within education, in particular, how communities of teachers socialize new media, with a specific focus on teaching as social actions and the sociality of teacher knowledge. The question central to this investigation of the socialization of e-technology is: How can the social agency of teachers who pioneer the introduction of new technology in education be understood and researched?

In the dramaturgical staging of the exploration of the actors’ autobiographical accounts in concert with background events or projects, the teachers in the act of declaring
themselves and their activities, after Heidegger (1927/1962), are shown in a ‘clearing’ - on stage, in the spotlight and saying: this is what I am doing’. The teachers in describing their handling of new technology illuminate changes in social and psychological structures in the social scene: a verbatim presentation of what it was like in that time and place. In this study there are two dramatic stagings of the day-to-day political life of teachers. First is the account of site-based ontologies and practices of three teacher enthusiasts with different teaching backgrounds, working in different state school environments where no social orders favouring the new technologies had been established, first beginning with their personal engagement with the advanced technologies, their accounts of their deliberative and forced positioning as advocates for change in teaching practice, and finally as experienced users. The study second explores the site-based ontologies of teachers from two schools, one private and one public, where whole-of-school analogue-digital curriculum policy was being implemented. In the private school the headmaster’s 1991-92 North American study tour of businesses connected to the Internet afforded a possibility of repositioning the school in a new educational market. One in which the headmaster believed that the school community ought to take on the new technology ahead of the field. In the public sector, the Minister of Education, after visiting ACOT in 1995 during a study tour of North America, announced funding of science and technology centres and the Navigator Schools’ project. The public school principal accepted the department of education’s invitation to become a science and technology centre of excellence, affording a repositioning of the school within the local community. The first staging focuses on individuals as technology enthusiasts attempting to make sense of the newly available (albeit more often than not externally available) resource. The second staging focuses on teachers in schools enacting the ‘institutional policy’ directed program which began in private schools before migrating to the public sector. At times these two stories overlap because some of the teacher technology pioneers are co-opted into the Navigator Schools’ project or the Mag-Net Virtual Science and Technology Centre.

1.3 Two Competing Representations of Institutional Change Agency and Management

At the time of the study the discourse of change agency in schools was in different ways indexed to personal behavioural characteristics of a special class of people, the ‘innovators and early adopters’, the personal qualities of ‘educational leaders’ and the
role of ‘change agents’. The different human behavioural types: “innovators”, “early adopters”, “laggards” and “stone age recidivists” were posited by the rural sociologist Everett Rogers (1962/1995) to explain different rates of diffusion of scientific-technical innovation in different communities of practice. Rogers’ types were frequently referenced in discussion among teacher enthusiasts, about resistance to their modernizing agendas among their peers. (Goldenfarb, 1995; Adam and Wilson, 1996).

Rogers’ work was strongly influenced by Talcott Parsons (1951) who reduced the person of the agent to a role or bundle of organized activities they performed to maintain society - the sociological entity of social order or system. Rogers’ ‘diffusion’ metaphor for technological change assumed that all members of the social system or subsystem were ‘willing’ participants who could be motivated by a common purpose that bound them together, and provided them with their social identity. Change agents or consultants, Rogers’ audience, were individuals specifically recruited because of their technical expertise and specialist knowledge, whose role was to achieve the “tipping-point” (Gladwell, 2000) for the adoption of an innovation - or change in behaviour in a community, which was deemed desirable by some external agency. Within the school community the Rogers’ ‘change agent’ could work with specific teachers (opinion leaders, coordinators) who then would engage with the rest of the staff to influence the innovation-decision implementation process (Carter, 1998).

Rogers offered the notion of technological change as scientific innovation - where the problem was shared and implementation of this innovation was the solution.

By contrast, Michael Fullan’s (1993; 1999) post-structuralist social analysis could not assume commonly held social beliefs in the staffroom (Weiss, 1995) and offered school administrators (district managers, principals, heads of department, coordinators) “lessons” in the post-modern rhetoric of social change in schools. From Fullan’s administrative perspective of change in schools “teachers are agents of educational change and societal improvement” (emphasis in original, Fullan 1993, p. 11), where principals and headmasters were conceived as managing change in schools, and the classroom teacher, was viewed as the agent of change of their own adaptation and that of their students. Fullan argued (from the perspective of the educational leadership) that teachers’ personal commitment to making a difference should be recast by the educational leader in broader social and moral terms in which the skilled leader is the principal change agent. His lessons in the rhetoric of leadership were post-modern social precepts for building collaboration in the staffroom. Written as a practical ethics
for the new corporate manager it was intended to equip school leaders and also system managers.

Both Rogers and Fullan made epistemological assumptions about the knowledge about how to achieve institutional collaboration. Fullan appealed to an existential moral order rather than techno-scientific rationality. This natural moral order was based in the deep rooted social expectation and professional desire of teachers to make a difference in the learning and lives of their students. Fullan offered principals and headmasters advice on how to ‘merge’ teacher’s natural sense of moral purpose with the needs of the school/system while implicitly sanctioning the question about the resources teacher/agents may need. Fullan was not talking about action on the ground but rather how principals and headmasters could increase their moral authority by developing their rhetorical capacity - their capacity to remind people of their moral obligations to collaborate with the needs of the institution: to behave in an accountable fashion to the local moral order. Fullan’s (1993, 1999) original and revised paradigm for negotiating change is summarized in Table 1.

Table 1. Fullan’s Original and Revised Eight Lessons of Change

<table>
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<tr>
<td>1 You Can’t Mandate What Matters</td>
<td>Moral Purpose Is Complex and Problematic</td>
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<tr>
<td>2 Change is a Journey not a Blueprint</td>
<td>Theories of Change and Theories of Education Need Each Other</td>
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<tr>
<td>3 Problems are Our Friends</td>
<td>Conflict and Diversity Are Our Friends</td>
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<tr>
<td>4 Vision and Strategic Planning Come Later</td>
<td>Understand the Meaning of Operating on the Edge of Chaos</td>
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<tr>
<td>5 Individualism and Collectivism Must Have Equal Power</td>
<td>Emotional Intelligence Is Anxiety Provoking and Anxiety Containing</td>
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<tr>
<td>6 Neither Centralization Nor Decentralization Works</td>
<td>Collaborative Cultures Are Anxiety Provoking and Anxiety Containing</td>
</tr>
<tr>
<td>7 Connection with the Wider Environment is Critical for Success</td>
<td>Attack Incoherence: Connectedness and Knowledge Creation Are Critical</td>
</tr>
<tr>
<td>8 Every Person is a Change Agent</td>
<td>There Is No Simple Solution: Craft Your Own Theories and Actions by Being a Critical Consumer</td>
</tr>
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</table>
Fullan’s analyses from a moral perspective of persistent structural dilemmas implicit in change management is suggesting how teachers should address one another and their principals or system managers and is claiming this is how it can be achieved. Neither Fullan or Rogers usefully inform the constitutive orders of sense making (Rawls, 2012) which implicates a theory of social objects, a distinction between constitutive and institutional orders, a distinction between prospective constitutive orders and retrospective accounts, a distinction between collaborators and participants and reconceptualising meaning as a matter of mutual cooperation or interactive practice (Garfinkel, 1967), in which this ethogenic study of the social ontologies of teachers who introduced the new communication technologies in their school is embedded and embodied.

1.4 Teachers and the New Technology

Central to this study is the question: How did teachers make sense of new technology in the local moral order of things in the school? While the question appears quite straightforward, the response to the proposition is quite complex. For instance, the terms ‘teachers’, ‘make sense’ and ‘new technology’ each need to be qualified and contextualized. ‘Teachers’ may be primary or secondary (K-12): they may have been individual classroom teachers or members of a faculty, committee, school community, professional association or teacher union. Similarly, ‘new technology’ may have included a range of hardware devices and software applications, such as networked computers, digital cameras, data-loggers and scanners, or the Web, Web browsers, Web editors, and Email clients. Furthermore, ‘make sense’ may mean relying on intuition or learning, on common sense or practical understanding but always at the interests of their intersection of purpose and social necessity.

When teachers used information and communications technology for teaching and learning, their use became part of what is teaching and learning. New media became synonymous with schooling; the use of information and communications technology became a primary goal of the analogue-digital curriculum. For example, the use of interactive websites rather than referencing print resources became part of the analogue-digital curriculum experience. As teachers used the interactive website in their teaching, to some extent the teachers served its purposes as well as it served their purposes, as legitimate sources of teaching and learning. When teachers engaged with the new
media, the teachers “act[ed] and … [were] acted upon, use[d] and … [were] used” (Chandler, 1995) by the new media: establishing a symbiotic relationship: one which had the potential to challenge their identity as teachers.

So, what did these advances in technology mean for the practice of the teachers studied and for their colleagues? Did they need to rethink their pedagogical concepts? Other questions emerged from the study: How did teachers experience and interact with new technology? Did they perceive networked computing as a tool for the production of curriculum materials? Did they perceive digital cameras and interactive websites as objects of study? Did they perceive the Internet, the World Wide Web, and mobile phones as symbols of an emergent culture: the artefacts of a networked community, and their practices?

Given these distinctly sociological conceptions of new media: What were the implications for teaching? For example, in the early years when teachers began using the new media was their teaching influenced by the distinctly socialized conception of the inevitability of the transformative potential of the technology? That is to say, were teacher created word processed curriculum materials afforded greater efficiency, creativity and customization for learning than print-based cut-and-paste versions; was access to interactive websites, online databases and the Global Classrooms held to afford the possibility of transforming the position of the teacher in the classroom (consciously or unconsciously) from ‘curriculum worker’ to ‘analogue-digital learning guide’ (interpreter, translator, practitioner) or to ‘teacher as dramatist’ (script-writer, rehearsal coach, director, producer, performance-critic)?

1.5 Can Teacher Learning be Equated with Institutional Change?

In the 1980s, as computers emerged on the educational landscape, appearing in staffrooms, on teachers’ desks and on trolleys (like the TV and Video Cassette Recorder a decade earlier) ontological and epistemological questions arose. Teachers asked: What is this object? How does it work? Why is it on my desk? What am I supposed to do with it? This nominal and conceptual questioning of their colleagues, who happened to be using the computer at the time, characterized their professional learning as an informal collaborative sense-making activity.

While some teachers were sceptical others were enthusiastic. For instance, Lex (pseudonym), an experienced teacher and collaborator in this research, who in 1994 had transferred his employment from a teacher union to Experimental High school
(pseudonym) as the Science coordinator. He was one of the teachers I interviewed, and whose accounts, though not included in the study itself, served to illustrate how some teachers made sense of the new media, and were willing to share their understanding with colleagues. The inclusion here of a version of Lex’s account (Figure 1), is not intended to exemplify or characterise him as the ‘ideal’ change agent (or hero), but rather to introduce the narrative device in which the study will explore a teachers self-formation (or re-formation) in processes towards an analogue-digital curriculum or an analogue-digital future in the early 1990s.

In my interview with Lex he explained, “I see myself as a bit of a change agent … focusing on … school systems in terms of structures and organisation … and resourcing. … That sort of thing”. He described the Middle school (Years Nine and Ten) curriculum at Experimental High as an elective program where science students could choose their units of work, for example, Water. So, for the past six years students have studied the chemistry of water within an “environmental” context – a local creek 200 metres from the school. Lex considered the outcome of this activity - a “weekly record for six years of the condition of that creek”, based upon their “observations” and “water samples” - to be “a pretty good achievement”.

While acknowledging the value of student choice, and the benefits of hands-on activities, Lex was critical of the tools: the standard science apparatus which was mainly “home-made materials” that represented old technology. He favoured “advanced tools” in the form of “portable data gathering equipment” which represented new technology. Lex explained that the use of digital sensors did not change the data-gathering task, but rather enabled students to collect “reliable quantitative measurements”, such as: “conductivity measurements and salinity measurements and pH measurements”. For Lex, the use of digital sensors transformed the constructivist activity from “nature study” (observations and descriptions) to “serious science” (numbers, graphs, analysis). Lex argues that before the use of digital sensors, the qualitative nature of data-collection meant that, since “one person’s observation would be at odds with a second person’s observations”, no definite conclusions could be reached. However, this dramatically changed with the use of digital data-collecting equipment; the study of the local creek became “more
Lex willingly shared his insights and experiences with other members of staff, demonstrating the technology at faculty meetings, or during field trips with his students. Sceptical science teachers, he said, began to take an interest in the new technology as they “now could see the benefit”.

Lex’s realist conception of teaching constructed in discursive and non-discursive practice enabled him to make allowances for the limitations inherent in individual and particular items of equipment, thereby rendering understanding of any particular phenomenon approximate at best. However, Lex, held the belief that where such limitations could be reduced by the use of more suitable equipment, as Science coordinator he should obtain this equipment and make it available to his staff and their students, thereby defining his agency in relation to his conception of an analogue-digital science curriculum.

Figure 1. Lex – A Teacher Technology Enthusiast – Extract

The guiding question in the study can be elaborated. How is the committed grammar of technology enthusiasts like Lex emerged, located in the local moral order in their school - where meaning as “use” dominates and practical intelligibility (Schatzki, 2002, 2003; Wittgenstein 1953/1958), pp. 206-238) is understood to involve: practical understandings of what to do in particular situations; rules for putting the device(s) into practice thereby demonstrating the correct application of the rule; teleo-affective structures including constituents like intentions, actions, emotions and moods as well as ends, purposes, projects and tasks associated with the use of the devices; and general understandings, the shared beliefs, goals or values available and encountered within the community of the subject department or school?

In science methodologies have an implicit signing element to which we attach global meaning or faith, ‘This is what is going to define good teaching.’ In the late 1950s the Soviet’s repositioning of America in the Space’ race ‘called’ for curriculum reform in the teaching of senior school physics. In the 1960s, MIT’s Physical Science Study Committee (PSSC) made available to schools, a new approach
in which Films, teacher guides, standardized tests, and inexpensive experimental apparatus, specially designed by the Committee for use with a new high school Physics textbook, modelled opportunities for students to approach problems in the same way as physicists. (MIT Institute Archives, 2013) The introduction of the PSSC’s laboratory model held that promise through the restructuring of the relationship between teachers, students and the ‘handling’ of ‘new’ materials: equipment, apparatus or devices - the symbols or icons of working scientists. The ‘ticker-timer’, was one of these new objects - an analogue device for physics students to probe the physical world in a ‘laboratory’ environment.

In the laboratory students as proto-scientists, wearing regulation white coats, understanding meaning as “use” develop a committed grammar of ‘science’, in reading the media - the ‘dots’ on the ticker-tape, in ‘translating’ data into information as ‘position-time’ or ‘velocity-time’ graphs, and in ‘analysing’ or ‘explaining’ what happened - the cause and effect. Students were to be trained to think in the laboratory in the same way as scientists. The intersection of societal rhetoric, institutional imperatives and the purposes of science teachers found a mutual harmony.

In the 1990s the technological change spearheaded by advances in global communications technology began appearing in schools, disrupting the harmony of the laboratory method. A plethora of new pedagogical objects entered science laboratories, maths rooms and migrated across the curriculum. Science teachers like Lex believed that a better understanding of the natural world was afforded by these new resources. These new objects such as the Data Logger (an electronic device for recording, viewing and analysing the input of digital sensors/probes measuring temperature, pressure, humidity, light and motion) held the promise of restructuring student performance as analogue data once digitized could be easily manipulated to produce outcomes not possible using analogue materials. These new objects were not purpose built for the curriculum. Many objects worked in concert affording possibilities for restructuring the social structure and teaching practice. The methodology described in this study offers researchers a framework for understanding the significance of discursive and non-discursive practices of science teachers like Lex and members of the science faculty in their attempts to make sense of digital sensors or how they maintained their identity as physics teachers or science faculty as the pedagogical objects became digital, and were used in other areas of the curriculum. Lex’s conversation with other science teachers is not a casual conversation. This collaborative sense making process in which teachers take turns describing how they and their students ‘handled’ the new digital technology. This is not a conversation of little substance. It is a conversation about making sense of
one’s identity as a physics teacher. It is about making sense of the shift from an analogue curriculum to an analogue-digital curriculum.

When learning a language, Wittgenstein, according to Bailyn (2002) acknowledges that in some cases a logical relationship exists between words and a particular thing in the world, here for example, ‘teacher’ and ‘technology’. However, he argues, the relationship is often arbitrary (as between signifier and signified): “There is no underlying concept we have ‘grasped’ when we understand the meaning of a word” (ibid p. 312). Furthermore, Wittgenstein cautions against trying to work out what is the essence of what is meant by certain words, for instance, ‘make sense’ or ‘analogue-digital curriculum’. Wittgenstein, according to Bailyn (2002) argues that “the meanings of words, in most cases, consist only in how they are used” (p. 312). So, as teachers learn the new language game of the analogue-digital curriculum they will learn what kinds of things to call ‘e-learning’ and ‘networked teaching’ or ‘digital portfolio’ and ‘WebQuest’ in the process of practicing their use. From this perspective, meaning and understanding emerge from active participation in the day-to-day conversational use between teachers and teachers, and between teachers and students, of the advanced technology in different activities and situations in a particular time-space.

1.6 The Practice Turn in Research

When considering a research question such as, ‘How did teachers first develop and implement an analogue-digital curriculum?’ the practice turn in teaching implied in such social research needs further explication. For instance, teaching can be perceived as machinery of the school as a social institution charged with the duties of educating and socializing young people, so that they can be simultaneously integrated into a pre-existing institutional social order, and accept responsibility for its on-going survival (Biggs and Telfer, 1987). Alternatively, teaching with the new technology can be perceived as a prospective constitutive project where adults, children and physical and intellectual artefacts are engaged in a conversation: a three-way conversation or triologue that shapes and influences their executive intelligence, their intellectual autonomy and moral agency. (Roberts, 1996; Reckwitz, 2002; Giddens, 1984). Roberts (1996), for instance, proposes his preferred social constructivist epistemological model of social constructivist teaching. His preferred model affords a three-way dialogue among teacher, student and a subject domain. In the triologue model (Figure 2), which he contrasts dialogical processes of representation (R) and explanation (E) with those processes in his “impositional” and “abdication” models of teaching. These
Peircian (Peirce, 1931/1958; Nellhaus, 1998; Everaert-Desmedt, 2011) semiotic interactions thus include the entity, concept or process, in the subject domain. After the teacher and the student ‘observe’ (O) or participate in the processes in the domain, they discuss their own socially constructed representations (R) or explanations (E) as a means of making sense of the experience.

![Diagram](image)

Figure 2a. The “Trialogue” Style for Student Learning, after Roberts, 1996

If the domain is the analogue-digital curriculum, and the Internet, the World Wide Web, digital sensors and networked computing are ‘artefacts’ or ‘things’ that according to Bruno Latour (Reckwitz, 2002) “participate in networks of social practices just as human beings do” (p. 208), then the trialogue style could represent a model of teacher professional learning (Figure 2b).
If Latour’s ideas regarding the interaction between cultural theory and the material world are embedded within Theodore Schatzki’s Theory of Social Practices, what emerges is a concept of human action which consists of both human and nonhuman entities interacting in social “networks” of “practices” (Reckwitz 2002, p. 210). From this perspective, the analogue-digital device is not simply something to be studied, an object of knowledge, but rather a “necessary and irreplaceable component of certain social practices” (p. 210), such as professional learning or teaching practice. The enthusiasts’ horizon of cultural significance of new technology within a school community could be understood as emergent from how the technical artefacts are “handled”, “interpreted” and form “constitutive, effective elements of social [teaching] practices” (p. 210). Schatzki considers regular bodily activities such as “doings” and “sayings”, when organised by knowledge as the basis of social practices like teaching and learning (p. 210). So, the school becomes the setting where teachers and students interact with the technology through the analogue-digital curriculum - not merely as objects of knowledge but rather as constitutive elements of their social practices: their transactional doings and sayings.
1.7 A New Focus on Schooling in a Global Economy

If ‘production’ or ‘productivity’ were central concepts in the 1990s determining the use of new media (material as resources), then ‘structure’ was reified (treated as having a living existence) and capable of restricting teacher agency (the ability to act otherwise) to rule following behaviour: as in Durkheim’s sociology of knowledge (Reckwitz, 2002; Harvey, 2002), in Bourdieu’s Habitus (Lizardo, 2004; Mutch, 2004), and in Giddens’ (1984) dual praxis. When the new technology was conceptualized epistemologically, the developers of curriculum policy ascribed a ‘calculative’ rather than ‘medative’ or poetic meaning to the use of the new media to legitimize its inclusion in the curriculum, as an object of knowledge, the causal or deterministic relationship of structure over teacher agency was strongly evident. For example, the Ministerial Council on Education, Employment, Training and Youth Affairs’ (MCEETYA), Statement of National Goals for Schooling - The Adelaide Declaration- (Commonwealth of Australia, 1999) expresses the view:

Schooling should develop fully the talents and capacities of all students. In particular, when students leave school, they should: … be confident, creative and productive users of new technologies, particularly information and communication technologies, and understand the impact of those technologies on society. (Commonwealth of Australia, 1999, p.2)

Although such curriculum statements can be taken as mainly symbolic orders, expressed as outcomes for students, they nevertheless are written to direct the activities of teachers in schools or communities of teachers, through the provision of ‘rules’ for the use of ‘resources’ (e.g. Curriculum documents, information and communications technology). However, knowing ‘what’ to do is not the same as knowing ‘how’ to do it. Having access to policies and resources may have provided the “enabling conditions” (Harré, 1997) or the “structuring properties” (Giddens and Pierson, 1998), of teaching but it was the collective interpretation of “discursive codes” and intersubjective interaction between teachers or “communicative action” (Reckwitz, 2002) within a constellation of discursive circles (Elder-Vass, 2010) which more likely shifted the causal powers of symbolic orders from the ‘macro’ structure (Department of Education policies) to the ‘micro’ structure (the intersubjective understandings of the community of teachers in a school). The alternative conceptualization focuses more on teachers as
intentional agents, engaged in work-place discussion as they attempted to make sense of curriculum directives, rather than teachers as followers of curriculum (policies, rules) orders.

If new media is conceptualized as material objects of production then it affords the possibility of shaping teacher agency through the provision of specific resources. In this conception, at the society level, structure is reified, restricting agency to rule following behaviour in a process to be studied as a *societist social ontology*. However, if conceptualized as material objects of knowledge then new media affords the possibility of extending and enhancing teacher agency through intersubjective interactions. But individual teachers interviewed about material objects or material entities (like, “new media”) as their own objects of knowledge are likely to “share semantic propositions” with the researcher, but in an *individualist ontology* which often seems partial and incomplete. However, if an understanding of the socialization of the new media is seen to require an understanding of the dynamic construction of rules of social behaviour at the intersection of teacher purposes and social necessities then teacher agency and institutional reform can be studied as mutually constructed in *site-based social ontology*. The latter is my purpose.

As claims for the use and possible use of the new media became increasingly prevalent in classroom and management practices of teachers in schools, the broad distinction between the object of production and object of knowledge quickly became inadequate in the shared interpretation and enactment of an analogue-digital curriculum with colleagues. To understand the daily practice of particular teachers is to understand them in a school setting rather than abstracted as that of generic teachers in the world. The school (site-context) is conceptualized as the setting where arrangements of teachers and students coexist “amid an elaborate, constantly evolving nexus of arranged things and organized activities” (Schatzki 2002, p. xi). And, that individual teachers and “constellations” of individual teachers are “causally responsible for the progress of social affairs” (p. xi).
1.8 Schools as Social Networks: Researching Teachers’ Site-based Ontologies

In some circumstances and on some occasions it is convenient to refer to the school as a single community: for instance, when the school hosts a social event (musical, parent-teacher evening) or attends a public event (sports, excursion), or in the provision of historically accessible cultural resources (new media). This conception of the school as a single community is central to Wittgenstein and Giddens’ social theory or Harvey’s (2002) sociological social analysis of Agency and Community. For Wittgenstein and Giddens’ community is the community of teachers, for Harvey community provides historically accessible resources with which human agency operates. So, when the school is observed through the Wittgensteinian lens the community view of teachers emerges as being where they learn to ‘go on’ in the same way as other teachers.

According to Giddens, this capacity to follow rules defines their agency: the capacity to conform to habits, norms and conventions (the rules) which, as they try to understand and make sense of their world and their daily activities, affords the opportunity for the reproduction or change of the social structure of the school. For Harvey community being a shared community of practice is central in the production of its own reform.

However, when viewed from the vantage point of a Latourean-Schatzkian perspective, the school is the setting where adults, children and technical artefacts are engaged in conversation that constrains or empowers these social networks or practices. This rendering of the school involves concepts of human action that embrace both human and nonhuman creatures, where the concept of a uniform community is contested, in favour of social networks consisting of different groups, with different values, beliefs, attitudes, skills and access to different resources.

While Schatzki (2003) concedes that all human activities occur in spatial, temporal, teleological and activity-place space locations, his notion of the “site” also entails “that realm or set of phenomena … of which it is intrinsically a part” (p. 177). That is where human activities are constitutive of social practices, and a social practice is the site where human activities occur. So, from the perspective of Schatzki’s site ontology, “site accounts acknowledge individuals as constituents of … [social] formations: an [education] system, for example, is composed of a nexus of people’s actions taking place in specific contexts” (p. 178). Here context is conceptualized as “a set of practices” or “organized activities” in which “people’s actions and relations occur” (p. 188). And social life or human coexistence is comprised of interrelated individuals.
whose actions, “singly or compounded … are the principal causal force at work in social affairs” (p. 185).

Schatzki (2003) argues, furthermore, “A practice is organized by an array of intelligibilities, rules, ends, projects, and ways things matter” and that this “array is distinct from, and differentially incorporated into, the minds of participants” (p. 190). The goal of implementing an analogue-digital curriculum that helps organize pedagogical practices is then distinct both from any given teacher’s desire and from any sum of teachers’ desires for the use of new media. “In this way, practices [as organized human activities] form the site where humans live and relate” (p. 190): “it is ‘out there’ in the practice; only versions of different parts of it are ‘in here’ in different individuals’ minds” (p. 195). Schatzki explains that from these “practices, arrangements, and practice-arrangement meshes”, “nets of meshes”, “confederations of nets” “form an immensely complex overall nexus of practices and arrangements”: the “site of human coexistence at any moment or durée of time” (p. 195). And networks of practices are what actions, mental states, and relations among individuals that are presupposed in analysing either sociality in general or the composition of specific social phenomena such as is studied here in the implementation and enactment of an analogue-digital curriculum.

1.9 Summary

Studying critical social events (Woods, 1994) as they are happening, such as the invention of the World Wide Web (WWW) (Berners-Lee and Fischetti, 1999) is problematic since their criticality cannot be foreshadowed and often is recognized after the event has ended. However, the pedagogical consequence of Berners-Lee’s invention was being played out in real time during the 1990s, to a lesser or greater degree by individuals, separately or in groups, in conventional classrooms and online, as academic research or the trial-and-error fascination of teachers, affording numerous avenues of investigation.

The particular aspect of the creation of the World Wide Web that caught my imagination in 1992 was the emergence of cyberspace within the conventional life space of people. More specifically in education, at conferences and informal meetings, where technology enthusiasts discussed their experiences of the Web in their teaching, sharpened my interest in the possible futures afforded by this extraordinary event.
The administrative decision to impose networked and mobile computing, and the institutional disruption associated with new complexity, uncertainty, chaos or social entropy across the curriculum, at Cyber Grammar school and Digital High school (pseudonyms), described later, exposed the structural tension between the social order reproduced in communities of teaching practice and potentially transformed through personal agency and self-improvement (Simmel, 1968). During the cultural-historical episode where the pedagogical use of new media was challenging existing narrative conventions of teacher practice, I sought to understand how communities of practice envisioned themselves within an analogue-digital future. For teachers to understand each other’s emerging pedagogical practice they needed to share new storylines which embraced discursive practices concerned with institutional practices, their psychological positioning, and societal rhetoric in the local moral order of their school. The conversational interviews I conducted with teachers framed by the discursive practices of each community, invited reflection and a sharing of perspectives pertaining to teaching as a social act - their transactional doings and sayings with the new technology and who was doing what to whom. From these perspectives of lived and felt experience, within a normative moral order, their accounts permitted the description of social structure and agency. In deciding to broaden the investigation to also focus on the psychological rendering of teachers’ professional identity formation Fullan’s (1993, 1999) and Rogers’ (1962/1995) advice to policy makers and principals for the management of instrumental change served as the background scenery in the analysis in the current study of the accounts of the teachers and of their dialectic of cultural appropriation and self-cultivation in the "modern age" of change management.
Chapter 2  Agency, Community, and the Reciprocal Reproduction of Self and Society

A site-based social ontology identifies practice timespaces as the site of the social … of practices and orders. … Practices are open-ended spatial-temporal manifolds of actions defined by understanding of how to do things, rules, and teleoffective structures.

Theodore Schatzki, 2005: 471

2.1 Learning to Teach with Networked Computers

When I visited Cyber Grammar school in 1996-97 the Information Systems Manager of the school was a contractor from NEC Australia, the School’s business partner contracted to install and maintain the wide area network in preparation for the introduction in the following year of the student Laptop program. He explained that he often asked the teachers: “What does it mean to be teaching with networked computers in this school?” “What are the essential attributes of teaching with computers connected to the Internet?” He was not just looking for a definition, but it seemed to me rather that he was thinking of something more like the Wittgensteinian (1969/1975) idea that there were several language games - that of teaching the State mandated curriculum learning standards, the Headmaster’s market place vision, and innovative technology programs focused on improving education, such as Apple’s Classrooms of Tomorrow (ACOT). Each of these institutions saw teaching as something different – something repairable, accountable, transferable, warrantable. In different institutional contexts teaching is an institutional social object that consists of different essential parts – constituted by different social institutional practices and the moral relationships involved in these institutional practices.

Similarly, when social theorists explain how the world works or how and why society is now organised in one way rather than another, they put forward competing and sometimes conflicting frames of meaning, understandings, and patterns of belief, as they attempt to account for the life cycle of social and cultural institutions in historical
accounts, and through the interactions between individuals and groups in biographical accounts.

The practice turn in research into social behaviour has been guided by competing practice theories. For example, philosopher, Theodore Schatzki’s practice theory discusses the nexus between material *arrangements* and human *practices*, sociologists, Pierre Bourdieu’s practice theory proposes social structures are internalized and tacitly determine agency, and Anthony Giddens practice theory argues for a *duality of structure* and *agency*. Philosopher, Roy Bhaskar’s critical realism advances a transformational model of social activity based on the dual *praxis of structure* and *agency*. The types of human action discussed by each of these social theorists have implications for my research method. Methodological preference is contingent on whether a researcher is an individualist or believes in social structures, holist social entities, or social facts distinct from facts about individuals (and maybe their relations). In this chapter I will delineate firstly, the differences among these alternatives, and, defend the choice of Schatzki’s site-based ontology, as opposed to a social societist ontology or an individualist ontology as the appropriate conceptual framework for this research.

### 2.1.1 Teacher agency in the reproduction and transformation of institutional practice

In this study my purpose is to investigate how teacher agency develops and functions within the nexus or structure of local community settings where the notion of the teacher as both a social product and a product of society is best understood when these moments of agency are treated as concrete moments of a socially located self. In this study of the prospective intentions of teachers as change agents I brought an ontological orientation to the investigation of how material objects become social objects through an exploration of social episodes of contemporary technological change in the biographies of three teachers pioneering the use of new media and in the daily activities of teacher-agents implementing a policy of technological reform in two schools. The study focuses on the discursive accounts of teacher/agents who were e-technology enthusiasts pioneering pedagogical change, in order to elucidate the processes both of structural transformation in their schools and synchronously their own changes.
After the practice turn, teacher knowledge and learning no longer can be conceived as mental processes residing in people’s heads; rather, they must be viewed as forms of social expertise as knowledge in action situated in the historical, social, and cultural context in which it arises and is embodied in a variety of forms and media. Consequently, it is not enough to say that “knowing in practice” is not a possession of individuals because it is carried in the participative processes of practical understanding and teleoaffective structures. As ethnomethodological researchers have demonstrated common sense understanding of ‘practical reason’ may eliminate the “judgemental dopes” of action theory and “normal science”, but it can potentially create a self-referential exploration of the “practical objectivity and practical observability” of practices that leaves theory and the researcher with limited recourse to reflexivity, rationality or knowledge (Garfinkel, 1967; Lynch, 2000). This study encompasses practice theory within which a polymorphous concept of agency can be sought. The status of human beings as “agents” is constrained in practices and that the performance of doings and sayings constitute the actions that comprise practices. (Schatzki 2002, p. 240). Practice theories, such as that of Schatzki, Bourdieu and Giddens, unlike realist social ontologies such as the historical materialism of Marx, do not conceive the “social” as a substantive entity, the sum of individual actions, a collective reality irreducible to individuals, or as a representation of materiality. These practice theories operate within time-space social ontologies, considering an entire work/activity system such as in education affording a focus on communities of practice rather than just one actor or user. Practice theories seek to account for the environment, biography of the person, culture, role of the artefact, motivations, and the complexity of real life activity. Schatzki (2011) asks if Practices are seen as primarily routine, habitual and normative events that happen rather than purposive and generative processes, then how do they change over time? This question has perplexed social theorists from Weber (1978) to Bourdieu (1977) and Giddens (1984). By focusing only on practices at the locus of the “social”, practice theories emphasize how enactment of everyday activities guide not by intentional action, formal knowledge or theoretical concepts, but by routine practices, know-how, tacit knowledge or informal rules, all of which may be diffuse, indeterminate or unreflective (Turner, 1994, 2007). But if we cannot make practices more transparent and reflective, if we cannot identify how they are culturally or reflexively shared, there is a danger that we lose not only any notion of agent causality but also any connection between agency and practice, agency and intention and agency and change (Habermas, 2007; Berard, 2005). I argue Schatzki’s practice theory can potentially meet the challenge of explaining how practices remain the same and how
practices change (de Certeau, 1984) if it incorporates positioning theory (Davies & Harré, 1990; Harré & van Langenhove, 1999; Harré, 2005a, 2005b), whereby an agent’s intentions are explored in their everyday conversations or discursive practices, taken to be indissoluble from their non-discursive practices.

Within this conceptual framework an individual teacher’s engagement with new technology can be described as manifested in the early socialization of the new resource in schools, in the enactment of an analogue-digital curriculum, in the biographical accounts of pioneering teachers, in storylines and in the mediating artefacts - the networked and mobile technology, in the existing and emergent rules for its use in schools, in institutional reorganization and in the identity formation of teachers.

Policy directed research in this area of educational change rarely considers the constituting prospective worlds of teacher action, interaction and reasoning in the formulation and testing of new rules: firstly as protocols, procedures or policies, which eventually will become their daily practice. Nor does such research often consider teacher agency from process ontological perspective, implied in questions, such as: ‘How do teachers acquire the knowledge and skills to use the new technology?’ or from an ethogenic perspective the moral context of their intentional action: ‘How do teachers and school communities implement and enact an analogue-digital curriculum?’

In exploring technological change within schools, the study also seeks to contribute to the wider research dialogue on the role of human action in social practices and transformation.

The task begins with the need to match the object of the study (teachers and technology) and use of appropriate research theory and methodology. The key challenge for this study is the construction of a conceptual framework that will capture the complexity and tensions in the process of school reform: from two separate though complimentary perspectives: one of language and the other of practice. The conceptual framework needs to provide a language to illuminate the concepts of human action (agency and practice) and social transformation, and simultaneously account for the creation and socialization of new objects of knowledge within communities of practice.
2.2 Agential Reality and the Local Moral Order of Teaching

Social philosopher Rom Harré (1984), in *Personal Being*, discusses personal action and social events as constitutive of developmental processes where, for instance, the person of the teacher as a social and cultural change agent has a social origin. For Harré consciousness and the intimate structures of our personal being develop as social entities. Harré argues, “Everything that appears to each of us in the intimate structure of our personal being, I believe to have its source in a socially sustained and collectively imposed cluster of theories” (1984, p. 21). From this perspective, the school as a community of practice through the provision of rules (policies) and resources constrains or enables teacher action. For the person of the teacher as change agent the inherent and developmental affordances of each school’s social structure or more specifically, the moral structure or local moral order, infuse individual bodies and minds with consciousness, reflexivity and intention. The person of the teacher pioneering the pedagogical use of new media, Harré suggests is constitutive of increased “sophistication of public-collective activity … is prepared for, not by a maturing natural endowment, but by the previous level of that interpersonal, public, and collective activity” (1984, p. 22).

From this perspective, a teacher’s personal identity as a technology enthusiast pioneering new pedagogical practice is not grounded in some process of self-regulating individualistic cognitive capability as argued by Jerome Bruner (1982) and Jaan Valsiner (Branco & Valsiner, 1997). Rather, a teacher’s personal identity, Harré argues is the direct result of the developmental nature of the social world and being, and, “arises only by transformation in the social inheritance of individuals” (Harré 1984, p. 23). He argues that individual consciousness is the result of social learning processes, and:

> We learn to conceive of ourselves as personal beings by the appropriation of the concept of social being from our public-collective activities for the purposes of organising our experience as the mental life of a self-conscious agent. (Harré 1984, p. 108)

Harré believes that language acquisition and use provides a model for our understanding of human development, as an exterior-to-interior progression, where a person’s cognitive development emerges from the social world of language and gesture rather
than from the alternative proposition of a self-generated emergence of cognitive structures. He argues:

Learning is just the privatisation of features of public collective episodes of mutual engagement, and many individual cognitive processes are much what Plato and Vygotsky thought they were – sotte voce speech – inaudible self talk. The fact that talk displays cognitive properties is a collective not an individual fact. (Harré 1984, p. 137)

From this perspective, people behave in the way that they do because of the meaning they give to situations, and that understanding personal reality requires an understanding of social inheritance: the public and collective domains that are the source of personal consciousness, emotions, agency, morality and intentionality. The person of the teacher can be studied through the expression of the self in everyday conversations about institutional practices, storylines where the selfhood of autobiographical telling is a form of discursive psychology, and is investigated via an ethogenic approach.

This study of the daily lives of teachers as they grapple with the pedagogical use of networked and mobile computing, presents an account of the emergence of a digital culture from an ethogenic perspective. Ethogenic research provides a scientific framework of how one, as researcher, can interact with others, as teacher participants, in co-constructing the transformational narrative. Davies (1982, p. 16) explains:

Ethogeny attempts to provide a theory of social being in which we can recognise ourselves, and in which our common-sense knowledge of everyday life is not negated. … Ethogeny gives force to the intuitive being of the researcher and of the researched in their attempts to understand the social processes in which they are each caught up.

Davies (1982, p.16) continues:

Ethogeny seeks to strengthen our understanding of the process of meaning-making, recognising at the same time the complex interplay between the meanings individuals give to their social worlds, and the identities made available to those people by their social worlds. Ethogeny views human
consciousness as a critical but neglected element in research in social behaviour.
… [And that] the particular strength of the ethogenic paradigm lies in its
theoretical recognition and empirical use of the understandings we have as
researchers, and as people being researched, about what we do.

Harré (1983) describes the three doctrines constitutive of the Ethogenic approach:

1) A sociological doctrine: society involves at least two social orders, one concerned
with the organization of work, the other with the organization of honour. They could
be called the practical and the expressive orders. In general, the expressive order
dominate the practical.

2) A psychological doctrine: social actions are structured and their structure is the
realization of prior structure, located in the intentions and the belief systems of
actors, sometimes individually, more often collectively. The study of actor’s
accounts gives us access to that belief system.

3) A social psychological doctrine: many features of the ‘mental life’ that are
experienced as attributes of individuals are derived from social forms. (p. 69)

From an ethogenic perspective social life is composed of two kinds of performance –
actual social behaviour and the accounts of social behaviour in which it is explained,
criticised and justified. In each case the behaviour is dependent on an individual’s stock
of social knowledge. This suggests that the best authorities on social action – for
example, the pedagogical use of new media - are the teachers themselves, and social
researchers should ask them to explain and interpret their behaviour as they would to a
colleague in everyday conversation. In this ethogenic study, since teaching-with-
networked-computers was being imaginatively constructed at this time by enthusiasts
engaged in it, notionally but not actually free of existing pedagogical structures, the
conversational interviews here focused initially on turning the logic of their practice into
a theory of practice or a social ontology of practice or teacher agency. Their practices
are taken to be the antithesis of theoretical conceptualizations and dichotomous acts,
based instead in biographical understandings of pedagogical and institutional change as
well as their understanding of the prospects for and proper pedagogical use of new
media. Moreover, through the taking, sharing and juxtaposing of the perspectives of
teacher participants I sought to present a site-based process ontological account of this
historical period focused on the emergent uses of the new technologies. I begin with an
analysis of social ontologies that are seen to compete with Schatzki’s practice theory.
2.3 The Agency of Teachers - Competing Social Ontologies

2.3.1 Bourdieu’s social habitus - systemic structuration and individual action

Pierre Bourdieu’s social societist ontology emerged from his attempts to resolve contradictions between “certain strands of Durkhemian and Weberian theory” (Lizardo 2004, p. 376). His aim was “to clarify the process through which objective social structures … are translated in the process of socialization … into embodied social structures” (p. 394). For Bourdieu, social instability occurs when the habitus detects a phase differential between objective social structures and embodied social structures. And that social transformation occurs as the same system of embodied structures and objective structures are once again able to unproblematically accommodate each other. As new practices emerge which are “in tune with the [new] social structures that generated them” in time they too, will “serve to reproduce and transform those very same objective structures” (p. 394).

In his attempt to explain variations in social morphology (within the neo-structuralist tradition), Bourdieu proposed the concept of Habitus: the cognitive apparatus connecting his account of “systemic structuration [structure] and his theory of individual action” [practice] (p. 377). The Habitus can be interpreted in two ways: the first, “as a perceptual and classifying structure,” and, the second, “as a generative structure of practical action” (p. 379). He argues, “actors creatively elaborate their actions (agency/practice) within background conditions (structure) which “are not governed by rules” (explicit or implicit), “but which emerge from the ebb and flow of practice” (Mutch 2004, p. 436). And “that habitus plays a central part in constraining and enabling the types of performances produced” (p. 436).

In this sense teaching is the practical mastery of the rules of teaching expressed as the tacit and spontaneous performance of these rules. Furthermore, a teacher’s ability to employ the appropriate pedagogical strategies depends on one’s habitus (generative principles), which in turn depend on one’s social position (e.g. social class, public or private schooling, beliefs). According to Bourdieu (1990):

Those from different social conditions will tend to respond in the same way, because of the objective conditions of existence which they share. Their early experiences will be crucial in determining their future responses, as they will
tend to react to new experiences by assimilating them to the generative principles they acquired. (p. 60)

From this perspective the principles of teaching are assumed to be differentially acquired and employed, even though (formal) teacher education involves particular and common contexts, as the habitus of each individual teacher is dependent on their particular objective conditions of existence and that new experiences are assimilated to the generative principles they have individually acquired. Furthermore, while structure is the necessary condition for practice, it is the embodied habitus - an active generative and recursive matrix - that reproduces larger structures from the products of practical action, and that the Habitus operates in the space between objective structures (institutions) and embodied structures (social agents).

In this way, Bourdieu’s Theory of Practice can be used to study the practical mastery of the rules of teaching: either as a function of particular contexts in which principles are acquired and are employed, or the way in which a similar set of principles is employed across contexts (private or public school systems, the curriculum, the use of new pedagogical strategies and resources). However, critics of Bourdieu’s Theory of Practice object “to the circular form of reasoning, in which practice turns out to confirm existing patterns through the operation of the habitus, which in its turn has been created by those existing patterns” (Mutch 2004, p. 437). More significantly is Basil Bernstein’s (1996) claim that Bourdieu does not provide an explanation of the formation of the internal structure of the particular habitus, but offers instead, only a description of what it does.

Schatzki (2001), in challenging the interpretation that the habitus, as a “set of bodily dispositions” mediates between “geographical self” and “lived place” argues that many phenomena could equally satisfy Bourdieu’s mediating condition, offering as possible candidates Giddens’ (1984, practical consciousness, Dreyfus’s (1979) skills or practical understandings, Wittgensteinian (1958) know-how” and “Heidegger’s [1952/1971] ontological holism or referential totality” (p. 699).

He argues that the conception that “self and place are mediated by a third term, such as the habitus, either as a physical body or as a “living-lived body” (p. 701) is mistaken, as there is no mediating entity either concrete or abstract. There is only “functional human beings who act in a place-world they experience” (p. 701).
2.3.2 Giddens’ duality of structure and agency

Bourdieu follows the principle that practices cannot be theorized and must be empirically specified but his “logic of practice” (Bourdieu, 1977) becomes a way of exploring the logics of power, culture and action in terms of its counterpoints; the economic determinism of orthodox Marxism, the limitations of structural-functionalism, and the radical decentering of the subject within linguistic structuralism. In contrast Giddens’ early work does appear to hint at the potential ontological status of “practice”. “The notion of agency connects directly with the concept of Praxis, and when speaking of regularized types of acts I shall talk of human practices, as an ongoing series of “practical activities” (Giddens 1976, p. 75). The connection between agency and practice also creates the possibility of a connection between agency and change: “All reproduction is necessarily production … and the seed of social change is there in every act that contributes towards the reproduction of an ordered form of social life” (Giddens 1976, p. 102). But practice in later work remains a category of mediation in the production and reproduction of structures with agency as both a category for the instantiation of structures and a potential liberal defence of humanism via the power of agents to act otherwise. In Giddens and Pierson (1998) the systematic reappraisal of the sociologies of Karl Marx (Marxism), Emile Durkheim (functionalism/positivism) and Max Weber (voluntarism), provides a contemporary account of the social world in which practices are not given ontological priority in his theory of structuration. For Giddens “agency” is prior to acting and as such it is ontologically prior to practice, to action in the world. His structuration theory describes how the structure of the social world is created and reproduced through the routine nature of most social practices. According to Giddens social structure - in the form of rules and resources – is “both the medium and the outcome of social practices which constitute social systems”, and “has no existence independently of the knowledge that agents have about what they do in their day to day activity (Giddens 1981, p. 27). Giddens’ (1984) structuration theory is his endeavour to reconcile positivism and phenomenology (structure/meaning), to account for daily life. It represents his attempt to transcend the subject/object dichotomy, thereby legitimising the rejection of the idea that autonomous subjects confront a reality that is entirely external to them. Giddens argues that most day to day activities are unmotivated, based on habit, routine, custom, and rules, rejecting the concept of agency as intentionality on the grounds that it is difficult to link to action, preferring instead to emphasise the capacity of agents to follow rules. Agency floats free
of the world because it forms the transcended presupposition of action: to act otherwise and make a difference.

Giddens and Pierson (1998) argue that recurrent social practices rather than the effects of either structure or agency produce and reproduce society or social institutions. From this perspective, the social structure of an institution such as a school emerges from "what people do in their day-to-day" activities (p. 76). And teaching as a form of social life is conceptualised as a series of ongoing activities and practices that teachers carry on, which at the same time reproduce the social structure of the school. His structuration theory proposes that the social structure of a school is primarily expressed in the things that teachers do in a “regularized and in an institutionalized way” (p. 78). Furthermore, much of what teachers do in their everyday teaching life is governed by “practical consciousness - ‘going on’ with the rules and conventions of social life” (p. 78). Ultimately restructuring only appears to exist through the production and reproduction of practices by knowledgeable human actors who act both reflexively and non-intentionally.

If teachers are “conscious, intentional beings” who can “read” and “reflect” upon what they do (p. 78), then their actions can be considered an expression of their agency, which Giddens argues is essentially the capability to have done otherwise, and is the basis of their “power” (p. 84). However, what teachers do in their day-to-day practice (following rules, conventions) can severely “constrain” (p. 83) what is possible for any individual teacher, and as such the social structure places limits on their ability to do otherwise: on their power, on their agency. At the same time, the social structure of a school makes teaching possible. Teachers “can only act conventionally because of mutual understanding of convention” (p. 83). Consequently, individual teachers cannot just invent their own conventions, as they emerge from a shared public understanding (community view), and depend upon “practical consciousness” - “what Wittgenstein called our capacity to ‘go on’ in the diversity of contexts of social life” (p. 83).

For Giddens, agency is what comes down from within the structures and as such is part of structuration that is teacher agency is socially determined. From this perspective, the day-to-day activities of communities of teachers and school councils In State schools in Victoria - are legal agents of the government (State of Victoria, 1983), together with the recurrent actions of other legal agents, such as the Department of Education, which ‘stretch’ across time and space (Giddens and Pierson 1998, p. 91) - can be thought of as ‘agents’ which produce and reproduce social practices and structures, constitutive of Victoria’s education system.
According to structuration theory, teaching as a social practice depends upon the habits and forms of life that teachers adopt. These habits and conventions are not just used by teachers in their teaching, but the rules and conventions of teaching practices also constitute what is teaching. Giddens argues that while structural properties of a social system, such as a school, can affect the way teachers “act, feel and think”, they are not “like the physical qualities of the external world”, as they “depend upon regularities of social reproduction” (Giddens and Pierson 1998, p. 77). So, the social structure of a school only exists and has effects on teachers in so far as structure is produced and reproduced as a consequence of their day-to-day activities (See Figure 3a after Rose, 1998). However, Giddens also indicates that social reproduction and social change are dualities of social life, and that the possibility of either is present in every moment of social action. As he explains, “Social life is continually contingently reproduced by knowledgeable human agents - that’s what gives it fixity and that’s what also produces change” (p. 90). So, the day-to-day activities of teachers, stretched over time and space, may favour stability - reproducing the existing social structure (Figure 3b after Rose, 1998) - or change - creating new social structures and practise.
Despite his synthetic ontological intentions, agency and structure appear as epistemologically distinct categories that interact. If a practice theory is to account for schools as social institutions, then the duality of structure and agency is the necessary condition for their production and reproduction. And that the social structure of the school makes teaching possible as it creates the conditions and rules (protocols, procedures conventions), which circumscribe what is or is not permissible. As a consequence the social structure of the school (for the purposes of school reform) is envisioned as a hierarchical structure, operating as a command and control communication system: enabling or restricting the day-to-day use of resources by teachers and students. Furthermore, as this relationship between structure and agency favours social stability, school reform focuses on improving teacher performance and student achievement through the strategic manipulation of rules that govern the use of physical and human resources (Goodman, 1995; Cuban, 1990; Romberg and Price, 1983).

Critics of structuration theory (Bailyn, 2002; Harré, 1997; Bhaskar (Harvey, 2002); King, 2000) raise serious doubt concerning the theory’s ability to adequately render a plausible account of society and its institutions. Bailyn’s (2002) succinct yet critical question, ‘Who makes the rules?’ confronts the first of four tenets germane to the integrity of Giddens’ theory. Her question challenges the notion of a uniform ‘community view’ which is necessary for regulating the behaviour of individual members of the community through the process of social conformity. Harré (1997) challenges a second tenet of Giddens’ structuration theory, which limits agency to rule-following behaviour, which would deny the possibility of intentional action and interaction. Harré argues “acting according to rule” is not the same as “rule-following” (p. 184) or “attending to the rule” (p. 185), and that habitual (or routine) behaviour is not the same as a skilled performance. Harré explains, “Habits are acquired by training”, and as such “once trained, habitual behaviour is rather like causal behaviour”, deterministic in character (p. 184). However, since skilled performances are “self-consciously managed by the actor or actors” (p. 184), and entail normative judgements which raise the possibility of misinterpreting the rules, they thereby eschew determinism. A third tenet of structuration theory is challenged by Bhaskar’s criticism of Giddens’ conception of abstract time preferring instead the concept of “spatio-temporal rhythmics” (Bhaskar, 1993), or space-time dependency. This concept of irreversible social time when embedded ‘in real entities’ and ‘in the historical flow of natural processes’ enables the possibility of ‘ontologically stratified social spaces’ (pp.
403-404), thereby, on occasions, transcending social stability in favour of social transformation.

And, finally, King (2000) challenges a fourth tenant of structuration theory, arguing that it cannot account for the reproduction and transformation of the social system through the routine actions of individuals, without the derogation (objectivising) of the lay actor. He believes that the flaw in structuration theory stems from Giddens’ misdiagnosis of the concept of society, as being an objective social system. He argues, “Society does not consist of individuals who have to be bound to an objective system but only of the complex and meaningful social relations between individuals who draw on these mutual stocks of knowledge in their interaction” (pp. 381-2). King claims that since “society consists only of lay actors’ knowledgeably interacting with other actors in complex networks,” there is no “agency-structure problem”, “but only a problem of the way individuals maintain and transform their relations with other individuals” (p. 382). King argues a hermeneutic and Wittgensteinian concept of practical consciousness is sufficient to explain the reproduction and transformation of society through the actions of knowing individuals without derogating the lay actor.

However, even more important in this current study is the pivotal question raised by Bhaskar’s Critical Realism (Bhaskar, 1989), namely: Structuration theory does not attempt to explain the causal mechanisms which mediate between agency and structure. That is to say, while structuration theory describes the subordinate relationship of agency to structure, the theory is not concerned with rendering causal mechanisms necessary to explicate the account. Giddens’ conception of agency is (intentionally) limited, that is to the capacity to follow rules and perform routine actions.

The difficulties in applying structuration theory to understanding teacher agency in pedagogical reform can be illustrated here by returning to my interview, from Chapter 1, with Lex as he recalled his work with his colleagues (Figure 4).

Lex recalled his discussion and demonstration of a carbon dioxide probe with biology teachers, who he claimed were able to recognise the significance of the technical artefact as constitutive of a new form of teaching-learning activity. In that “We can't do this [measure carbon dioxide levels] currently with any technologies that
exist”. Lex believed that once the teachers recognised that without the digital sensors “rigorous quantitative data” could not be “gathered any other way”, then they “just embraced it wholeheartedly, without a moment’s hesitation”. So, for Lex, as new technical artefacts were used in their day-to-day activities, new habits, norms and rules, afforded by the access to alternative resources, began to influence and shape what is, and is meant by, an analogue-digital science curriculum.

As the science teachers moved from sceptical or reluctant users to committed adopters of the technology, Lex (as the science coordinator), said that he encouraged them to ask: “Why would you do that [use advanced technology] if it's not somehow better than what you’re currently doing, or easier, or some clear improvement?” This sense-making method, he felt enabled his science department to formulate a working principle regarding the use of advanced technology, which is encapsulated in Lex’s comment: “We want appropriate tools at the appropriate time”. Moreover, as the experienced user Lex led by example sharing his experiences of the new technology with his staff. In particular, he discussed the benefits of the new technology for his teaching: “I’ve discovered that the Internet provides me with information I couldn’t otherwise get access to”. “The ultrasonic motion detectors are just brilliant. … I can’t do that activity with the previous technology.” Lex suggested to his staff that they might want to use the Internet and the ultrasonic motion detectors in their teaching.

This proposal was supported by new rules and new resources. For example, Lex explained the school’s professional learning policy: “If you want to explore some of this [new technology] we will [the science department] give you time and we will give you money for the hardware.” In return the teachers were expected to “explore” the technology and make their own “assessment” and, if they thought it was “good enough” they were encouraged to “use it in class”. From Lex’s perspective as the science coordinator and technology leader, simply providing new resources such as digital sensors, access to the Web and published units of work would be counterproductive. He was acutely sensitive to the nature of the teachers’ professionalism, which he described as “fiercely independent” and “highly competitive”. Lex explained that while a “course outline” on school science curriculum issues had been developed teachers did not want to “do the same thing” as each other, and it was common for their conversation at science department meetings or informally amongst themselves to include comments such as, “Sure, I did this topic, but this is the way I did it”. Through these formal and informal conversations teachers within the science department shared and contested
Figure 4. Lex - A Teacher Technology Enthusiast – Extract II

Seen as a whole, Lex felt his day-to-day activities and those of other science teachers served to produce and reproduce the structure of the science department, creating the rules that governed the use of resources, which in turn characterised their teaching practice. This view of teaching (as a shared construct) supported in part by the theories of Wittgenstein, Garfinkle and Giddens suggests a uniform or ‘mechanistic’ agential constitution of reproductive or transformational social meaning (Bailyn, 2002). That is, once the rules, norms, conventions, customs or habits which characterise teaching as a ‘form of life’ have been established, then all teachers or networks of teachers (committees, faculties, departments) within the school (community) will know how to ‘go on’ in the same way as other teachers in the school. The problem is that such stability based in an institutional order of common retrospectively grounded belief has been extremely rare or unknown in schools or in other social institutions coping with greater complexity and uncertainty and involved in constituting a prospective order around new resources. Riddens fails to allot sufficient autonomy to the mediating structures and specifics of agency in his theory, and tends to collapse dialectical opposites into one another.

When accounting for the relationship between agency and structure, Giddens’ conception of agency is limited to the capacity to follow rules, as it is too difficult to define and connect to action. From the perspective of structuration theory agency focuses on “tacit knowledge and routine action- the capacity to follow a rule - rather than on intentionality – the ability to choose which rule to follow. (Bailyn, 2002).

When Lex challenged the science teachers in his department to make sense of an analogue-digital science curriculum, by experimenting with various digital devices, the teachers simply would not and could not individually choose how to ‘go on’ teaching in the same way as before: that is, not until they (the science department and the school) socialized digital artefacts in their local moral order. The science department’s view - assuming it could be represented - relating to the educational value in new technology would not likely represent the view within other science departments in other schools or
indeed other departments in his own school - especially, the strictly utilitarian proposition that certain teaching-learning activities could not literally be done in any other way. So, it may not be appropriate for teachers in other departments to ‘go on’ in the same way as the science teachers whatever that may mean for them and may not be equally convincing among all Lex’s colleagues. Some teachers in fact discretely refused to use the new resources, some publicly defended their decision; many passively accepted the new technology and associated good advice; still others like Lex substituted a committed grammar while a few complained to the principal or colleagues in another department.

This study seeks to understand and interpret how teachers acquire and apply knowledge in situations where the social orders, explicit or implicit, do not exist or are in flux, where there is an expectation that advanced technology will be used across the curriculum for teaching and learning, before teachers’ knowledge has been socialized: as customs and traditions. In Giddens’ world, voluntarism cannot be explained. But in the midst of innovative and voluntary technological change, such as in the introduction of a analogue-digital curriculum, the project challenges the validity of social theories where pre-existing ‘rules-resources’, explicit or implicit, are seen as the necessary conditions for the routine use or the execution of skilled performance.

In this study the emergence of new media in schools is not an innovation in the narrow sense of novelty, or an adjustment to keep the system working. The teachers pioneering the pedagogical use of new media and for other entrepreneurs outside of education, their vision was more adventurous and far-reaching, than mere innovation. The study seeks to illuminate this vision through an analysis, framed by the co-construction of agency and structure, of their perceptions of an analogue-digital future afforded by new media. In this way the study is immersed in the larger social narrative and is not just focussed on personal stories or anecdotal accounts of certain teachers. This is not just a study of the technical aspects of the problems people encountered in using new media. Nor is it a study of teachers as action-researchers in a pilot school demonstrating and rationalizing their work to teachers who are visiting their classroom from another school in order to learn how to use the ‘new approaches’ afforded by new media. In the research conversations in this study the teachers dramatize in their accounts their agency in the dual process of their self-improvement and institutional reorganization. Garfinkel’s (1967) and Rawls’ (2012)
Understanding of the role that orders or norms of “use” play in communication in everyday practice and this research involves a complex order of reflexivity between participants. How the recipient of an action responds to a turn at talk (as acting on or orienting which rule) exhibits an interpretation that constitutes the sense of action. This of course can change with the next response. Maintaining this reflexive engagement requires both a deep mutual commitment to the rules of play that Garfinkel calls “Trust” and an orientation towards exhibiting both the commitment and the developing sense of the interaction - as matters evident in and exhibited through the moves - at all possible points - in a developing course of constitutive action.

2.4 Bhaskar’s Critical Realist Transformational Model of Social Activity

Change in teaching practice, well illustrated in the advent of new learning technologies, is concerned with social transformations outside and inside schools. Bhaskar’s (1989) Transformational Model of Social Activity (TMSA) emerged from his philosophical critique of the ideas of Durkheim, Weber, and Peter Berger, concerning how society and agency reproduce or transform one another. When considering the site of the social (societies, social institutions), Bhaskar (1989) draws the distinction between behaviour and relations, arguing societies are conceived in the thoughts of social actors, and are not irreducible to individuals or groups of individuals, but rather are “an expression of the sum of the relations within which individuals [and groups] stand” (p. 26). Furthermore, he states that pre-existing “social forms are a necessary condition for any intentional act”, and that their “causal power” both establishes their reality (emphasis in original), and are “mediated through human agency” (pp. 25-6). Bhaskar (1989) explains:

… people do not create society. For it always pre-exists them and is a necessary condition for their activity. Rather, society must be regarded as an ensemble of structures, practices and conventions which individuals reproduce or transform, but which would not exist unless they did so. Society does not exist independently of human activity (the error of reification). But it is not the product of it (the error of voluntarism). (Bhaskar 1989, p. 36)

His dialectical resolution of the diametrically opposed concepts of reification and voluntarism represented by the two maxims “Society creates Man” and “Man creates
Society” asserts “societies and individuals reciprocally reproduce one another”, and that socialization requires pre-existing “social relationships” and individual action (agency) requires pre-existing “facilities” (Harvey 2002, p. 168). That is to say, Bhaskar proposes that people as social agents, “in their conscious activity [intentional or functional], for the most part unconsciously reproduce (and occasionally transform) the structures governing their substantive activities of production [their practice]” (Bhaskar 1989, p. 36). Furthermore, Bhaskar asserts:

Society is both the ever-present condition (material cause) and the continually reproduced outcome of human agency. And praxis is both work, that is, conscious production, and (normally unconscious) reproduction of the conditions of production, that is society. One could refer to the former as the duality of structure, and the latter as the duality of praxis. (Emphasis in original, pp. 34-5)

Now, if we consider teachers to be conscious human beings where reasons are “explanations for human conduct”, and that “generative structures are analytically causal” (Bhaskar 1989, p. 80), then from the perspective of critical realism, teacher agency is located in the domain of the psychological sciences. Bhaskar argues “that intentional human behaviour is caused, and that it is always caused by reasons, and that it is only because it is caused by reasons that it is properly characterized as intentional” (p. 80). And as such the “reality” of teaching (social form) is established by reference to their “causal efficacy” in affecting the school’s social structures, the curriculum, the learning environment, and the use of resources (states of the material world), as mediated through “intentional” teacher agency. However, teachers (and others) “may or may not be aware of the reasons that cause [their] … intentional behaviour” (pp. 80-1). Indeed their practices are indeterminate to themselves and others by nature of the complexity and uncertainty of everyday discursive and non-discursive practices.

Bhaskar’s critical realist approach to social theory sees structure and agency as complementary forces while his TMSA renders explanations of the reasons for human behaviour in both social and psychological terms, that is, explanations that “explain both the role and the person” (p. 93). However, since critical realism is a philosophical approach in the social sciences, researchers in education, while drawing on the conceptual framework, need to “develop their own domain specific ontologies and
epistemologies” (Mutch 2004, p. 430; Harvey, 2002). A more fine grained analysis of particular social episodes is required.

2.5 Schatzki’s and Harré’s Site-based Ontology and the TMSA

Schatzki’s attempt to define agency as practice places practice ontologically prior to actions and tends to relocate and disperse agency within the temporality of practice. The decisive philosophical rationale for this move seems to have been grounded in Wittgenstein’s anti-theoretical stance towards the analytical philosophy of language but Schatzki’s holistic ambition is neo-Heideggerian: the ontological structure of being-in-the world allows for the disclosure of practical intelligibility, practical understanding and the teleological nature of human activity. Schatzki’s focus on the indeterminacy of action avoids any hint of pre-determination or theoretical reductionism by insisting that participation within a practice, here teaching with the new digital technologies, only takes on determinate form as it happens. Practical understanding he argues is theory neutral or purely descriptive. But teachers’ knowing in practice not a possession of individuals because it is carried in the participative processes of practical understanding and teleoaffective structures. Teachers have to navigate, and translate between cultural practices as insiders and outsiders to the classroom if they are to retain a theoretical and practical notion of agency as something that is mutually recognised, as well as an ideal of knowledge as possession - even if as Schatzki (2010, p. 502) argues a purely proprietary notion of the self and self-knowledge is deeply flawed. That is the inescapable dilemma; there is a need to assume a cultural position as to what “agency” is - how much autonomy and responsibility is attributable to our actions and those of others? If teachers and not just principles/headmasters/system gatekeepers are to be located in the discourse of educational change then what counts as agentive knowledgeability or intelligibility, mediated practice needs explication. Since membership to the discourse community is conditional on gatekeepers’ acceptance of evidence of teacher knowledge; how should claims of effective teaching – what works and what doesn’t work – be judged? On what evidence? Who decides what constitutes evidence? Is it whatever an individual as ‘expert’ teacher accepts as learning (the stories ‘experts’ tell - the epistemology of the expert’s practice)? Is it whatever philosophers accept as learning (disciplinary knowledge, pedagogical content knowledge – propositional knowledge)? Is it what teachers collectively accept as learning to teach
restricted to learning practical epistemologies? What of teaching as a moral craft negotiated in the local moral order?

Roberts (1996) argues that teachers in conversation with other teachers who are addressing the question: How do they defend their belief (knowledge) that their students have learnt, and subsequently commit to trialling the suggestions of others, may exclaim, “That sounds good, I’ll try it”, or that “This is the way teaching practice is transformed”. In this way Roberts’s (1996), epistemological triadological model of social constructivist teaching seeks to overcome relativistic challenges, and to clarify how that new knowledge can only emerge through historical/cultural site-based construction. He argues they can only do so in site-based communities of intellectual practice where they are capable of discerning whether or not colleagues have the practical knowledge that is not reliant on the judgement of experts/theory.

In this work I explored teacher agency in the accounts of the discursive and non-discursive practices of individual teachers. Their social ontology, their interpretation of the context and the problems they face is part of this phenomenological enquiry. I am not claiming the teacher agents have full self-knowledge any more than I see them as judgemental dopes of the activity theorists. I am implicitly acknowledging that the teacher technology enthusiasts have knowledge other teachers don’t have which they bring into the practice community of their schools. I am also not arguing for teacher technology enthusiasts as cultural heroes having a knowledge which wasn’t being listened to. I see these teachers necessarily engaged in acts of maintenance and transformation in their discourse communities but personally responding to the cultural ripple effect of Berners-Lee’s ‘gift’ in 1992 – which is the background of the story of the early socialization of the new communication technology in that period.

From the traditions of ordinary language philosophy, Austin (1961) and of discursive psychology, Harré (1997) raises three objections to the possibility of naturalism in the human sciences. Firstly, he argues that reality in the natural world is not the same as reality in the social world. While agreeing on the stratified nature of reality in both realms, Harré challenges the validity of the domain of the actual as being constitutive of reality in the social realm, arguing instead for “the field of the possible, its shape and its boundaries and its transformation with time” (p. 178). Secondly, Harré resists the temptation to ascribe active powers to either small scale or large scale social ‘structures’, recognising only the “efficacy of persons” (p. 181). He cautions against
confusing the kinds of constraints that the natural/material world “imposes on forms of life with the limitations of imagination that are inherent in grammars” (p. 174). Thirdly, Harré (1997) argues that while actors coexist and interact with others and objects of meaning in everyday workplace conversations from “moment to moment” and the ontological process is more dynamically understood as ‘positioning’ or ‘repositioning’ of self and others than simply as performing various ‘roles’. In their self and other psychological positioning they are “expressing relational rights, duties and obligations in the local moral order with respect to the social acts that people engage in discursive practices where positions are “challenged, negated and denied or subverted” (pp. 180-81). He argues that these conversations are the basic social entity with causal powers. Like Bhaskar whose critical realist TMSA distinguishes between structural and psychological descriptions: in terms of “social function or role”, and actor’s “reasons” (1989, p. 36). However, from Harré’s perspective of discursive psychology where actors are engaged in “discussions of small scale social interactions”, a particular actor’s “reasons”, while they present social representations, they cannot be taken as substantive entities or causes (Harré, 2009). It is in the semiotic interactions in the conversation, that the social structures in the process of reproduction and transformation can be explored.

2.6 Summary

In education there is a need for a site-based social psychology that connects the analysis of social phenomena by examining the sites where human coexistence (social life) takes place and renders via a realist analysis an explanation of agential knowledgability in which the two moments of individual existence - self-as-product and self-as-process – are biographically linked through a dialectic of self-cultivation and cultural appropriation in the form of a new technological resource. Supporters of the ‘practice turn’ in social affairs argue that practice-based approaches in research “transcend the limitations of a representational concept of knowledge and the claims of a realist epistemology behind it” (Miettinen 2006, p. 390). They challenge relativistic forms of social constructivism while re-establishing “the significance of material artefacts in the study of human behaviour” (p. 390). However, critics of Bourdieu’s theory of practice and concept of habitus, and Giddens’ structuration theory, when employed as research strategies, claim that while they “reveal how social order is produced and maintained”, they do not “supply a means of understanding the agency
needed in the transformation of prevailing routines or in the creation of new activities” (Miettinen 2006, pp. 402-3). This agency is employed, in situations when teachers acquire and apply knowledge where the ‘rules’ of “use” (explicit or implicit are not constituted or existing rules are in flux, where there is an expectation that advanced technology will be used across the curriculum for teaching and learning, before teachers’ knowledge has been socialized: as customs and traditions. Critics of these determinist ontologies argue for the “notion of practice” to be dissociated “somewhat from its fixation on human dispositions and habits and from the connotation of iterative procedural routines” (p. 403). From this perspective the study of teacher practices should be “based on the dialogue between the researchers and the people [teachers] they are studying”, so that the studies of practices will be presented not as simulations of how the teacher felt, thought or acted with clear mental cues but as interpreting (Martin, 2005) in a dyadic process that is “sensitive to the concerns of the people involved” (Miettinen 2006, pp. 403-4).

Furthermore, as this research is located within a cultural and historical frame of reference it requires an alternative framework that can account for social change and transformative human activity, in terms other than those afforded by either social or psychological renderings. In this regard, a schematic model developed by Harvey (2002) from Bhaskar’s (1989) philosophical TMSA provides a useful portrayal of social change and transformative human activity, as it involves a dual praxis: where teachers are “a walking biography”; where teachers live within their own experiences circumscribed by a particular cultural historical context: where the school as a community of teachers provides certain cultural devices and historically available resources. The challenge of this research is to continuously attend to both teachers’ acts and actions - language and intent, as well as the context of their agency-focus at the same time.

This research moves away from the formal accounts of school reform in favour of biographical and historical accounts where, in a particular place and time the study interprets the way in which three teacher enthusiasts and two particular communities of teachers were dealing with the ‘pedagogical change’, which was afforded by the introduction of networked and mobile computing. The social changes that spawned new teacher practices described in this study emerged from the teachers ordinary language perspectival accounts of their day-to-day activities in pioneering the use of newly socially accessible technology, at a time before, during and after there were institutional orders attending to their distribution and use. Teachers’ perspectival accounts,
describing their interaction with the new technology and transactions between teachers, students and the technology, in which the grammar of their reasoning - instrumental and moral - were woven together in their expression of their hybrid ontology of the meaning of good teaching.

In both the Private and the State school the identity of the person of the teachers who were ascribed attendant duties and responsibilities for managing the implementation of the School’s Technology Plan is partially fixed by his or her social position. That is, the background of meaning or Taylor’s (1992) “horizon of significance” that makes sense of what the person of the teacher-pioneer or teacher-manager recognizes as important is partially determined by his or her place in the social structure of the school. In situations in which the demands of the teacher-agent at the intersection of imperatives/purposes are not encapsulated in institutional orders and there is no model of teacher agency outside of myself (i.e., there is no pre-existing social form) to enact then how I behave – ‘what I ought to do’, what I can do’, and What I do do’ after Harré and Taylor, is normatively constrained or endorsed by the local moral order of the school as a community of practice. Taylor argues that in the modern era, the modern ethic of authenticity stresses the importance of the ideal of fulfilling relationships, and that teachers as agents of reproduction or agents of change strive for mutual equal recognition in their relationships - the teacher to student and teacher to teacher - in which teachers discover their identity and have it confirmed by others. The research conversational interviews in capturing the dialogical character of teachers lives, afford an understanding of how the participant teachers defined and formed their identity as an agent of change in negotiation; partly overt, partly internalized, with, and sometimes against, “significant others” in discursive and non-discursive practices, constitutive of framing an analogue-digital future.

For the three teacher enthusiasts Alex, Max and Leslie (Chapter 4) their "identity" - "who" we are, “where we're coming from" - becomes the background of meaning or “horizon of significance” against which their tastes and desires and opinions and aspirations are rendered intelligible to others.
Chapter 3  Researching Teacher Agency in the Early Socialization of Information and Communication Technologies in Schools

To be self-conscious and to act freely are not, I believe, mysterious capacities but particular ways of thinking about what one is experiencing, planning, executing and so on.

Rom Harré, 2004:30

3.1 The Analysis of Teacher Agency

Agency has generally been thought of as being in the province of the individualized subject of will. The individualized subject in Western cultures is pervasively understood as an active agent. The individualized subject’s singularity (‘I’ or ‘us’) takes its definition against ‘society (‘me’ or ‘them’) which is plural. The singular subject’s specificity is ontologically real and works to accomplish a sense of self as coherent, knowable, continuous and predictable, as a subject–of–will. (Bergson, 1911/1998) But this sense of individual self as predictable works to render the agent vulnerable to institutional coercion, control and a sense of lack of agency.

The theoretical position taken on agency in this study is that agency, rather than being a product of the individual will, lies in the conditions of possibility impelled by the conditions of possibility emergent in that time and that place that provoke new thought for those people. In this sense the subjects account for themselves as responsive to the conditions of the new possibilities for teaching they see inherent in the new technologies. One of the conditions is a move from a moralistic judgement against a transcendent imagined ideal or order, towards an immanence to be found within a constitutive order that could be developed collaboratively in the use of new educational objects. Agency then is not within the bounded self, not just human life, but in all life, organic and inorganic. A new idea in this light compels a new way of being or agency in which the agent seeks ways in which they might break loose those habitual practices of thought that generate or reproduce educational failure.
The data presented involve a rich variety of subject positioning of technology enthusiasts as subjects of will and subjects of thought and offer opinions for analysis. The data are not exhausted by a single perspectival analysis that covers teacher identity and positions in their situational, cultural and societal identities (Torronen, 2014). In this exploration of the identities and positioning of teacher enthusiasts and their agency in the socialization of the new communication technologies in their school work in the early 1990s, positioning theory allowed me to pay attention in their discursive accounts to three aspects that Torronan identifies in such research: (1) classifications that defined the boundary lines between “I” and “me” or “us” and “them” from the viewpoint of moral order, (2) participant roles that referred to temporal aspects of subject positions and outlines of meanings in their actions, (3) cultural horizons of significance or viewpoints that framed meaning and order to opinions and experiences of the world, but these aspects are narrated for grasping how a fourth aspect of the early teacher enthusiasts’ identity and position, as agents of change in the work of the school - their interactive positions – were constructed, negotiated and maintained. Positioning theory is employed here to explore the moral contexts of teachers’ intentional action or their agency in a particular material time and place.

Agency is often assumed to be a means of gaining recognition, of competing with others, of being seen to have value in terms of neoliberal governmentality. That intensified individualization by its dependence can make the agent vulnerable and less capable of change agency. That is contrasted by a focus on themselves as primary and by the power of social organization of the school to manipulate them through heightening vulnerability and through foreclosing critique. A poststructuralist agency is not so focused on itself, but on possibilities, on what may emerge through changes in social practice - both discursive and non-discursive. It understands this practice as emergent from inside and outside self and always in need of critique. It lies in the capacity to critically examine ideas and processes and generate new possibilities, using not just intellect but also imagination and the sense of what might be worth further work. This agency, by a heightened capacity to listen to others, and to participate in and generate a constitutive order with others seems capable of transforming a dominant institutional order. How is the agency of the teacher enthusiasts for the new technology in this study to be studied and described?
3.2 Discursive Practice and Dramaturgical Representation: A Way of Thinking about and Analysing the Agency of Teachers in Educational Change in School

3.2.1 Understanding the socialization of the new media in schools

As the common term for new media used in the business and technology sectors, information and communications technology (ICT), was redefined as learning technology, e-learning or e-technology, a new educational narrative and grammar had to be developed by its proponents which transcended commercial and system management purposes to serve curricular purposes grounded in enhancing contemporary relevance and student engagement in classroom teaching and learning.

In this exploration of the socialization of the first generation of learning technologies in schools, the study examines the narratives of interest of teacher-agents in Melbourne schools in the late 1990s. Through conversational interviews conducted at that time, I attempted to find what was real from the perspective of each participant, that is how the world was made “real in their minds and through the words and actions” (emphasis in original, Charmaz 2000, p. 523) with the members of each educational community in which they were employed. From a realist perspective, dialogue, which constitutes one aspect of the conversational interview, represents the reconstructions of experience, their perspective of events and reasoning and not the original experience itself. Thus, a constructivist grounded theory for a phenomenological sociological study “assumes that people create and maintain meaningful worlds through dialectical processes of conferring meaning on their realities and acting within them” (p. 521) and provides the necessary methodological framework consistent with a realist perspective of social activity and change agentry. Further it assumes here the change agents are actors in their own social narrative of their reflective intentional acts and accounting and a dramaturgical analysis can be applied to their doings and sayings.

In his study of the socialization of material objects Harré (2002) argues “substance” is applied to two kinds of beings: individuals and non-living individuals. “Individual beings or just plain individuals are those beings which are identifiable and re-identifiable in a domain of other beings of the same sort” (p. 23). Individuals are semipermanent bearers of at least some group of permanent properties such as social rules, roles and ideas. But “substance” is also “stuff” like air, soil and fire. These are commonly taken to exist independently of people making, possessing or using them.
The computer, though more specifically networked and mobile computing, in this thesis is a non-living individual that occupies time and space and is capable of interacting with human beings. The computer is a material thing that can be taken as passive or active in relation to people. Whether the computer is passive or active is largely story-relative in the dramaturgical accounts of episodes in the lives of teachers in this research. The conception of social reality that animates this study is based on two presuppositions:

1. A social world is an ephemeral attribute of a flow of symbolic interactions among active people competent in the conventions of the cultural milieu of the school.
2. That teacher practice - doings and sayings - is socially organized and does not exist as individual practice unless it has first existed in the public activities of teachers in a community of practice.

As the everyday business and technology reference to Information and Communications Technology, in the form of computer hardware and software or the Internet or Cyberspace or applications for word-processing, calculations and presentations, began to emerge in the discursive acts of teachers, grammatical substantives such as learning technology, e-learning or e-technology began to be understood within the community of practice. In this way, e-technology became a social object in schools when indexed in the narrative of the everyday life of teachers by way of a particular flow of social acts constitutive of the community of practice.

### 3.2.2 A first characterization of the constructive process of the socialization of the e-technology in schools

The principles that I have applied in the current study are that the e-technology is transformed from a piece of stuff definable independently of any storyline into a social object by its embodiment in a narrative: first social in the practice community of the school then interiorized. The e-technology has virtual power only in the contexts of the narratives in which it is embedded. These principles are applied in this research in several narrative-relative contexts:

1. The e-communication technology can serve as carriers of meaning in the moment and context of the storylines of progressive educational reformers – organizational and personal renewal.
2. The e-communication technology may be potent in a special way in the context of the storylines of such reform narratives of narrators - as friend or foe.

3. The e-communication technology may have practical roles in teaching and learning not included in their original specification in either business management or technology models applied to education.

4. The e-technology can change categories within the storyline of the narrators, for example, along the spectrum of mechanical/analogue to virtual/digital.

5. The e-technology can be impediments to or empowerments of the proper activity of teachers.

E-technology in any form can have a great many “roles”, e.g., administrative; record-keeping/storage and retrieval; data collection, processing and presentation; as well as in construction of social status and professionalism. In any of these forms it could be given magical powers, that is, agentive capacity transcending materiality. The study then explores the hybrid symbiotic ontologies of teachers who positioned themselves or were positioned as change agents in the instruction of education technologies in their schools.

Narrative binding
There were several ways in which e-technologies were bound into the narratives of change agency in this study:

1) As a tool for new classroom practices like the use of digital sensors in data collection in the Science classroom, computer aided design in the Manual Arts classroom or the use of digital cameras in recording teaching - learning events generally.

2) As a tool for predetermined tasks in schools like professional development presentations or computer-aided report-writing.

3) As a vehicle for online state standards testing.

4) As a possible means of parent networking - school Ethernet.

5) As a tool for serving established conventions of market place placement of schools - progress/market placement through technological/cultural innovation.

6) As the focus of informal projects or practices - teacher-teacher conversations or teacher-student-student conversations.

7) Effective new institutional order for student learning - through other /forced positioning, and in the constitutive order of self-improvement through deliberative self positioning.
8) In social interaction/communication - through mixed positioning.

The accounts of multiple modes of narrative binding illuminate what a particular change agent is seeking to achieve (story-relative) as well as that of a particular whole school or department setting (subculture-relative). A key issue is what kind of “object” e-technology is in the narrative discourse of teachers in the study. The above discussion opposes the commonplace idea of any e-technology serving one narrative only. E-technology has many material attributes and hence exists in many roles in narratives as different social objects. E-technology enters narratives as an affordance, a disposition or possibility for the change agent.

Multiple context-relevant affordances
In this study e-technology, as a potential social object in schools, has multiple context-relevant affordances or storylines that may have complimentary or contradictory social manifestations.

*Type 1. Complimentary multiple meanings in a common description*
Software applications may afford customized solutions in data analysis or afford a non-handwritten format for the expression and presentation of ideas. While these narratives draw on different social affordances of the software application in question, they are complimentary rather than mutually contradictory. Both narratives use the same grammar that is the same conventions for constructing storylines.

*Type 2. Contrary meanings based in different “grammars”*
Each narrative is based in a different ‘grammar’, the narrative-grammar pairing being due to the common social object, of which there exists a possible common description intelligible to actors. A common narrative designation of the social object is as ‘e-technology based professional development’. This common designation conceals a world of differences as the grammatical concepts of ‘embedding e-technology in policies’ and ‘the provision of access to e-technology resources for personal professional development’ are embedded in systems management or activist/advocacy discourses. Accordingly, when the two personal narratives are combined into a single story they may be incompatible in practice.
3.3 An Ethogenic Narrative Inquiry

The study was conducted at a time when the “birth of a new age” was a popular ascription in the social media applied to all areas of the “‘economy” involving education. The invention of the World Wide Web was transforming the analogue into an analogue-digital hybrid form of life in which social roles and the identity of institutions were being reconceptualised through mediating e-technologies – macro and micro worlds were meshed in the globalized economy, in new communication media, across time and space. This study explores the umwelten of teachers engaged in introducing the new technologies into their schools “as they interact together; as they develop understandings and meanings, as they engage in ‘joint action’ and respond to each other as they adapt to situations, and as they resolve problems that arise through circumstances” (Woods 1996, p. 37).

I sought in the extensive fieldwork interviews “openness or indeterminacy within the intersection of language, meaning, and communication”, advocating, “‘playful’ experimentation that exceeds the constraints of a determinate, knowable ordering of the actor/character’s knowledge of the cultural environment in which they were embedded (Scheurich 1995, p. 239), thereby challenging the adequacy of cognitivist or functional or structuralist phenomenological frames “which assume an external reality that researchers could discover and record, or hypothesis that could be tested. (Charmaz 2000, p. 513).

The ethogenic approach brought to this study of the person of the teacher-agent within the “rightness” of a community of practice is useful in this investigation of the social, psychological and social psychological changes, because it frames teachers’ duties and responsibilities in a moral structure formed in the intersection of their intentions and social necessities, a period of disruption in an old institutional order and the constitution of the new. At the social level, the doings and sayings of teacher-agents provide evidence of the transformation of both the social structure and social practice. At the psychological level the narrativized accounts of what teachers did, were permitted to do or should have done, individually or collectively, affords access to their predispositions and understandings. At the social psychological level, as classroom teachers make sense of the intentional actions of colleagues who are pioneering the use of new media, new pedagogical practices illuminate their understanding of the teleoaffective properties of these tools in a cultural/historical/psychological space characterized by Vygotsky.
I sought fine-grained perspectival accounts (Martin, 2006) from the different social episodes presented in the accounts of three teacher-agents, and of other “change agents” in two schools in the late 1990s in Melbourne. The focus of this study is constitutive of the implementation and pedagogical use of networked and mobile computing in schools. The approach I have taken for the exploration of the pedagogical use of new media is introduced below and illuminated by the narrative research of Geertz (1973), Bruner (1996), Polkinghorne (1995), Bakhtin (Sullivan and McCarthy, 2004), Wegerif (2008) and “Structure of Feeling” (Williams, 1971, 1977).

The positioning theory (Harré and van Langenhove, 1999, 1992; Harré, 2005a, 2005b; Harré and Secord, 1972; Davis & Harré, 1990) provides an analytical frame for researching the discursive practices of the teachers in the local moral orders of the educational institutions in which they were employed. In the conversational interviews, I encouraged participants to elaborate the practical-structure and system issues as well as expressive issues in their engagement with the technologies that were important at the time they were pioneering the pedagogical use of networked or mobile computing in classrooms. Burke (1969), Wilkinson (2008) and Brecht (1964) provide a dramaturgical frame for presenting and analysing verbatim dialogues.

3.4 Dramaturgical Accounts of Practice

3.4.1 Framing transformational narrative accounts of teacher agency

In this dramaturgical analysis of the school dialogue, I took Fullan’s (1993, 1999) influential “eight lessons of change” as a contemporary rhetorical guide to the dialectic between cultural opportunities and self-activation constitutive of complex politico-ethical micro “management of change” in the institutional order of schools. Fullan’s meta-analysis of contemporary change research provided a frame against which to juxtapose teacher accounts. While Fullan explained the emergence from the literature of each of his themes, I wanted to interrogate the practical ethical substance of his “lessons for managers of change” through teachers’ agential “thick ethnographic accounts” (Geertz, 1973) using Bakhtin’s (Sullivan and McCarthy, 2004) “rich polyphonic dialogue”.

In developing narratives of transformation, I chose accounts from teachers that elaborated or challenged Fullan’s guide which was first written for “school leaders as
change agents” in 1993, and later revised for “all educators” in 1999. Change agency in Fullan’s rhetoric is simply the distributed embodiment of systematic goals and group learning process and this he takes is what allows “leaders” as the carriers and creators of these goals and processes to exercise leadership in enactment of new structures. This is essentially a business management model for organizational learning. Fullan after Senge (1990) attempts to escape these dualisms, structure and agency, system and action, consensus and conflict, norms and practices, but fail to incorporate them into a process ontology of teacher agency that includes fine grained practice. The accounts of teacher enthusiasts presented as rich dialogue were intended to counterpoint Fullan’s clue structure for institutional transformation such as Every Person is a Change Agent (ibid, 1993) and There Is No Simple Solution: Craft Your Own Theories and Actions by Being a Critical Consumer (ibid, 1999). Teachers’ perspectival accounts of the institutional struggle to realize a policy of adoption, established by the Fullan’s “leader”, required socialization of the new technologies and in the process transformation of the old order in each community of practice. These are presented in the last two data chapters: A Private School on a Mission; and Learning to Navigate (Chapters 5 & 6).

I decided early to extend the domain of the study to focus more specifically on the cybergenic self of the teacher-agent at this time. I invited teacher acquaintances who were technology enthusiasts pioneering new pedagogical practices in this period to collaborate in the study. Their perspectival accounts generated in the conversational interviews portray the individuals operating at the three classical social ontological levels, the possible (structures), the actual (agential) and discursive (cultural) and offering three standard explanatory modes in their phenomenologies of practice - the material, social and hermeneutic - these are contemporary descriptions of shifting historiographical with institutional resource structures and their own agency “as their circumstances and they themselves change” (Charmaz 2000, p. 522). In this way I sought to render a transformational account referenced to Bhaskar’s TMSA (Chapter 4: The Teachers acting as Role-Bearers and Position-Takers) which characterizes the interdependence of structure and agency.
3.4.2 Hermeneutic-interpretation: making sense of the experience of others

How do we “learn to interpret what others are thinking, feeling, intending, and above all, what they mean by what they say” (Bruner 1996, p. 100)? How do we, as researchers, understand others’ minds? How do we interpret what teachers say about making sense of new media, or their perception of an analogue-digital future? From an ethogenic perspective (and for my purposes) in this study, teacher narratives explore unexpected or non-canonical consequences of the decision (institutional or individual) to implement new media within the discursive practices and local moral order of the school. In these accounts I am emphasizing intentional action (agency) during a period of institutional disruption (historicity). In this unique period of time new technologies were challenging existing technologies of textbooks and teacher chalk and talk, new culture mediating technologies were potentially challenging existing pedagogical practices, and the potential new distribution of duties and responsibilities in relation to the new resources foreshadowed new rules which challenged existing rules. A Private School on a Mission (Chapter 5), presents this process of “school reform” in conversations amongst participants located in different social-psychological positions in the local moral order of one school. The “hermeneutic circle” where meaning is derived from the interplay between the parts and the whole “is what causes stories to be subject to interpretation, not to explanation” (Bruner 1996, p. 122). And as such “stories are judged on the basis of their verisimilitude or ‘lifelikeness’, that is, there “is a sense in which a story can be true to life” (a plausible interpretation) rather than “being true of life” (the verifiable explanation) (emphasis in original, p. 122).

3.4.3 Narrative stories in qualitative analysis

Donald Polkinghorne (1995, p. 5) explains that “narrative inquiry”, “narrative”, and “narrative configuration” are elements of a form of qualitative research, which “displays human existence as situated action”, “exhibits human activity as purposeful engagement in the world”, and is a “process” by which “diverse events, happenings, and actions of human lives” are drawn together via a plot and “integrated into a temporally organized whole”. In this study the term narrative is used to refer to a specific kind of narrative format, that of prose text or story and to the particular kind of configuration that generates a story via emplotment. The plot for Polkinghorne is a literary device constructed by the author, which enables the structuring of data as narrativized fact or
fiction. It is not a psychological concept. I am identifying Polkinghorne’s plotline with agential intent, which I argue is necessary in reporting transformational accounts of teacher actions constitutive of their professional identity formation as the informants see themselves as teachers before and after the introduction of new media. Teachers’ perspectives are presented as *dramaturgical dialogues* rather than monological simulations.

I present the social life of teachers within a community of practice as they interact together; as they develop understandings and meanings; as they engage in ‘joint action’ and respond to each other as they adapt to situations; and as they resolve problems that arise through circumstances: as *dramaturgical accounts*. I make the assumption, like Goffman (1959) that social acts are staged, and that ‘theatre’ and ‘drama’ are metaphors for social life. A dramaturgical account rendered as a drama-text highlights the day-to-day activities of teachers, such that a new perspective is afforded the reader: one of transformation of identity, of institutional re-structuring, of the actual life space of reason (Brinkmann, 2006) of the teacher enthusiasts for the emergent analogue-digital future. In Chapter 4, the narrative plotline emerges from the moral perspective of the person of the teacher enthusiast in making judgements while experimenting with pedagogical practices that challenge existing wisdom and convention.

### 3.4.4 Dialectic and dialogical dramaturgical accounts of practice

From a critical realist perspective, pedagogical practice is an emergent property of the dialectic between structure and agency, and time is causal in influencing outcomes. From a postmodern perspective, time is not a real property and as such, a person can live this moment *at* any time. If agency is not of significance and everyone can live in the moment then transformation is similarly of no interest, in that Vygotskian sense. For this reason, in this study, I have rendered teacher conversations as perspectival dramaturgical accounts that I have presented as verbatim dialogue of a Brechtian-style modernist dialectic drama, rather than in the style of a Bakhtinian (Sullivan and McCarthy, 2004) postmodernist dialogic. For Bakhtin the dialogue presents the world as it *is*. He references his work to Dostoyevsky -a novel form constructed almost entirely in dialogue - affording an inquiry into the psychology of the speaker.

In Bakhtin the process of transformation is not the immediate focus (Wegerif, 2008). The drama simply reveals experiences between actors, in a moment in time, for
instance, in a staffroom, a classroom or in the playground, whereas, for Vygotsky, actors’ psychological identity is co-constructed in a dialectic conversation of tool/sign-mediated action with their historical/cultural others which admits personal agency. In incorporating Vygotsky’s mediational means with Peirce’s philosophy of signs (‘semiotics) - the analysis of everyday teacher conversation of the sign, object, and interpretant now includes ‘Tools’ (Figure 5).

![Figure 5. Vygotsky's tool/sign-mediated action incorporating Peircean Sign](image)

A sign in Peirce’s definition is always active, and consists of an interaction between the sign-interpreter (Self) and another agent (human or non-human entity in the world).

While Wegerif usefully shows that it is possible to theoretically distinguish the dialectic and dialogic enquiries, in the everyday conversation of this research they cannot be pulled apart. Both are necessary to my task.

### 3.4.5 Experience of culture in the researched moment: The sense of time and space

In this study, I am characterising a period - the “birth of a new era”, and the dialogue is the dialogue of that period which captures that moment in time. Pred (1983) argues that in that moment of time, the transformational processes of social life involve “practical and discursive consciousness”, as well as “sentiment, the whole affective domain of feelings, meanings and memories that make up sense of place or structure of feeling” [in
Williams’ (1977) sense] (emphasis in original, p. 24). Bhaskar (1983) agrees that “all social activity occurs at a place, the place of the agent, and takes time”, and that “reproduction of the structures necessary for such activity occurs only in such activity and so itself occurs or stretches over or across space and time” and that “social structures, as themselves social products, dependent upon social activity, are thus liable to social transformation” (p. 92). He concludes,”any concrete explanation in the human sciences logically presupposes a geographical and historical mooring” (p. 92). However, Bhaskar rejects Pred’s linking of the concepts of “sense and place” [sic] and “structure of feeling” arguing that it is “perfectly possible for there to be a common structure of feeling in the absence of a common sense of place,” (p. 93) And vice-versa.

On the other hand, Harré (1983) likens “Pred’s account of the psychology of place” to that of an “extended theory of ‘Scene’ [Burke, 1969], and as an elaboration of the dramaturgical model much in use in contemporary micro sociology and ethogenic social psychology” (p. 72). He argues:

In Pred’s elaboration on sense of place to create “time geography” through the intersection of places and life trajectories, we have a version of the inner complexity of the social psychological notion of “situation”, a notion which involves both “scene”, that is interpreted physical setting, and the initial persons and their relations which define the starting point from which the action will develop towards a resolution. Time geography brings people to place, to create settings and dramatic moments, moments whose tensions are intelligible only via implicit assumptions about (knowledge of) biographies. … Structure of feeling … as cognitive and emotive complex around the experience of scene, including what it evokes as scene, seems to exclude the dramatis personae, their biographies and predicaments from which the dramas of social life unfolds. … William’s concept seems to me to refer to a landscape without figures, or if there are any, there they are the idealized and mythical figures of the gods and goddesses that decorate a Fragonard. (Emphasis in original, Harré 1983, p. 72)

For the purposes of this study I am suggesting that teachers who were engaged in the pioneering of new media initiated structures of feeling grounded in the social interaction and fusion of shared experience (or ‘situation’ in the social psychological sense), influenced but not determined by their physical location in a particular community of practice. Raymond Williams’ (1971, 1977) concept of “structures of feeling” further
refines Bhaskar’s Transformational Model of Social Activity (TMSA) as it interprets the lived ‘situation’ of the social ontological level of structure or possibility as experience of culture in the researched moment. So long as we keep in mind that specific meanings constructed in conversation reinforce or diminish the influence of such structures of feeling held in a particular place between people.

3.4.6 Structures of feeling: emergent ways of thinking and feeling

Structures of feeling refer to those means of thinking and feeling that are located beyond fixed social forms, but have yet to take on their own definite form: they are emergent or pre-emergent ways of thinking and feeling. Williams (1977) argues that structures of feeling are dynamic in development:

defining a social experience which is still in progress, often indeed not yet recognized as social but taken to be private, idiosyncratic, and even in isolation, but which in analysis (though rarely otherwise) has its emergent, connecting, and dominant characteristics, indeed its specific hierarchies. These are often more recognizable at a later stage, when they have been (as often happens) formalized, classified, and in many cases built into institutions and formations. By that time, the case is different; a new structure of feeling will usually already have begun to form, in the true social present. (p. 132)

Furthermore, Williams argues that a structure of feeling which has yet to be recognized on a larger scale, defined and fixed, can still “exert palpable pressures and set effective limits on experience and action” (p. 132). Structures of feeling acknowledge those experiences not captured by formal institutions or belief systems, while still asserting the social quality of these lived experiences. From this perspective, the conversational interviews between myself as the researcher and the teachers as participants are all framed within a notion of a culture and a historical moment in time, affording a Vygotskian dialectical analysis of the culturalist, historical, and psychological meanings in the conversation.
Williams (1973) distinguishes between forms of drama that show what ‘the situation’ was like (naturalism) and drama that emphasizes how people ‘act’ in a particular situation (expressionism). In this study, teacher conversations are rendered as dramaturgical accounts presented in perspectival verbatim dialogue. This dialectic drama provides an expressionist perspective of the teachers/actors exploration of the potential structural and agential use of networked and mobile computing while subject to the normative constraints and permissions of the local moral order.

According to Williams the teachers in the ‘researched moment’ are immersed in something that they can’t fully analyse. They are still dealing with the assumptions constitutive of that particular period. The research seeks to both understand the grammatical nature of their engagement with structures of feeling, and to illuminate structuration and agency. In the dramaturgical account, I have sought to create an effect of a rich dialectic with teachers who would not have otherwise engaged in a conversation grounded in their beliefs, values and ethical reasoning. Through the accounts of transformation, my intention is to actively establish a rich dialectic with and between persons as teachers, the reader and through the creation of a rich dialectic between their intentions and social necessities. It is at this intersection that rules are constructed. When a person’s intention to act is restricted by social necessity rules of operation emerge that become habits or grammars. In this way, the transformational accounts of the beliefs, values and ethical reasoning of the teachers are scrutinized and interrogated, while the reader is afforded access through their own agency or “micro-dialogue” (Sullivan and McCarthy 2004, p. 303) to the “oughtness” in their own zone of proximal development.

In each transformational narrative, it is the contrastive accounts of teacher action and reasoning constitutive of the pedagogical use of networked and mobile computing which can reveal the structures of the local moral order in which teachers acted and reacted as teacher change-agents as they sought to transform teaching behaviours and discourses constitutive of new rules constitutive of an analogue-digital curriculum or analogue-digital future. These accounts of different teacher behaviours within an emerging analogue-digital future illuminate the transformational narrative of the person of the teacher as an agent of change.
3.5 A Theory and the Dramaturgical Narrative Self

3.5.1 Teacher performance in conversation

Dramaturgy has both a theatrical and a sociological practice. In this study the dramaturgical process in its theatrical expression shaped, adapted and structured the teachers’ perspectival narrative accounts of their day-to-day activities into a drama-like text that may be read or acted. The researcher and reader, uses the text as a means of understanding or making sense of what goes on in the theatre of everyday life. That is, after Goffman, dramaturgical sociology is used to analyse social interactions and transactions of teacher participant in terms of the co-constructed account of their ‘community of practice’. The Dramaturgical presentation assumes that the daily social interaction of teachers consists of performances, that individuals stage and in which they present themselves to others. From the perspective of dramaturgical sociology, the Self is a sense of who one is. And as such a sense of the person of the teacher-agent is emergent from the immediate scene being presented in the text. A dramaturgical model of institutional change and personal identity formation, or agency, works through the analogies of conversational realities and agential intent.

Harré and van Langenhøve (1999, p. 2) argue that positioning theory is a version of “social constructionism”, grounded within a general psychological theory based on two principles:

1. What people do, publicly and privately, is intentional … and normatively constrained.
2. What people are, to themselves and to others, is a product of a lifetime of interpersonal interactions superimposed over a very general ethological endowment.

Social constructionism holds that “in and through conversation and conversation-like activities” (p. 2), psychological and social phenomena (cognition, personal agency, practice) emerge. From this perspective, “Skills [literacy, oracy, agentive, intentional] are discursive and cognitive … [even though] the mechanisms for their implementation are physiological” (p. 3). Furthermore, according to Harré and Gillett, “The production of psychological phenomena in discourse depends upon the skills of the actors, their relative moral standing in the community and the storylines that unfold”. (Cited in Harré and van Langenhove 1999, p. 4)
In this context, ‘positioning theory’ is used to interpret “how psychological phenomena are produced in discourse” (p. 4). For instance, in this study positioning theory is used to understand how teachers pioneering the pedagogical use of new media seems to create new pedagogical storylines, modify existing or generate new rules to shape teacher practice and articulate an imagined analogue-digital future, constitutive of an agent of change engaged in the joint production of the social episodes of the daily life of teachers. Harré and van Langenhove (1999) stress that while these episodes are the product of teacher action and interaction, they simultaneously also shape what teachers “do and say” (p. 5), and “cannot be understood by referring to general rules and roles” (p. 6). This is because:

Knowledge of the past and insight into the current conversation are necessary as well. And even then, there is something that stays indeterminate. It is that something that makes it impossible to predict what will happen next in an episode. (ibid, p. 6)

3.5.2 Teachers in conversation and the moral order of speaking

People, institutions and societies are the social entities that constitute the ‘substances’ of the standard ontological view of the social world, forming three different levels of social phenomena where “people [are] … treated as complex, causally interacting ‘things’; institutions as groupings of people (the personnel or staff); and societies as higher order aggregates of people groups” (Harré and van Langenhoje 1992, p. 393). When social phenomena are located within the Newtonian-Euclidian space/time grid of the natural world, Harré argues that the social sciences have tended to look for and treat causes as deterministic in a Humean sense. Arguing for an alternative time/space grid for locating and understanding social phenomena, Harré proposed the “persons/conversations referential grid” together “with a reassessment of assumptions about the ‘substance’ of social and psychological realities”. (p. 394) Harré explains:

If social acts, including speech acts are taken as the ‘matter’ of social reality, a new grid can be constructed in which people are seen as locations for social acts.
As a ‘space’, a set of possible and actual locations, the array of persons is not necessarily Euclidian. The grid of temporal locations, the time-aspect of human life, also changes. The distinction between past, present and future does not go over neatly into psychological time partly because the social and psychological past is not fixed. The social future can influence the social past. The occurrences of acts are the moments of social time. (Harré and van Langenhove 1992, p. 394)

According to Harré and van Langenhove (1992, p. 394) the social realm is “composed of three basic processes: conversations, institutional practices and the use of societal rhetorics”. Harré argues “within conversations that the social world is created”. That is, “Within conversations, social acts and societal icons are generated and reproduced”. (p. 394) Furthermore, “Within the persons/conversations grid, positioning can be understood as the discursive construction of personal stories that make a person’s actions intelligible and relatively determinate as social acts and within which the members of the conversation have specific locations” (p. 395). These conversations have a tri-polar structure, Figure 5: consisting of “positions, story-lines and relatively determinate speech acts” (p. 396).

![Mutually Determinant Positioning Triad in Discursive Psychological Analysis](image)

Figure 6. Mutually Determinant Positioning Triad in Discursive Psychological Analysis, after Harré

Harré notes:

Positioning always takes place within the context of a specific moral order of speaking. What … [participants’ say to each other and about each other is
relative to each participant’s] rights, duties and obligations within the moral order in which the discursive process occurs. In other words, the rights for self-positioning and other-positioning are unequally distributed and not all situations allow for or call for intentional positioning of the participants. (Harré and van Langenhove 1992, p. 399)

Harré and van Langenhove (1992, p. 397) explain, that positioning as a discursive practice has three possible forms or orders. In first order or performative positioning, “people position themselves and others within an on-going and lived story-line”, subject to an assumed or agreed moral order. First order positioning can be challenged: “either within the conversation … or within another conversation about the first conversation”. In each case, the second or third order positioning conversation involves “talk about talk”, in which the “telling of the story and [in] replying to it”, the speakers are “again involved in first order positioning of themselves”, and the retelling of the story becomes a “rhetorical redescription of the event”.

Additionally, Harré and van Langenhove (1992, p. 398) argue “When people are positioned or position themselves, this will always include both a moral and personal positioning”. Especially, in situations where “a person’s actions cannot be made intelligible by references to roles”, and as such, “the more prominent the personal positioning will be”. Harré and van Langenhove (1992, p. 399) have identified from positioning talk, four distinct forms of intentional positioning: “(i) situations of deliberate self-positioning; (ii) situations of forced self-positioning; (iii) situations of deliberate positioning of others and (iv) situations of forced positioning of others”. In practice, Harré and van Langenhove (1999, p. 6) explain that teachers who are pioneering the pedagogical use of new media when engaged in conversation or conversation-like activities can be positioned in either of the following three ways. Firstly, “individual … [teachers] are positioned by individuals or collectives by collectives”. Secondly, the “individual or collective reflexively positions themselves”. Thirdly, “each positions the other or in positioning one the other is also positioned in the same act”.

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3.5.3 Self and self-presentation in discursive acts

In this study it is important to distinguish between the “role” of the teacher-agent and the person of the teacher-agent. The “role” of the teacher is a bundle of behaviours expected of a person in an institutional location pursuant to predetermined tasks. The person of the teacher is a construction or constructions of self in the performance of such tasks. It is also important to distinguish between the personal self and the social self, between personal identity and public identity, between one’s self and one’s personae. The person of the teacher-agent or the personal self “is publicly manifested in various discursive practices such as telling autobiographical stories, taking responsibility for one’s actions, expressing doubt, declaring an interest in care, decrying the lack of fairness in a situation” (Harré and van Langenhove 1999, pp. 6-7). Social selves or ‘personas’ are “publicly presented in the episodes of interpersonal interaction”, “ensuring that one’s public performances conform to the requirements of the person-types that are recognized by one’s fellows” (p. 7). One’s personal identity or self resides in the background of one’s publically presented repertoire of ‘personas’ (person-types such as leader or follower, teacher or taught, mentor or mentee). That is, “In normal circumstances each human being is the seat of just one person, but of many personas” “any one of which can be dominant in one’s mode of self-presentation in a particular context. (p. 7).

Harré and van Langenhove (1999) argue that the personal self (self1) “is a formal unity … [and as such] it does not require the cooperation of any other person in order to exist”, unlike, “the existence of personas” which rely “on the social cooperation or consent, of others” (pp. 7-8). For instance, the persona of the teacher as an agent of pedagogical change is ‘visible’ in the community of practice “only in so far as it is recognized, responded to and confirmed in the actions of others” (p. 8). Harré and van Langenhove (1999, p. 8) continue:

Indeed, without the cooperation of others in the social sphere, personas cannot be constructed at all. Consequently the social recognition, or lack thereof, of a given persona will have profound effects upon the ways in which the person’s behaviour is viewed and the ways in which the person is then treated by others.

Harré and van Langenhove (1999) differentiate between declarations and narrations as types of discursive acts. Declarations index the speaker with “the use of first-person
indexicals (‘I’, ‘me’, ‘myself’, ‘my’, ‘mine’) while narrations index agents as “actors in a drama” (p. 8). Furthermore, while engaged in conversations, people, tacitly or intentionally, position themselves and others. “Tacit self-positioning ‘reflects the self’ (inner unity), while intentional positioning rendered as “rhetorical redescriptions” transforms “the self” “into a person” (p. 70). From this perspective, Harré and van Langenhove (1999) “consider the self to be a feature of a basically oral culture” (p. 71). The “narrative self” emerges from the recollections of a person’s life is rendered as “a collection of stories” resembling an “epic” tale, presenting one’s “self as not only embodied but responsible” (p. 71). In conversation, as people tell stories about themselves they intentionally select from an array of past and possible future actions, which according to Harré and van Langenhove (1999, p. 72) is determined by two things:

First by the stories that they already have told. Once a story is told and re-told, it begins to live a life of its own, just as with the stories told in an oral culture. The ‘self’ can be seen as a partly changing audience created by the stories and to which the stories about the self are told. Secondly, it should be clear that conversations with other people will give rise to new stories since different people will ask different questions. In line with positioning theory, those questions can be regarded as forcing the addressee into certain positions by adopting a position oneself.

Conversation that is capable of disclosing changes in one’s life and the consequences of changes in oneself needs to locate the speaker’s/narrator’s intention or agency to avoid being nothing more than rhetorical redescription.

3.5.4 Logical and ethical orders in teachers’ lives

Harré (2005a) argues after Wittgenstein that the social life of teacher-agents rendered as conversation derives its order from grammars or sets of rules structuring conversation. These rules are constitutive of our logical and/or ethical reasoning. If we deny the social logic or facts then we are operating in an alternative universe, where we can live other forms of life based upon different logic or facts to that of teaching comprised of existing pedagogical practices, cultural agency, or resource management. Teaching as pedagogical practice is one form of life that is socially constructed based on matters of
fact. If we change the facts (rules, resources) we can change the form of life or pedagogical practice of teachers. (Harré refers to this as a Wittgensteinian ‘Hinge’ proposition.) If we deny grammars, we are in limbo as we are unable to make moral decisions and are no longer able to participate as a member of a community of practice.

The teacher-agents present here multiple personae in conversations in their communities of practice and each encounters multiple beliefs about what he or she may or may not do, in the classroom. As these beliefs are context and situational relative, each teacher-agent will have a different sense of these beliefs depending on the situation he or she encounters. These sets of views or belief about oneself: what one should do, what one may do, and what one should not do which can be usefully described as grammatical effects that shape autobiographies one produces and what public presentations one makes. The moral capacity that a person has may be denied by a lack of moral authority in a school thereby preventing the teacher-agent from exercising them in a discourse community where public presentations come to comprise a personal grammar.

### 3.5.5 Teachers acting as role-bearers and position-takers

In *Social Being* (1979), Harré expresses his scepticism about the causal powers of “social structures” which leads him to conclude that only persons are real or causal, and in the social world people are the only efficacious agents. Harré argues that beyond the icons of society, such as institutions or organizations “conceived for the explanation of social interactions by social actors lies nothing but those very actors, their conformative behaviour and their ideas” (cited in Outhwaite 2006, p. 25). In this study, ‘schools as communities of practice’ are the “societal icons for the cognitive activities of role-bearers in their conceptualizations of social structure” (emphasis in original, p. 27). And structural shifts constitutive of the pedagogical use of new media - a shift from analogue technology to an analogue-digital hybrid - are ultimately reducible to specific decisions of individuals or groups of individuals in a community of practice. Therefore, from this perspective, if the school is the institutional icon or social structure in which people as teachers are the efficacious agents, then these teacher-agents via their actions and interactions shape their umwelt (human world): creating the rules and conventions that reproduce or transform teacher practice. Furthermore, as persons (teacher-agents) “perform structural roles or follow (or break) the rules and conventions” they “generate the structure” (emphasis in original, p. 26).
Harré refines the notion of role by emphasising the psychological over the relational properties, through his “differentiation of the concept of role, as individually experienced imperative, on the one hand, and structural position, on the other. To understand the imperative aspect of a role, such as that of a pedagogical change agent one might say, it necessarily includes a more complex relational conception in which the bearers of different roles, (for example, Director of Computing, Director of Curriculum, Chair of the Curriculum Technologies Forum) interact in a variety of ways. For instance, at Cyber Grammar School (Chapter 5), Jessie (pseudonym) experiences the role as Chair of the Curriculum Technologies Forum as, say, an imperative to convene meetings and engage in consensus decision-making, where this obligation necessarily involves an understanding of the complex interdependencies and constraints of consensus decision-making. In addition, Jessie can and must meaningfully distinguish the interrelations between the formally specified roles of the Chair and those of the Directors from the concrete ‘interactions’ between incumbents as members of the Curriculum Technologies Forum.

Within an organization, a bureaucracy or a community of practice, formal assignment of roles and duties creates a formal, hierarchical social order. For instance, job descriptions and duty statements define the activities of principals, coordinators, and classroom teachers. For roles that are predetermined and fixed by statute or contract, the teacher-agent is expected to discharge their duties irrespective of their personal predispositions to act, in other ways.

Harré and Secord (1972) acknowledging the work of Goffman (1959), proposed their ‘rule-role model’ of social behaviour. They proposed that social behaviour could be explained as the actions of agents made in compliance with what agents took to be acceptable rules for behaviour. That is, the everyday behaviour of a person as teacher, or a teacher as coordinator/manager/leader can be explained on the assumption that people followed rules and assumed roles, either tacitly or explicitly constitutive of the community of practice. Cook et al (2005) in reviewing the underlying assumptions of the person-centred approach of Harré and Secord observed that they assumed:

that people knew what they were doing in order to use words, tools and other means to carry out a variety of day-to-day intentional actions. People were taken to be capable of monitoring their own performances and, unlike other animals,
to have the capacity to step back and be aware of their self-monitoring. People were understood as being able to undertake purposeful actions in light of foreseen consequences, were assumed to know what they are doing, and to have the ability to choose how to behave and be aware of the consequences of their actions. (p. 150)

The rule-role model if applied in this study would frame pedagogical practice in terms of how well teachers see themselves following the rules and acting in accordance with a social role. In this model school staff collectively, irrespective of their discipline area, would ‘play’ the role of the classroom teacher, a member of the curriculum committee, the head of department, the year level coordinator, the headmaster or principal, after first learning/memorizing their ‘lines’, while being preoccupied with the quality of their ‘performance’. According to the rule-role model of social behaviour, the person of the teacher-agent is constrained by the need to conform to pre-existing rules and roles.

In response to criticisms that the role theory of social behaviour was too rigid in many applications and ignored the person, Harré moved from an ethogenic account of social actions based on role-theory to an ethogenic account of the conventions of social practice anchored in the discursive practices of the person, the more flexible positioning theory (Davies and Harré, 1990; Harré and van Langenhove, 1992), where the study of the dynamics of conversation, broadly defined, is emphasized.

Positioning theory, through use of the positioning metaphor, allows for conceptualisation of a person with the necessary skills and abilities functioning as a person. Indeed, for the purpose of understanding the person as conceptualised in ethogenics it would seem that the positioning metaphor is more germane than the rule-role model. (Davies and Harré 1990, p. 41)

They argue supererogatory (to supererogate is to do more than duty requires) duties and ascribed rights are different to roles and attendant responsibilities. While these duties and rights are dynamically assigned, one can choose to accept or reject them. Unlike roles, positioning is not a fixed part of the social order of ascribed rights and duties and can be challenged, contested or refused. Davies and Harré (1990, p. 41) further elaborate:
‘Positioning’ and ‘subject position’ … permit us to think of ourselves as a choosing subject, locating ourselves in conversations according to those narrative forms with which we are familiar and bringing to those narratives our own subjective lived histories through which we have learnt metaphors, characters and plot.

In contrast, from the perspective of positioning theory - although in many ways complimentary to rule-role theory - the person of the teacher-agent can be understood as being capable of intentionally positioning him or herself and to have the capacity to take a different position under different circumstances. The teacher-agent in a new institutional role can be conceived in this study as able to render versions or aspects of the teacher form of life as it is experienced and encapsulated in the social episode described involving the pioneering of the pedagogical use of new media. Here using ‘re-positioning’ as a metaphor for understanding the changing psychological locations and social actions of a person is useful for gathering evidence of the person that is conceptualised by ethogenics. The ethogenic conceptualization of the person of the teacher-agent assumes that they will not act rationally in the sense of internalizing and enacting policy statements, but rather act responsively to the anticipated expectations of others particularly those close to the action. In this sense the reality of the schools’ analogue-digital curriculum policies can be conceived and studied in their local construction.

Moghaddam et al, (2008) importantly for this study observe that positioning theory should be understood as complimentary to role theory. An agent is likely to speak of their “role” in a particular intervention in the context of the roles others occupy on a more permanent basis. In a similar way Harré writes of “structures” when referring to temporary entities and structures when he is referring to more permanent social icons. So in this study a person’s position will be seen to be entrepreneurial. Positioning theory is seen as complementary to the older framework of role theory, rather than an alternative. In positioning theory roles are relatively long lasting norms determining what a person in a “role” is. Whereas a person’s position is labile, contestable, and ephemeral and in conversation when challenged - as an attempt to reposition that person - contributes to their personal sense of identity formation, and their sense of ‘who I am’ in this particular place, at this particular time and in this particular context. Role theory is concerned with interpreting “relatively stable, long lasting and predictable behaviour”, while positioning theory is concerned with interpreting
“changeable”, “reflective of the moment” and less “predictable” acts and actions in a particular place and time. (Redman and Fawns, 2009, p. 4)

3.5.6 Teachers’ speech acts as “deeds”: descriptive and performative use of language

When teachers are engaged in conversation, for instance, in a staff meeting, faculty meeting or at lunchtime in the staffroom, their talk and actions tacitly position each other: as advisor or mentor, as novice or learner, as colleague or peer. For instance, during a conversation about the pedagogical use of the World Wide Web a principal may be repositioned as novice or learner by a computer literate beginning teacher, who asks, “Would you like me to show you how to search the Web”? The positioning of the principal as learner is not a function of the content or the locutionary/descriptive force of the statement. Rather it is accomplished by the illocutionary/performative force (the power to present the words - the vocables) of the teacher-agent when he or she is speaking. That is the illocutionary force (i.e., the speech act) in relation to a positioning/repositioning act must be understood in terms of the social force and not in terms of its locutionary content.

What is the consequence of this social act? What is happening to the psychological relationship between the principal and the beginning teacher? John Austin (1961) in his work How to do things with words introduces the notion of a perlocutionary effect as the effect of the illocutionary act on the hearer or reader. The psychological consequences of a perlocutionary act (or perlocutionary effect) is a speech act which persuades, convinces, scares, enlightens, inspires, or otherwise sways others to do or realize something. For example, when the beginning teacher utters: “Would you like me to show you how to search the Web?” Its illocutionary function is an offer, while its intended perlocutionary effect might be to impress the principal, or to show a friendly attitude, or to encourage an interest in the pedagogical use of networked computing.

3.5.7 Teachers’ public expressions and private intentions

Harré (2005a) points out that one’s private intentions are not germane to the conversation or illocutionary acts, as it does not matter what you are thinking when you
say something. What matters to you is what the other person believes is the meaning or the illocutionary force of your utterance. If one expresses private intentions in conversation then they move across from the private into the public realm. From this perspective positioning theory is concerned with the dynamic interaction of private thoughts or feelings, and public expression. Privately positioning oneself via inner-conversation is a hollow gesture, because such a positioning does not have any interpersonal consequences. Positioning of oneself or by others is possible only because of what one says and does in the public domain. That is positioning theory is not a theory of motives. Harré (2005a) explains that declared motives are accounts intended to justify one’s actions rather than revealing the causal powers driving them. Reasons in conversations are not to be taken as causes.

If the principal agrees to the beginning teacher’s offer to demonstrate how to search the Web, by saying, “Okay. Sure. What do I need to do? Could you show me now?” then the principal has accepted the teacher’s positioning of him or herself as having a lack of knowledge or skill - a vulnerability. The perlocutionary effect of the principal’s response positions the teacher as having the right and duty to provide for this lack. However, if the principal declines the offer, by saying, “Thank you, but that’s not necessary.” The principal has refused to be positioned as vulnerable or in need of assistance. The perlocutionary effect of the principal’s response is to deny any rights or duties claimed by the teacher. That is, although the teacher can demonstrate to others how to search the web, on this occasion he may not do so, as no rights or duties have been acknowledged.

The speech act of the computer literate beginning teacher in positioning the principal as a novice user (vulnerability) and him or herself as an experienced user (rights and duties to assist) has triggered a storyline intelligible from his or her point of view. However, in the second scenario, the storyline from the principal’s point of view remained unchanged (leader/follower) when he or she refused the position of vulnerability exercising his or her right to accept or reject the assistance of others. Positioning can be positive or negative: magnificent or malignant. The magnificent positioning - heroic storyline- leads to the claiming and exercise of rights and duties. For instance, teacher-agents can be agentive. They are not helpless or in need of rescuing by ‘experts’. The malignant positioning -victim storyline- leads to a loss of rights and duties. For instance, teachers who are too busy or inexperienced to develop resources or improve their pedagogical practice maybe assigned mentors or coaches to instruct them. As the
conversation between the principal and such a teacher continues, they mutually position and reposition each other, they co-author the storylines of their experiences and practice (social episode). Since each person provides a fragment of the story from his or her vantage point, the social episode can be thought of as a *dramatic* event, with multiple, layered storylines, where each one depends upon the one before it. The storylines may be understood by the interlocutors consciously or unconsciously, as intentionality is not necessarily linked to consciousness. A great deal of positioning is tacit (Polanyi, 1958/1974).

### 3.5.8 The exploration of social episodes

Harré (2005a) argues that each of these elements, position, social act (speech acts) and storyline (Figure 6), mutually determine the others, creating a positioning triangle, and as such cannot be studied independently of one another. A study of the discursive psychology of the agents in a social episode may begin with a focus on one of the vertices.

For example, in an analysis of the agents’ psychological location in the local moral order, their positioning in claiming, accepting or rejecting rights and duties in interpersonal interactions is the focus. From the perspective of speech acts the focus lies beyond the content or the elocutionary effect to the illocutionary or perlocutionary effect of the utterances of the agents. In the analysis of storylines, the focus is on the narrative or repertoire of narratives in any agential account. The analysis will inevitably engage all components in the positioning triangle.

A study of discursive positioning in a conversation affords a variety of possible insights for a grammatical analysis of a social episode. From the perspective of positioning, social structures are shaped in conversation. They are jointly created via an evolving storyline and illocutionary force of the speech acts of the conversants as they position and re-position themselves and each other. As the conversation unfolds positions which are all relational are modulated. This serves to highlight the unpredictability of a future which is intuitively, though falsely often founded on ‘fixed’ or preformed personal identities rather than ones that can be, and often are, dynamically reconfigured.
3.6 Constructing Dramaturgical Accounts Around New Technologies: Dramatic Structure and Verbatim Dialectical Theatre

I reconceptualised conversation as dialectical dialogue in a drama of technologized reform in educational practice. I felt that the *conversation-style of the printed text* while affording a *controlled analytical space*, does not afford a sense of the dynamic interaction between teachers or engender a sense of the structure of feeling of the researched moment, or explicitly facilitate ‘entry’ into the conversation for the reader. For this purpose, I have constructed the *dramaturgical accounts* in the style of “*a closet drama*” which is a drama suited primarily for reading rather than production. In this study I will refer to the closet drama as *imagined drama*.

In constructing the *text* of the imagined drama I drew on techniques of dramatic structure (Burke, 1969), the documentary style of verbatim theatre (Wilkinson, 2008), to capture and make use of the precise words spoken by the teachers in the accounts, and the dialectical staging and performing approach of Bertolt Brecht (1964), to confront a social determinist view of school reform with the perspective of personal agency.

3.6.1 Dramatic structure of social episodes

Philosopher and literary critic Kenneth Burke (1969), in *Grammar of Motives*, considers human communication (language and thought) as “modes of action” (p. xxii). He argues that when we attribute “motives” to the behaviour of others, we rely on ratios between five elements: “Act, Scene, Agent, Agency, Purpose,” (p. xv). Burke refers to the analysis of social life as drama via the ‘dramatistic pentad’ as “dramatism” (p. xxii). He explains that the grammar of motives refers to the principle or rule-based relationship between the terms in the pentad, “without reference to the ways in which their potentialities have been or can be utilized in actual statements about motives” (p. xvi). The dramatist or playwright, when using the grammatical resource, firstly, selects:

some word that names the *act* (names what took place, in thought or deed), and another that names the *scene* (the background of the act, the situation in which it occurred): also, [he or she] must indicate what person or kind of person (*agent*) performed the act, what means or instruments he [or she] used (*agency, material or social objects*), and the *purpose*. (ibid, p. xv)
The dramatistic pentad is used to construct a drama, and in reverse to deconstruct or critique a drama. I, however, applied the grammatical resource, retrospectively and in reverse, in stages, forensically, to construct plausible social episodes as conversation from teachers’ perspectival data rendered as dialectical dialogue. In concert the social episodes form each dramaturgical account: Chapter 4 in three acts and chapters’ 5 & 6 in two acts.

3.6.2 Teacher narratives as actor dialogue

According to Wilkinson (2008), verbatim theatre often involves a “Crisis” of reality like the ‘shadow on the wall’ format where the experience of inevitable irrevocable change is “the major focus of the drama” (p.1). That is, technological change “is the obstacle that disturbs the world; physical escape triggers resolution and the denouement, the participants stories about closure, is brief” (p.1). As such, verbatim theatre is a form of performance ethnography where personal narratives and documentary accounts are first distilled, then edited to fit theatrical constraints and finally performed. “Through the juxtaposition of different accounts, spoken data is presented in a theatrical form and multiple meanings are created, enhancing connectivity” (p. 8). The text evolves from participant stories rendered by the researcher as “dramatic narratives for other media” (p.8).

From the perspective of this ethogenic narrative inquiry the event that triggered the ‘crisis’ was the invention of the World Wide Web, while it is either the ‘disturbance’ of or challenge to the local moral order within a community of practice, that creates the social and psychological ‘crisis’ of reality. Wilkinson (2008) recognizes that both performance ethnography and narrative inquiry rely on narrative for meaning. “Meanings are made through stories told in specific environments, meanings that may then resonate to create broader social understandings and add to the body of experiential knowledge (p.10). It is this commonality which suggests the use of ‘verbatim theatre’ as a complimentary vehicle for the presentation of participant’s perspectival data when rendered as dialogue constitutive of the daily actions, interactions and transactions of teachers reproducing and transforming their community of practice and of their identity re-formation or agentry. The text of the imagined drama emerged from the voice-recordings of conversational interviews, which were rendered as teachers’ narrativized
accounts of their experience in the use of new media, when transcribed as text and reinterpreted as dialogue. I sought to recast in narrative form attributable to Bakhtin (Sullivan and McCarthy, 2004) a rendering of the agents’ lives in a rich polyphonic dialogue that reveals both the moral dilemmas and teachers mental lives in the space of reason in their reasoning about the moral dilemmas about redefining “good teaching”. Each dramaturgical account is to be a transformational narrative and as such requires Vygotskian dialectic of agency and structure, of historical, cultural psychological repositioning and institutional restructuring (represented in Figure 5).

3.6.3 Epic theatre as an appeal to reason

Bertolt Brecht (1964) a dramatist and critic of the pretentious German classical stage, between World War I and World War II, argued that the modern theatre needed to embrace the modern age and not merely reflect past glories and triumphs. And that the modern age would bring about a ‘new human type’. He explains:

What matters most is that a new human type should now be evolving, at this very moment, and that the entire interest of the world should be concentrated on his development. … And any work that has nothing to do with him is not alive and has nothing to do with anything. (p.18)

Brecht (1964) believed that in this new scientific age there was “a wealth of subjects worth seeing, characters worth admiring and lessons worth learning … where the audience would … develop a more detached and critical outlook” (p.8). He argues that in the Epic Theatre, spectator’s should be kept “alienated” from the action and not invited to feel sympathetically, to fuse with the hero and seem significant and indestructible” (p.9). In his “appeal to reason”, Brecht’s dramatic work, while maintaining its classical heritage, was “cold”, and required a “highly intellectual style of performance” (p.14). Brecht (1964) explains:

I give the incidents badly so that the audience can think for itself. That’s why I need a quick-witted audience that knows how to observe, and gets its enjoyment from setting its reason to work. The audience has got to be a good enough psychologist to make its own sense of the material I put before it. All I can guarantee is the absolute correctness and authenticity of what happens in my
plays; I am prepared to bank on my knowledge of human beings. But I leave the
maximum freedom of interpretation. The sense of my plays is immanent. You
have to fish it out for yourself. (p.14)

For example, in the radio drama Mann ist Mann while Brecht (1964) reveals his opinion
of the “new human type” who he believes “will not let himself be changed by machines
but will himself change the machines; and whatever he looks like he will above all look
human”, he encourages the spectators/audience to develop their own interpretation:
“But, perhaps you will come to quite a different conclusion. To which I am the last
person to object”. (pp.18-19) Furthermore, Brecht (1964) argues that the dramatic form
should “simply set down what happened”; where the “material is intelligible”; requiring
no further embellishment, such as, the inclusion of “a theoretical explanation as a
separate element” or “the mutual fusion of live material and conceptual analysis”
(emphasis in original, p.15). That is, writers for his Epic Theatre “have to show things
as they are” (p.15). The essence of the Epic Theatre is to estrange or alienate the
spectators/audience from their own habits of reasoning. “Instead of sharing an
experience the spectator must come to grips with things” (p.23) -a material reality of the
birth of a new age. The drama in Epic Theatre is a structured alternative for them to take
away. In this sense Brecht’s theatre is didactic, whereas I seek to have the
reader/audience process ontologically.

3.6.4 Sequencing the dramaturgical accounts

In presenting my narratives I chose to start with individual teacher biographies followed
by institutional transactions. This sequence affords an initial insight into teacher’s
intentions and how they saw the educative use of the new technology in schools. That
is, Chapter 4 introduces teacher enthusiasts as agents of change prior to the existence of
any institutional authority or intent. Chapters 5 & 6 are accounts of transactions in
schools where teachers discuss presenting their role-bearing and position-taking agency
with an institutional intent. The decision to sequence the dramaturgical account began
with individual teachers’ intentions to mediate social transactions of members of a
community of practice, as it affords space to both personalize analogue-digital
possibilities, and illuminate the emergence of persons as agents of transformation in a
changing institutional order and an emerging constitutive order. The other pathway -
institutional to individual teachers - changes the focus of the study to an understanding of how a recommended practice comes about.

In considering how to present the agency of pioneering teachers in their own accounts of their attempts to socialize the new technologies to change teaching and education, I have weighed the demands Brecht (1964) made of the theatre in his Little Organum – namely that communication of the moral must give pleasure and that theatre entertainment must instruct us about the methods by which the “children of a scientific age” acquire their sustenance. In their accounts of the birth of this new age, teaching with the new technologies has often been seen to require a new way of relating students and the world which is seen to be both needful and capable of change. But in teaching it is not so much a matter of bringing about change as adapting to it.

The suspense in the dramaturgical presentation lives in the open dialectic with which the question of a new educational age is put. From Brecht’s humane even radical anthropological position the question of a new age is identical with a new type of human existence and establishing it in the face of resistant tradition. Time and the teacher agent of change stand in a dialectical union which Simmel (1968) characterized as “cultural tragedy” cannot be dissolved in a one sided moralistic way. The solution to the question is dependent on another, namely whether and how far the new practices and their signing already represent an element of general social practice. The drama is not interested in character, but as a case although the individual’s being is not sacrificed to an abstract ideology. They are shown in the concrete detail of their daily, even intimate conversations because it is exactly here that the social structure clearly appears which explain their behaviour in the great transparent, historically important decisions of their life. The importance of individual identities of the teachers cannot be reduced to social types that are co-responsible for the failure or success of a new age.

3.6.5 Dramaturgical perspective, intentions of teacher-agents, positioning the teacher-researcher and the role of the narrator

In this study I am interested in understanding how social change in the form of alternative analogue-digital practice emerges when the macro level narrative in either the institutional or constitutive order, in schools is denied or is not permitted. I argue that alternative narratives are created - not at the macro level through policy
declarations - but rather at the micro level - through the agentive power of agents challenging (with or without permission) codes or rules of practice. That is, the creation of alternative narratives, that do not currently exist in society or one’s community or in any other society or community emerge from the individual storylines of pioneering-agents as they position and reposition themselves and others who are operating in a dilemmatic space.

In this study the storylines of teacher’s positioning and repositioning are rendered as co-constructed dramaturgical accounts as verbatim drama in which the researcher is represented as the narrator. Can the researcher represent the world while being part of it? The basic relativity, heterogeneity and insecurity of the times can certainly be represented, but within the form of teaching and not as a principle of that form of life. The use of the narrator led me into a form of theatre which relied on this expedient of aesthetic distancing as a means of subsistence, the so called epic theatre of Bertolt Brecht. I am the narrator but also an actor in it like the eye witness to events in which I was at different times in the recorded conversations a participant rather than a collaborator. The dialectic between structure and agency is dramatic not just valid. The dynamics of social representation should not be mistaken for the dynamics of the matter represented.

For Brecht the ‘action on the stage’ is not the ‘drama’ - the drama is the dialogic exchange. In rendering dialogic exchange as dramaturgical accounts of the day-to-day semiosis of teachers, in understanding Teaching as a form of ‘street theatre’, time-space social episodes can be represented in which the teachers are not interacting as ‘characters’ in their time, like a period drama. The dramaturgical accounts are accounts of drama which is teaching - the day-to-day interactions/transactions of teachers-students-and pedagogical objects constitutive of the action. As the researcher-narrator I present the ‘social episodes’ in which the participant teachers were involved. The teacher-actors are presented in Brecht’s sense of ‘ordinariness’ acting as ‘agents of change’ and their ordinariness is essential - They are ‘extraordinary’ in their ordinariness.

The question arises as to the position of the teacher-researcher and the location of the Narrator in the dramaturgical account. In the conversational interviews as the teacher-researcher I was positioned by the participating teachers as a participant/collaborator – not in their working context but in various ways I would have been seen to be sympathetic and supportive to their project. As a researcher I am positioned as a
participant representing others; as a teacher I am positioned as a collaborator being supportive and sympathetic.

I have adopted the ‘role’ of the Narrator in the construction of the dialogic text as a ‘guide’, so the experienced reader can enter each scene and easily understand the nature of the conversation that is taking place. In this space it is assumed the reader will consciously or unconsciously, actively construct a narrative of the drama from his or her perspective. In the course of this construction uncertainty and ambiguity may emerge concerning the narrator’s interpretation of the positioning and repositioning of the actors, who are treated as more than characters, but less than types in the institutional histories, and the researcher’s selection and juxtapositioning of the dialogue. The reader should have the impression that the actors including the narrator are talking to him or her, that he or she is also a participant in the social drama capable of reflective and reflexive action, and is not merely a passive disinterested reader.

The imagined drama in Chapter 4 and Chapters 5 & 6 are emergent and form an overall narrative: an account of the socialization of a new resource, that of information and communications technology (ICT) into a new social object, that of education technology (e-technology) which is embedded in the transformational accounts of individual teachers and social institutions.

3.7 Conclusion

In this study I seek to represent and engage the reader in an ethogenic dramaturgical account of the complex character of the social life of teachers within a community of practice. I have located the drama in a particular period or structure of feeling, in the biographies of individual teachers and in the cultural history of two subject schools. The actions and the transactions are revealed in dialogue between three or more actors. Imagined drama, like epic theatre has to be grounded in reality if it is to craft effective representations of reality. Rough sketches of historical conditions or the researched moment are not invented or constructed but rather emerge from the dialogue of the actors. The personal and social transformation that is enacted in conversation is represented in dramatic form to make visible agentive and socializing processes. In constructing the imagined drama as a representation of particular social episodes, the action is conveyed through the dialectic verbatim-dialogue of the actors that simultaneously preserves the inconsistencies in the actions and character of the actual
teacher-agents. Such inconsistencies, imperfections, and ambiguities are germane to personal biographies and institutional histories, afford the colour, texture and roughness that is emblematic of the messiness of life; in Chapter 4, of Alex, Max and Leslie; in Chapter 5, between Kim, Jessie, Sandy, Pat, Sam, Dale, Shannon and Devon; in Chapter 6, between Andy, Jamie, Danny, Ronnie, Avril, Aida and Del. The histrionics of the social episode aren’t always chronological, but told through first person perspectives and rhetorical redescription accounts to engender a present, a past and a future.

In each of the three chapters agent’s perspectival transformational accounts are presented. It is my intention that the accounts of teachers’ discursive and non-discursive practices are recognized to be occurring in schools seeking a new ‘social footing’, a ‘place in the student market’ or a ‘sense of contemporary relevance’ to their local parent authority or state authority. To that end, I selected the dialogue from each teacher’s conversational interviews to drive forward only the central elements of the story. I have not altered or inserted any dialogue, other than to create a plausible illusion of a conversation between actors or to maintain historical and temporal cohesion for the reader/audience. As such, I have attempted to ensure the integrity of the tone, texture and nuances of the participating teachers’ dialogue in this joint construction. The transformational account of identity re-formation, of teacher-agentry, of institutional restructuring and rule-breaking and rule-formation, affords the reader a micro-macro level perspective of the social processes of teacher-agentry, institutional change and the socialization of new resources.
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Chapter 4  Self Positioned Teacher Agency and the Discursive Community

Self Positioned Teacher Agency and the Discursive Community

A Drama in Three Acts

The actors, in turn, introduce themselves and share their biographies that reveal their self positioning within the narrative of change.

Act One - The Actors as Role-bearers and Position-takers

Scene One: Alex Science Coordinator
Scene Two: Max Professional Development Coordinator
Scene Three: Leslie Computer Coordinator and Mag-Net Project Officer

Act Two - Technology Enthusiasts Become Experienced Users

Scene One: Alex & Max - Recruitment of Self to the New Age in Teaching
Scene Two: Alex & Max - Educational Use of the New Technologies
Scene Three: Alex & Max - Engaging with Early Actor Networks
Scene Four: Alex & Max - Negotiating Institutional Rules of Access
Scene Five: Alex & Max - Drawing on a Wider Discourse of Practice
Scene Six: Alex & Max - Developing a Vision of an Analogue-digital Practice

Act Three - Becoming Agents of Change

Scene One: Alex, Max & Leslie - Early Roles, Expectations and Identity
Scene Two: Alex, Max & Leslie - Rules, Resources and Responsibilities
Scene Three: Alex, Max & Leslie - Distribution of Duties and Responsibilities
Scene Four: Alex, Max & Leslie - Reprise

END

Figure 7. Self Positioned Teacher Agency - a Drama in Three Acts
Self Positioned Teacher Agency and the Discursive Community

Act One - The Actors as Role-bearers and Position-takers

As stage lights fade to black, a projection screen above the actors is illuminated

**Narrator:** The following verbatim discussion took place during the 1999 end of year professional development conference, between three teachers who had translated the symbolic significance and pioneered the classroom use of new media, in Melbourne schools. The teachers were asked to introduce themselves beginning with their current role and then to retrospectively sketch their social and private engagement with the new media.

**Act One Scene One - Alex - Science Coordinator**

**Alex:** I am a secondary school science teacher of 15 years’ experience, and currently the Science Coordinator, at Digital High School [pseudonym]. This is a suburban state high school which has a designated responsibility to implement Learning Technologies in Science. I have had a long time interest in computers. I wrote my first report writing program in 1986 because I hated writing reports. This report writing program would allow me to write more extensive reports but do it quicker. … Programming was attractive to me. It was the puzzle solving stuff.

In 1987, I resigned from teaching and enrolled in a Masters of Education program. My thesis was on the development of scientific values and independent research approaches in science education. I word-processed my assignments and thesis. This was unusual at the time. In October 1988, after completing my studies … I returned to full time teaching at Insight High [pseudonym]. My second school. I do most of my curriculum writing at home. In 1992 I was teaching a new radical subject called VCE Science. This was a Year 12 General Science subject. A humanistic curriculum for non-specialists. There was no textbook available for that subject. … My kids were suffering. We had 52 kids
doing the subject. Because they were used to having book support, and this is
the only subject without a textbook, I thought I’d develop one.

So in 1992 I actually desktop published a textbook for it. I locked myself away
over the school holidays. In six weeks, I turned out a 120 page resource book.

In 1996 the science department of my second school … went onto the Internet.
Being connected to the Internet didn’t really have an effect on my school stuff.
Email wasn’t used…. I did start doing a little bit of surfing to see what was on
the Internet. More importantly, in terms of my own professional development, I
created my own website and published it. Even more importantly than that, I got
into chat groups. When you enter a chat room you can chat with up to 30 people.
Chat rooms, ICQ, voice, email, voice phone and talk. It’s fun!
I didn’t do this surfing at school, but what I was doing after hours was still
school stuff. So I’d be looking, for example, for information on how to make
ice-cream in the chat groups. We’d be discussing the history of freezing
technology. … I’ve found being online has helped me with professional
development, curriculum wise - new ideas, and the development of online skills.
You get access to professional expertise … for science teaching. … So using
this sort of thing - list servers, email groups - you get into a much wider network
of expertise and backgrounds when it comes to teaching in that particular area.

In 1997, I transferred to Digital High School as the Science Coordinator. The
school is a Science and Technology School and a Navigator School. I was
brought in … as somebody who would get the other teachers to use the Internet
and to use the Learning Technologies in their teaching and demonstrate this to
others who visited the school. … In a typical practicum I talk to visitors for 30
minutes about the use of Learning Technologies in my class. I provide an
overview of the organisation of the science faculty and the expectations of
learning technologies in Science.
I also present another session on Change Management Practices. Change
management, resistance, dealing with resistance - that sort of thing. I address
many academic issues dressed up with examples from my own experience. My
presentation is a combination of experience, and wide reading. Also, I did a
course many years ago on Management Principles and a little bit … flows from
that. I use a PowerPoint presentation.
I find translating your sort of power user expertise to the main stream is the hard task. This is … what I see at school too. The gulf between those who can use it and those who can’t is getting bigger and bigger every day. Much of the trouble I have at my school is that … many of the staff … are attentive, but they don’t see the value of using learning technologies. Because they were trained under the old philosophies of talk and chalk; photocopies, books and worksheets. Wonderful things. They ask, ‘What’s the point of using the computers?’ They can’t see the point. They can’t see the value. Even when you show them. This might seem sexist; however, in my experience it’s the female teachers who are the ones who are more willing to use the learning technologies than males. This is because they’re less control freaks. They’re more used to things not quite going strictly to plan. The male teachers in my school are very, very, very reluctant to use the technology ‘because they have to be totally on top of everything.

Alex’s Self Positioning

Narrator

Alex the agent provocateur positions himself as a progressive autodidact and technological enthusiast - hero and victim in his own story. He is a self positioned arbiter of what ‘ought’ to be done and skilfully and subtly repositions others as technophobes or control freaks.

Act One Scene Two- Max - Professional Development Coordinator

Max: I am a teacher of 15 years of secondary school Art, specializing in timber and drawing. I’m also the Professional Development Coordinator which means I help the Learning Technologies committee implement the school’s Technology Plan.

When I first taught at Education Community School [pseudonym], a small alternative state school for disadvantaged and often disturbed students, I showed one or two staff members how they could incorporate the computer into their
classroom teaching. In 1989, I felt that the first school was too small professionally. I really didn’t feel like I’d achieved very much so I moved to Analogue High school [pseudonym]. … At the time there were a few staff using the computers but not many. I stopped being involved because I became a Woodwork teacher. And as such I had no access at all to the computers for 6 months. I was locked out because the computer labs were either used for English, Maths or Computer programming. This was very isolating. I know it sounds silly but … you were kept out of those computer rooms if you weren’t regarded as a computer expert. … Maths teachers … were regarded as experts because … they did some computer programming at Uni. Some English teachers had access … because they used word processing.

I thought that using the technology was beneficial to the kids. … It was an easy way of doing technical drawing which they usually found very complicated. So … you can move the issue for the kids from learning about perspective drawing to actually doing a drawing project. There’s a shift in emphasis, from learning to draw manually, to using the technology as a tool to demonstrate their ideas, which I thought was really important. So that’s the advantage I felt that this technology provided the kids. I felt it was so important that I wanted to show the kids how to do it. However, I had to learn to use the software and this was difficult without any access to a computer. Those in the know knew and those who had formed friendships with particular people in the control of the technology … got easier access or were given more help in how to use the equipment.

In 1993, I was seconded to the Faculty of Education, at the University of Melbourne. I was lecturing to pre-service manual arts teachers in the Bachelor of Education (Secondary) Course. I saw a need for the Faculty of Education to run courses on the technology. I thought it was really important. One of the lecturers was running an elective in the use of Adobe PhotoShop. I started running a Word 5 elective. My course had a slightly different bent than those that were on offer. I didn’t want to train students to teach them how to use the Word 5 software - how to word-process an essay - I emphasized how you can incorporate the Word 5 package into your classroom. This was the first time I was given a chance to use my information technology skills. I felt I had skills … that could assist other people … learn how to use the technology, in a more
interesting way. … In my final year at the University in 1995 I was running … electives in PhotoShop, Word, and PageMaker because they were the programs that had become really popular in schools around that time.

When I returned to Analogue High School in 1996, I noticed that the staff were more aware of computers, even though they might not have used them. … There were a lot more computers around the school.

In 1997, as the Professional Development Coordinator I thought that there was a need to demonstrate a greater variety of classroom activities … in the use of the new technologies. … I used the Internet to access information from SOFweb - the Department of Education’s new teacher resource website covering each learning area in the school and State curriculum. I offered them time release, … and any other assistance … to look at ways in which they could incorporate, maybe, one simple package or application into their classroom practice. This was in my role area of professional development. There was no one else doing anything. I mean it was all still ad hoc and I was getting really frustrated. I felt we needed to come together as a staff with these things using the technology across the school curriculum. … I felt there was still an attitude of locking the technology away for the use of the privileged few. I really wanted the staff generally to feel comfortable in being able to use computers more than just knowing about Information Technology or word processing. I feel computer literate, and can move between the two areas of technical skill and curriculum use without too much difficulty. … For the first time ever this year, 1999 - I will be actually teaching kids to use a computer application - MicroWorlds. I’ve finally been allowed into the computer classroom to actually use the technology in my teaching. I had to fight for this opportunity. I wanted the school to buy the MicroWorlds program and eventually they did.
Max's Self Positioning

Narrator:
Max, like Alex presents himself as self-taught. He feels alienated, disenfranchised and powerless in his attempt to facilitate the classroom socialization of new media even where the material technology has been supplied to his schools. Max offers himself to the generalized others who he believes to be ignorant or in a similar predicament in an organization that symbolically positions the new technology as a new content area of the curriculum with academic prerequisites.

Act One Scene Three- Leslie – Computer Coordinator and Mag-Net Project Officer

Leslie: I’m a primary teacher of 11 years’ experience. At my school I’m currently the Computer Coordinator and Chair of the Learning Technologies Committee. I am also seconded part-time to the Mag-Net Project as a field officer. I probably first started using a computer in my teaching … eight years ago in 1992 while at Innovation Primary School [pseudonym] … as the staff were allowed to take the few school computers home to use. … At that time I didn’t know much about computers. … The Computer teacher … really helped me. … I think the Principal was actually quite innovative and visionary at that stage.

About two months after I transferred to my current school - Learning Primary [pseudonym] I was appointed the Computer Coordinator. At that time six years ago in 1994 … a lot of the people were a bit nervous. A bit scared about computers. … Although I had that little bit more knowledge than a lot of the people at the school, I suppose at the time I was always trying to stay one step ahead of everyone else. As the Computer Coordinator of the school, I was responsible for getting the computers into use in the school.

In 1996, I did a Grad Dip in the Ed Admin [Graduate Diploma in Educational Administration] through the Hawthorn campus of Melbourne University. One of the subjects I did … was a computer subject. … I had to write about the ‘Impact
of Computers in the Classroom’. … Later that year … the Principal encouraged me to go along to a meeting. The group was called Norstech. I think it was the Northern Region Science and Technology group. They were trying to develop a submission for Science and Technology Centres. … So I used to go along to their meetings. This was when I first met Jerry [pseudonym]. He was the author of numerous articles I had used in my Grad Dip assignment. He came to my school a couple of times to work with me and my grade. This was just fantastic because even though I was … more skilled than the teachers at my school … there was still a lot that I had to learn.

At the end of 1996 Jerry said to me that there was a position going with Mag-Net - The Virtual Science and Technology Centre - and that I should apply for it. At the time I thought that I didn’t know enough to be going around teaching people about the technology, but the Principal again supported me. He was fantastic. On the last day of school, the last thing he said to me was, ‘Make sure you put in for that job’. And I did!

I got the job at Mag-Net. It has been fabulous … in terms of my growth. What I know now in comparison to what I knew when I started with Mag-Net is just streets apart. What I really like about being a professional development consultant … is that I’ve been able to go back to my school and be a part of a bigger change. This is because now I’ve got a better understanding of the technology and the change process. Before I started with Mag-Net, I didn’t know much about the classroom use of the technology…. Now what I try and do is really integrate the technology into classroom practice. The students still have some computer skill development activities, but we try to relate it as much as possible to the ideas and activities we are doing in the classroom. That seems to be my key purpose.

I’m really lucky this year [1999] because I … teach two days at my school with my own Grade. I also have a day a week at my school where I can … work with teachers … in their Grade, or help them one to one. I can show them how to do something like use an application, or log onto the Internet. … I think the classroom use of computers at my school has been better in terms of actually using the technology in a meaningful way. … A lot of that change has been because … I have been doing the Mag-Net work. Getting out and meeting other
people. Maybe it was because … my own confidence with the technology was increasing.

Last year instead of people saying: Oh! Hi, Leslie. How are you? - at the beginning of the day, they would simply say: My printer doesn’t work and this doesn’t work. I never felt annoyed by their problems, but rather annoyed by the way people would speak to me. Like, I had this one person who just cracked it big time because her printer wouldn’t work. Sometimes you take it personally. … I said to her, ‘I was really upset’. … I said, ‘Look. I’ve organised a guy to come and fix your printer, but, I can’t promise that he’ll be here tomorrow. But he is coming’. She goes, ‘Oh! I wasn’t having a go at you’. I said, ‘Well that’s the way it seemed’. I said, ‘What you don’t realise is that while your printer is important to you, I’ve got 20 other people to consider and I have to balance their needs and work out solutions for them as well’. Then … she was alright about that.

During these stressful times I just go into a zone. I mean, I get frustrated with the technology and it annoys me. Sometimes … I’d love to … take a hammer … and smash one up. Most of the time I’m pretty good! I just go into a zone … and say to myself, ‘Okay! I’ve got to deal with this’. Even if it’s the 50th time that I’ve shown someone how to do it. I just take a breath and just do it. You go into the professional zone. I don’t ignore these people who are negative … because I still have to be involved in their professional development. But I don’t see a point in bashing my head against a brick wall trying to convert them. I figure that they will convert over time. I think it is better to concentrate on the people who are ready willing and able at a particular time. It is better to get them happening, get them moving along. I mean if they’re really prepared to have a go I’ll bend over backwards for people … even if they don’t have any skills. I’ll do anything I possibly can to help them. … You can then go back and look after the other people. I think that the best measure of success is where people who weren’t confident are now more confident.
Leslie’s Self Positioning

Narrator

Leslie presents herself in the role of a project officer with interpersonal skills in staff management. She accepts the social positioning and vision of others who know about computers to overcome resistance among primary teachers to the use of new technology.

Act Two - Technology Enthusiasts Become Experienced Users

Act Two Scene One - Recruitment of Self to the New Age in Teaching

Narrator: Alex, Max and Leslie will share their insights of an emerging analogue-digital future which they perceive is afforded by the new media. In this act Alex and Max describe their initial encounter with the computer and how they engaged with the new technology.

Alex: I first came across microcomputers at the University during second and third year Chemistry. In 1981 and 1982 in Physical Chemistry we did a little bit of computer programming in Basic. When I did my honours research year in 1983 I wrote a couple of computer programs to show magnetic susceptibility. I looked on it as a challenge. But, when I showed these programs to my supervisor he thought I was the biggest load of rubbish for wasting my time on this sort of nonsense. But I enjoyed it. We didn’t do word processing at Uni. But computers were very serious things. You used them for programming, or to run computational programs. … I then didn’t do any more programming. … I left computers until I got to my first school in 1985. I found it interesting that the school had an IBM lab - not clones, but proper IBM computers. But, few teachers were word processing their own work. If you had serious typing to do, people would have the typing done by the office; otherwise you’d handwrite it and photocopy it. It was here that I actually taught myself word processing. I was just attracted to it, to word processing. WordStar was the word processing program. There was no drag-down manual. There was a help-screen. I can almost visualise the
particular commands. It was Alt-F4 and the help screen would come up. I wrote my first report-writing program in 1986, because I hated the mundaneness of writing student reports. I wrote a Basic program in 1986 that would allow me to write more extensive reports quicker. Programming was attractive, I enjoyed it. It was the puzzle solving stuff.

Max: I got involved with computers in 1987, at my first school. At this school we were dealing with kids that needed special assistance. We got some extra funds and we bought two Apple 2Es. That’s all we could afford at the time. Because I thought they were a good idea I was immediately delegated the position of expert on the Apple 2Es. I had used them before, personal computers, but I had always found them very unfriendly. So I’d never gone out of my way to do anything with them. The Apple was the first time that I found a computer which was user friendly and without any need to know a lot of knowledge about computers.

I initiated the classroom use of the computer. I had to make the computer portable so that we could move it into the classrooms. I bought some software packages, such as, Where in the World is Carmen Santiago? This was on a floppy disk. … We also got LOGO Writer so we could get into Basic programming. … I showed one or two staff members how they could incorporate the computer in their classroom teaching. One of the teachers found it really useful for her English teaching. She started incorporating … word processing into the lessons so that the kids could just type in information. All the kids had to keep journals at the school. She immediately got the kids to type into their journal file, rather than handwriting it. She was impressed that they could spell check etc., their work. The kids really enjoyed it especially those kids who had basic literacy problems. As we had a printer the kids were really impressed with their ability to print their work.

Alex: In 1987 I left my first school, resigned and enrolled in a Masters of Education program. For my Masters I actually bought a microcomputer. It was an IBM clone. It was an XAT, with a 286 processor, a 20MB hard drive, and … 640kb RAM. I bought the computer because I didn’t have access otherwise. Although I was a student I didn’t like hanging around the Uni too much. When I was doing statistical analysis of my data I wasn’t aware what applications were available.
So I wrote my own Basic programs and analysed the results of my surveys that way. My thesis was on student values in science education and the influence of an independent student research approach - like the Science Talent Search - to teaching science. I didn’t do any computer courses. Mainly, I used the computer for statistical analysis and word processing in my research.

During 1988 I did extended emergency teaching at a number of schools. The staff at the more academic schools like University High and Balwyn High thought that computers were a waste of time. However, at Niddrie High and Doncaster High the staff thought I was amazing because I was programming in Basic. They kept asking me to write programs for them. But that was it. They didn’t want to learn to do it themselves. In October 1988, after completing my studies … I returned to full time teaching at my second school.

**Max:** At my first school there were a couple of teachers who didn’t feel comfortable with the introduction of computers. They felt that the use of the computer wasn’t going to improve the kids learning; that traditional ways of learning were still important. I never questioned this belief. I just felt that the technology could ease the struggle that these kids were having with their writing. This doesn’t necessarily mean learning becomes easier. I felt that there were advantages in using the technology for the simple things that kids could do much more easily. It wasn’t that the technology solved the problem of thinking, or solved the problem of kids doing their work but it made the tasks easier for kids to do.

By the time I left my first school in 1989 the computers were used by all the staff. They were looking at buying more. I didn’t feel like I’d achieved very much, so I transferred to a conventional high school as a Timber teacher.

**Analysis of Supererogatory Positioning**

In Alex’s developing model of the analogue-digital world, ‘gatekeepers’ privilege access to computational technology for high value projects over those of personal or lower status. In school the computer is positioned as an area of study or an object of curiosity and not as a form of personal productivity or creativity. The digital world, in affording Alex a personalized intellectual problem-solving space, repositions the
computer as a means of individual productivity, as a tool, as a technology of self. Alex, as a prophet of the new analogue-digital age, in demonstrating the magic in controlling the behaviour of the new technology, hears voices of dissent and encouragement. Such magic, however, does not readily position others as apprentices or journeymen. Alex positions himself as predisposed to the ‘promise’ of a technologically ‘transformed’ future, in which technology renders analogue-digital solutions to contemporary problems and enhances human capacities in the process. Alex positions traditional educational gatekeepers in educational organizations as ignorant or redundant and consequently explores the boundary between social/proprietary control and private innovation.

Max positions himself within the community of educational practice as having moral authority to engage others personally in the innovative use of the technology in their educational agency. In resolving issues of portability, software application, skills development and advice for use in classrooms Max begins to transform the various material objects into a social object. Max does not challenge directly teachers concerns associated with the introduction of new technology. Rather he repositions the computer as a means of production, a mediating tool in the teaching/learning act in the classroom. It is a technology which allows the teacher to safely explore transferring executive control of learning into the hands of students who he knows have difficulty ‘expressing’ their thoughts and ideas when using traditional media.

Act Two Scene Two - Educational Use of the New Technologies

Narrator: Alex and Max - as pioneers of new media how did the technology challenge your thinking and extend or enhance your teaching?

Alex: I was appointed to my second school in October 1988 as a science teacher where I taught for eight years. When I arrived at the school the computers were initially in labs. I got involved with computers at school largely because of my familiarity with them. I was using it at home on a regular basis and the educational environment in this school was moving more and more towards the use of computers. I remember in 1990 there was a Mac placed in the science office. Although I spent a lot of time on the computer I didn’t use the Mac for
anything serious. I only played computer games on it to be honest. That is until the Mac was replaced by an IBM.

Up until the start of 1992 I was doing an awful lot with WordStar. But no one else could read my WordStar files. At that time I had started playing with databases and spreadsheets. I came across a marvellous program called IBM Works v1 which had it all - word processing, a database, and a spreadsheet. … My father gave me the original program - Works v1. Because I had Works v1 the school gave me an upgrade to Works v2, with no pain. Works v2 had begun to be adopted as the program of choice at school. So I started to use it at school. I was still doing a lot at home. In fact doing most of my curriculum writing at home. I wrote a 120 page resource book for my Year 12 VCE Science students using Works.

Max: In 1988, I had … gone back to Uni, part-time after school to do a graduate Bachelor of Education to upgrade … my initial teaching qualification as a Manual Arts teacher. This was because I was interested in further learning. I had come across Bank Street Writer, a word processing application, on the Apple 2Es. I found it the easiest way of writing my assignments, or typing up essays. This was because, if you’d done it in the old style, where you had to redraft your essays many times; handwriting was the most laborious way of doing it. Bank Street Writer allowed me to redraft. You had to go into edit mode and then redraft mode to make changes. You could cut and copy. Cut and paste. All that kind of thing. I realised the word processor had a lot of advantages. The word processor made it easier for me to do my things at Uni. So it became a tool which I found very useful.

I immediately saw how word processing could benefit me. It was such an easy thing for me to do. I can’t write well. I’d always been such a terrible speller and I would always have to recheck things. I found it a lot easier to deal with the task of writing my essays. Typing and printing with a computer was so much better for me. I was very impressed with the end product. I then thought about these kids. Some of them were worse off than me. I thought the word processor could benefit these kids really quickly and easily. It can overcome one of the basic problems of writing which was not spelling correctly. I saw the beneficial effects when kids started to type. I saw the amazing response they had to it
because all of a sudden it typed up their work nice and neatly. With these kinds of kids very small positives were important. So I could see the benefit for them but no one at Uni was using it. Other students were still handwriting their assignments. The lecturers were also handwriting stuff like their old overhead projection slides. I might have seen one or two computer labs but they certainly weren’t as prevalent then as they are nowadays.

**Alex:** Yeah. My second school was unusual because in 1990 it placed a microcomputer and printer in the science office. Some science teachers used it to save their files. There was no barrier to access by other teachers to any files. People would go in there, search the hard drive and say, ‘Oh, that’s a great worksheet’. They’d print it off and use it themselves. Informal mentoring was the basis of most teachers learning. I’d get to school and I’d play with Works. There would be somebody there saying, ‘Oh, no!’ Others would say, ‘You can try this, or this and this’.

By 1993 there was an expectation that any worksheet that you had produced would be put into a common curriculum folder, on the hard drive. We could all access each other’s files. Whenever we made a copy to our file … if we thought it was good enough to share, we’d show it to the science coordinator, who would then sort of say, ‘That’s great! Let’s stick it on the common science file’. In 1995 we started drawing together all our common worksheets and putting them in a bound book. We were producing our own Year Seven textbooks by combining and scanning our worksheets. The book was not really a textbook but rather a book of student activities in the form of worksheets. … I was a great supporter of this concept until my whole directory was accidentally scrubbed! I quickly learnt the value of backups.

**Max:** When I came across computer assisted design, CAD software, I thought it was beneficial to the kids. It was an easy way to do technical drawing which they usually found very complicated. By using the technology we can make the task of drawing easier. So you move the issue for the kids from understanding perspective drawing to actually acquiring the skill of doing the task. There’s a shift in emphasis, from learning to draw manually, to using the technology as a tool to demonstrate their ideas, which I thought was really important. So that’s
the advantage I felt that this technology provided the kids. I felt it was so important that I wanted to show the kids how to do it.

Alex: Like many schools my school had adopted the report-writing policy of allowing the teachers to either word process or hand write student reports. When I say word process, it wasn’t a case that you have a template in the computer onto which you could directly type your comments. Rather, you could word process your comments first and then print them onto a blank report form. I was using my own program that I wrote at my first school, which was a Comment Editor more than anything else. I did my comments; spell checked them and formatted them into a word processed document. It would print my comments 16.5cms down the report blank. Then I’d do the required handwriting and the tick boxes.

Max: In semester one, 1996, I was put into excess because of the school’s declining enrolments and transferred to my third school, for a term. I transferred as an Applied Technology teacher - this time to take photographic classes. This school had introduced a mandatory Computerised Report Writing program which was based on the FileMaker database software. There was a lot of panic among staff who were concerned by this move. Special in-service programs were arranged for teachers who felt that they needed some assistance. They were not however, compulsory. I went to the in-service to learn how to use the application. This was fun! The in-service program I thought went well. Nevertheless, there were a lot of teachers who were very hesitant about computers, and they were concerned that the computer will break, or that they will lose all their information. That real fear of losing their data. There were a lot of teachers who needed their hands held as they went through that whole process.

This was the first time the whole staff had attended a formal technology professional development activity. The Vice-Principal had arranged the PD, and while attendance was not mandatory most teachers participated. I think that mandatory activity was really important because prior to that I hadn’t seen anyone or any school where there had been a whole school approach to any aspect of learning technology. It was usually bits and pieces. It was the first time I’d noticed someone actually taking on the whole school use of the technology. The Vice-Principal took control of the process. Making sure Computerised Report Writing moved all the way through the whole school. There wasn’t any
choice. Everyone had to do it. From then on the writing of reports was always done that way.

Analysis of Supererogatory Positioning

Alex positions IBM compatible computers for serious computational work and Apple computers as providers of light entertainment. His individualistic, trial and error approach renders an eclectic collection of software applications, often not compatible with other users. Responsive to emergent trends in software and the imperative to create and share curriculum materials, Alex in accepting the gift of the IBM application suite of programs is repositioned as a participating faculty member. Alex accepts the production storyline that renders the technology as a tool for the collective means of production, presentation and/or distribution of educational materials. He presents himself creatively demonstrating his power use of both the privately owned and publicly available technical resources for the local production of customized learning materials for the efficient instruction of students and the institutional learning of teachers.

Max, in configuring the technology as a word-processor positions the computer as a means of production and presentation. He appreciates the aesthetic of computer generated documents to those crafted by hand. His teaching storyline illuminates the attributes of the technology in affording at-risk students the capability of demonstrating their ideas. Three storylines emerge for Max in relation to the introduction of a mandatory Computerised Report Writing program: That new technology can be emotionally distressing; that the disruptive effect of new technology can be ameliorated via non-compulsory technology-based skill development activities; and that these staff-supportive activities should be the responsibility of people who have both the moral authority and moral capacity to involve the whole staff. Max presents his recognition of the struggle students have with self expression as stemming from his own literacy problems. This ‘fused horizon’ he feels he shares with word processing and technical drawing software which animates his ameliorative vision of the new technological age of education.
Act Two Scene Three - Engaging with Early Actor Networks

Narrator:  Alex and Max, how did you engage with information and communications technology as it was emerging on the Internet and within your school and the community?

Alex:  When I was at my second school, I talked with a UNIX computer programmer who worked for a bank. He also had a microcomputer. He taught me how to write DOS batch files and that sort of thing, which I hadn’t done until then. He also showed me how to use Visual Basic. I don’t usually do formal courses, although I did some courses in HTML coding, surfing and design layout for web-sites, but that’s it. All of the other applications that I use I just learnt myself. Trial and error is really very much the case. I have always found the step by step manuals to be somewhat discouraging because they are written for people who know how to use the applications.

I had been getting into shareware in 1991 - 92. This was mainly because of my own interests. I was living just around the corner from an electronics store. I would wander in there maybe once a fortnight and see what shareware they had on offer. I was interested in electronic games, statistical programs, and teaching programs. I’d actually play with them at home. With the shareware most of the time it doesn’t come with the instructions. You simply play with it. … Occasionally, I can’t work out a shareware program - a game. I just get to a level of frustration and say, ‘Okay, that’s it. There’s more interesting things to do’. Tomb Raider II was such a program. I generally don’t give up as I like the challenge. I enjoy playing with them. I’d then take them in to the classroom and show kids things like Skyglobe, a desktop Planetarium. It is excellent and I still use it - the updated version, of course. Some of the other ones like WTChem was sort of a flash card quiz style. I was interested in using computers for teaching Chemistry and for teaching Maths.

Max:  When I was at my first school I didn’t have a computer for myself. I’d borrow a computer from the school and take it home. I found the only way I could learn about the computer and software was to actually tinker with them. So I’d take them home and tinker with some of the programs and tinker with the computer. I used to tinker with the printer. You could actually manipulate the system to
change the character size. I’d change the character size for the kids so that we could increase the font size. So I’d take the computer home and do my work at home. I’d then bring it back and print my work. Although, there’s manuals I still tinker. Trial and error. Manuals always tell you what to do. But what happens when the computer or the software doesn’t work according to the instructions? I always find manuals don’t tell you what you want to know. There’s no big trouble shooting pages in manuals (laughs).

At my first school I was the expert and they would all come to me. … There was only one time I couldn’t solve the problem. I took the computer to the local computer shop where we’d bought them. He gave me a hand to fix it. Most of the time those Apple 2Es were really basic to fix. I could pull them apart really easily and then check that the cards were in correctly. So when someone says, ‘It doesn’t work’, the first thing you do is check that the power is on and all the connections are in properly. Most of the time there wasn’t any major problems.

In 1990, I bought my own computer. I made a conscious decision to buy a computer which was a Mac, a small Mac. I was still studying part-time so I wanted to use a computer. I was just beginning my Masters preliminary year. I saw an advantage in having my own computer. I saw some programs, technical drawing programs, which I thought were really useful, really terrific. I thought that the kids could use them. Once again I could see benefits for me. You know, in more advanced word processing using Microsoft Word 5. I could see some really good advantages and so I thought there’s nothing I can do about it. I need to spend $2000 to buy a computer. So that’s what I did. This was a big move.

I know it sounds silly but I didn’t have any problems learning how to use my new computer. There was Word 5 to learn, so I learnt it. Because I was using it all the time I overcame the problems as I went along. To me it wasn’t a big deal. I don’t see now looking back at it as a big deal. I just thought, ‘Well, that’s fine. I can see the advantage of it’. So, I just learnt it.

Sometimes, you needed help. Like when I wanted to learn to use Computer Aided Design software. I found learning how to use CAD was difficult. I was at Uni in 1989, as a Visual Arts student in the graduate B. Ed. Course. I had chosen an elective which involved using computers in the classroom. We were shown this drawing package. This guy took us through it. We spent a lot of time just
learning how to use the program, not really on its curriculum potential. I found it very tedious! This was the first time I actually went to a class, a structured learning environment specifically focusing on the use of the technology.

Analysis of Supererogatory Positioning

Alex positions himself as mainly self-taught preferring trial and error rather than relying on user manuals. Mentoring and informal conversations act as alternative means of knowledge acquisition and skills development. After mastering how to use the applications Alex in a Vygotskian dialectical process demonstrates to his students their usefulness as a means of production/presentation, as an analogue-digital curriculum resource, or as a form of entertainment and skills development. He presents a confident ability to analyse, to deconstruct/reconstruct or tool reverse engineer software applications-shareware/games. Alex speaks for the architectonic possibilities in the technology for education.

Max positions himself as a tinkerer. He discovers for himself via trial and error how to configure, use or repair computer hardware and software. He finds manuals and training programs cannot cater for his specific curriculum needs. Max presents himself as a teacher educator citing his own personal experience in arts education that the doors closed to many students by the formal discursive modes of education can be opened with the new technologies, to scaffold the learning of vital skills.

Act Two Scene Four - Negotiating Institutional Rules of Access

Narrator: Alex and Max as you sought to employ the technology in your teaching would you share with us the conditions of access?

Alex: When I arrived at my second school in 1988, Alan [pseudonym] was the Science Coordinator at the school. Alan liked playing at the computers. He was the person who arranged for the changeover from the Mac to the IBM. Alan also arranged for teachers to have computer access over the holidays. At the end of 1992 there was a change of science coordinator - Steve [pseudonym], and the
appointment of Bill [pseudonym], a science teacher with computer expertise. The school had computer labs used by IT teachers, but Bill set up a dedicated computer writing room with IBM compatible computers that anyone could simply book. He set up the booking rules. You could book in for three weeks at a time, but that was it for the term. So any particular teacher with any particular class, in any particular Key Learning Area could only book in for a period of three weeks. For example, when it came to teaching Astronomy I booked my kids in. We’d do some data basing with some astronomical stuff and that was it. In out and all over. It was great! I liked that. However, when we started getting into serious data logging, all the gear was locked away in one particular portable. For security reasons perhaps? My science students had restricted access to the computers. They were using computers in the writing room. They were not using the computers in the IT teachers computer labs unless you were lucky enough to have access to the locked control room, containing the Data loggers.

Max: When I arrived back in schools after my teaching secondment in 1996 there were two Apple 2Es computers in the staffroom which were connected, by a local area network to the computer lab. There were no other computers anywhere else in the school. There were a few staff using them but not many. I know it sounds silly but you were kept out of those computer rooms if you weren’t regarded as a computer expert. Maths teachers were regarded as experts because … they did some computer programming at Uni. Some English teachers had access because they used word processing. If you wanted to use them for something like CAD drawing you weren’t really welcome. So in some ways I was locked out and I didn’t have access at all to the computers for about six months. I thought this would change when PCs were introduced. There was an Art Teacher who was interested in the photography and he wanted them specifically for his area. The Principal bought some PCs. There were only six at the time in this ‘enclosed space’ which was ‘his’ space. I remember going to visit them in his computer space. But I realised afterwards that there was no way I would have access to them - because they were ‘his’!
It’s only been in the last three years 1997 - 99 that computers have been used by teachers outside of these specialised areas. That is by teachers in the other five key learning areas. Before then I never got a chance to use a computer in my classroom. What I’ve gained as computer skills, I couldn’t use in the classroom. I always felt locked out. However, I persevered and by 1996 I was doing a bit with the kids. For example, I forced the Photography teacher to give me one of his computers so I could take it into the Art room. I was able to get my Year 10s to do something outside their normal classroom activities … with the drawing package. They quite liked it. Looking back, it was very rudimentary work but we were doing what I always wanted to do. It was as if I was being asked, “Why would a Woodwork teacher be wanting to use the computers anyway?”

Analysis of Supererogatory Positioning

Alex expresses restrictions on his agency constituted by the local rules of limited resource allocation. And is outraged as access to specialized digital resources is contingent on each teacher’s relationship with the particular gatekeeper. Max perceives restrictions on his agency as a denial of his eligibility on the grounds of intellectual status of his subject area. Even when another Art teacher had access to specialized technology still Max was denied access as the technology was for the teacher’s personal project. While Alex expresses no doubt about his legitimate claim to engineer change, Max rejects his early positioning in the local moral order.

Act Two Scene Five - Drawing on a Wider Discourse of Practice

Narrator: Alex and Max - did you act alone or in concert with others in pioneering the use of new media, such as the Internet, email or other software applications?

Alex: My home connection to the Internet began in 1994, courtesy of the Science Teachers’ Association of Victoria. Each councillor was given a 20 hours per month Netspace Internet account. I had no technical difficulties connecting online. My XAT died in 1992 and I bought a 386ATDX IBM compatible, with a
120MB hard drive. The biggest difficulty I had was justifying the expense of the modem to my partner! Since then, because of the government's Laptop program which started in 1998, I’ve got an even more powerful computer. So, going from the XAT to the 386 meant I could now run the Windows Operating System, albeit very slowly. My applications started to become much more graphical. Colours were more intense. When I was at home I’d do a little bit of browsing, a bit of surfing and contribute to the email chat groups.

In 1996 the science department of my second school went onto the Internet, with Netspace as the provider. It was Steve’s decision, not one involving other members of the faculty. The science office now had two machines, but only one of them was connected to the internet. Being connected to the Internet didn’t really have an effect on my school stuff. Email wasn’t used. What I did start doing was a little bit of surfing to see what was on the Internet. More importantly, in terms of my own professional development, I created my own website and published it. Even more importantly than that I got into chat groups. I found online resources were more advanced than what comes out on the print media. Over the holidays I’ve been working online with new programs called IRC - Internet Relay Chat - and ICU - I-See-You. Basically when I’m online and when anyone else is online I just chat to people. … For power users the chat rooms are an incredibly powerful medium. Active contribution is the unstated expectation. In my heyday I was subscribing to seven or eight professional groups chat groups or discussion groups and it was getting a bit silly. … I was subscribed to the Chem Teachers group, Middle School group, Educational Research, Family Science, Computers, Computer Users group, Computer Teachers group, a Science Fiction group and the Oz-Teachers group. … I was getting 100 emails a day - it was hard to actually work out what was going on. After a while I worked out that some of the groups, for example, Oz-Teachers were very marginal in their outlook and interests. That didn’t really suit my needs. Wading through the 200 or so emails you’d get a week only to find one interesting thing, just wasn’t worth my time to keep subscribing. I’ve now cut that down to four chat groups in 1999. … I was also getting into bulletin boards, like the LABNET which was fun for a while.

Being online has helped me with access to PD, curriculum wise - new ideas, and the development of online skills. Online professional development has helped
me improve my knowledge, skills and attitudes. … For example, I’ve used a couple of the InterNIC courses like Using the Internet, and Using Email. I sent an email to a web address and each day they sent me some exercises and homework to work through. I picked up some ideas.

Max: When I was seconded to lecture to the pre-service manual arts student teachers in the Faculty of Education, at the University of Melbourne. The world opened. I met Blair [pseudonym]. I said to him that I enjoyed working with computers. So he gave me one of the top computers - the latest multimedia Mac - that the Faculty of Education had bought. It was a Mac with all the bells and whistles. I thought it was terrific! … This was the first year that I had Internet access. The first thing I did was to play around with every program I could get my hands on. I came across the Internet, PowerPoint, Adobe PhotoShop, and the Multimedia packages. I came across all these applications and the world opened up to me! … What’s more, every time the Faculty got a new computer or software application Blair would always give me the update. In this way Blair was very helpful to me. When I left the Faculty everyone wanted my computer, because it was the latest version with all the bells and whistles. Blair became my mentor. I’d talk to Blair about any software application I was using or wanted to use. I also spoke to Blair about things which related to both the technology and its curriculum use.

Analysis of Supererogatory Positioning

Alex positions himself in a professional network constitutive of both online and offline members. This ensemble of people and their interests and expertise affords Alex participation in a range of discourse communities. For Alex, being online is both intentional and necessary in making intelligible the technology of cyberspace and of cyberspace itself: in identifying objects, their purpose and relation to other objects and in judging possible value or benefit to himself personally or professionally. He privileges dynamic discourse communities and applied skills development over static historical information. Max, on the other hand, positions himself as engaged with one
academic mentor who provides needed resources and scaffolds his learning in his zone of technological commitment.

**Act Two Scene Six - Developing a Vision of an Analogue-digital Practice**

**Narrator:** Alex and Max - as your proficiency with new technology developed would you share with us the changes that began to emerge in your professional practice: specifically those transactions constitutive of an analogue-digital practice?

**Alex:** In 1994 and 1995 I ran night courses in using computers with parents of my students at my second school. I encouraged the College of Advanced Education (a renamed Teachers College) to form a collaboration with the school. I was the Night-School Coordinator. I took the session called ‘An Introduction to Computers’. I was also starting to run professional development for teachers at STAV conferences on Using the Internet, Using Computers in Classrooms and Surfing the Web.

**Max:** When I was working with the student teachers from 1993 to 1995, I’d ask, ‘What can you do with Word 5 in your classroom?’ We looked at how you can use Word to make a Newspaper. So that the student teachers could help their kids construct newspapers. Or, ‘How can we assist kids with literacy difficulties?’ Or, ‘How can you use Word to assist your own lesson preparation?’ At the time I wasn’t conscious of my rationale. I couldn’t express it. I just felt there was a need to run it that way. This was the first time I was given a chance to use my information technology skills. I felt I had skills that could show other people what they could do with the technology, to be aware of the curriculum potential of these computers.

**Analysis of Supererogatory Positioning**

Alex, in his quest to socialize the new technology in settings and arrangements in sites other than his school positions himself as a prophet of the new age demonstrating to others a glimpse of a possible analogue-digital future. Publicly, Alex represents the
advanced use of educational technology in his school both to parents and to potential tertiary partners.

Max, in inviting others to consider the curriculum possibilities afforded by the new technology: as a tool of production, as an object of study or as artefacts of teacher practice constitutive of an emergent analogue-digital culture, was beginning to reposition the new digital resource as socially significant.

Act Three - Becoming agents of change

Act Three Scene One - Early Roles, Expectations and Identity

Narrator: Moving forward to 1997 - the Department of Education has invested significantly in the new technology. In each of your schools, Coordinator roles have been established which specify the need to get teachers to use computer technology in their classrooms. Alex, Max and Leslie, I would like each of you to describe how you came to be responsible for the implementation of new technology in your school. What was expected of you and how did you get started?

Alex: In 1997 I transferred to Digital High, a new Science and Technology School, as the Science Coordinator. This was very much a promotion. I am now a Leading Teacher 3. I jumped two levels from my previous position. I was brought in from outside as somebody who would effect change. My role was to get the other teachers to use the internet and to use the learning technologies in school. My task was to get the science teachers out of the 1960s for starters. It was an unstated understanding that I was there to work hard and to get everyone onside. I had to get people - the science teachers - using the technologies - data loggers, computers, email, the Internet and sharing resources - these were the five centrally defined priority areas. I quite enjoyed my new role as a change agent.

When I got to my new school I arranged for a weekend away for the science staff. We went down to the Geelong Science and Technology Centre. We
combined getting to know each other with two days of hands-on computer and data logging activities. This was the only formal PD that they had had up until that stage. Until then there were one or two individuals within the school science faculty who were being trained by the manufacturers of the Data Loggers. They were using the equipment themselves, but they were not showing others how to use it.

**Max:** In 1997, I applied for and became the Professional Development Coordinator, at my school. A vacancy occurred as the person doing it left the school. I decided to focus on computers because I saw the need. I saw that things were changing very quickly. And I saw that the Department of Education was promoting the use of Learning Technologies. The Navigator Schools’ Project had also started. I felt that there was a real need for the staff to become technologically literate. The only way that you could do that was to make staff conscious of things like how rapidly the technology was changing the focus of education. The staff weren’t aware of anything like this.

The first thing I did was to conduct an audit. An audit of all the computers, all the software and anything else associated with computing. I did this because I needed to know what we had in the school. If you don’t know what’s in the school you won’t know whether or not you can actually use it. I took the initiative with the technology audit. I did it on my own. I went through everything. I asked the Computer teacher to give me all the information about the software. I then collated all this information. I did it on my own. There wasn’t anyone there who was interested in this project. I put this together a little package of information for the staff.

**Leslie:** In 1994, soon after moving from my first primary school … I was appointed the Computer Coordinator at my new School. One day I was telling David [pseudonym], the Principal how I was going to do my work program on the computer. He asked me if I would like to be the Computer Coordinator. I said, ‘Oh! Alright, as long as you don’t mind that I’ll ask you questions’. David had been doing the job previously. I was now responsible for getting the computers operating in the school.
When I started at the school we only had Apple 2Es and about four Macs. The budget that I’d been given only enabled me to buy two computers. So I spoke to David, the Principal and said, ‘This isn’t enough! I need more money!’ With his support I approached the School Council and we got enough to buy another two computers. As more and more teachers now wanted to use them in their classrooms, once again, David and I went to the School Council and we got enough money so that we had a computer for every classroom. Currently we are buying Laptops. We are going to build up the Laptop numbers so that students will get more time with the Laptops in the classroom. Over the last three years from 1996 to 1999, I’ve been able to run half day Curriculum Days to help staff learn how to use the technology. Sometimes I get feedback from people about what they’d like the session to run on. Sometimes the session is about what I think they need. Sometimes the activity would just be a software familiarisation thing.

Analysis of Supererogatory Positioning

Alex. Transferred. Promoted. Invested with moral authority. Ontologically curious about the relationships between human and non-human substances in constituting a science and technology centre crafts a collective identity script to make intelligible the relationship between him, faculty members and the newly available resources. In arranging an off-site whole-of-faculty staff development Alex probes the extent of his moral authority.

Max. Internal vacancy. Appointed Staff Development role-bearer. Invested with moral authority. Responding to societal rhetoric that new technology was rapidly changing educational landscapes he positions himself as an advocate of technologically literate teachers. Max begins his quest by mapping the technological landscape identifying the material objects, arrangements and locations of the digital resource. Sharing the audit is a test of his moral capacity to engage others in the technological imperative.

Leslie. Transferred. The offer of becoming the Computer Coordinator role-bearer accepted on conditions of collaboration. Invested with moral authority she is responsible for classroom computerization. Her renegotiated funding agreements with
school council strengthen her moral capacity. Leslie positioned staff in need of technical skills development.

Individually they have created different storylines for the classroom socialization of new technology: Alex’s intention is to build a sense of community and to provide hands-on staff development in the use of new technology. Max’s intention is to raise staff awareness of the existing resources implying an imperative for the educational use of new technology. Leslie’s role in a smaller institution is to implement the Principal’s plan for staff and students to have access to new technology in their rooms, and to sponsor staff training in their use.

Narrator (continuing): Alex and Max, from your perspective as a member of staff

what were the circumstances in which your school decided to introduce networked and mobile computing across the curriculum? How did teachers, individually or collectively, react?

Alex: In 1995, two years before I was appointed Science Coordinator, my current school had received one of the Government’s three Science and Technology Grants to become a Science and Technology Lighthouse School. The idea was that we’d model best teaching practice in these learning areas. The Navigator Schools’ Project - with its teacher education function - was not part of the original idea. The Department of Education and Training changed the brief about six months later. The school was notified in 1996 that it was to become a Navigator School, with a systemic teacher education function for the State’s staff. This led to a number of definitional problems within the school. For some teachers these two position changes conflicted with each other.

The school itself is still working out its own identity. Are we a Science and Technology School? Are we a Navigator School? Are we both? How do we find out? Other Navigator Schools have dealt with this problem by encouraging a large staff turn-over. At one of these, for example, the Principal is planning for a 20% staff turnover. So when teachers are appointed, he says, ‘This is the ethos of the school, please accept this or we can arrange somewhere else for you to go’. I think this is counterproductive. At my school, in fact, the teachers who leave are the ones that have got expertise in learning technologies.
Max: On my return to my school in 1996, I found the school’s focus on new technologies had followed other schools who were becoming computer orientated. Although among the staff there were individual teachers who were really well advanced in knowledge and skill associated with computer technology they were a select group of Maths, Science and English teachers. There was no one else on the staff who was interested. There was no ‘recognisable’ or ‘coherent’ interest group driving the technology agenda. I think that the school’s technology focus came from the State Department of Education, and like most government schools this view was forced upon the school administration. It wasn’t until 1998 that the Principal advertised the position of a Learning Technology Coordinator. I think that this position was created because the Principal felt under increasing pressure from State policy curriculum directives. The Information Technology teacher was appointed the Learning Technology Coordinator. There are standard Departmental surveys enquiring about computer use that we have had to fill in for the Learning Technology Coordinator.

Analysis of Supererogatory Positioning

From Alex’s account the school’s administration in 1996 had identified his school with the State Department’s revised policy for stimulating uptake of learning technologies by teachers. Where the Lighthouse concept constituted a diffusion model of learning, the Navigator Schools’ Project provided a more urgent directed staff development model. The difficulty of securing the expert staff for these Project schools in competition with other schools had become a key issue. While the ontological question regarding the identity of the school was a puzzle to Alex, it presented an identity-crisis to the staff. The variety of competing storylines that emerged were supported or contested according to how teachers were located in the discourse of change. Alex believes that the transfer storyline has the potential to act against the interests of the school in facilitating the transfer-out of technologically literate teachers.

In his account, Max, in surveying the social contours of the technological landscape, identified other role-bearers and a few technologically literate individuals. He positions himself as the only teacher-agent being both literate and aware of the educational
significance of the new technology. In locating itself as an observer and not a participant in the conversation about the educational use of new technology, Max’s administration had effectively silenced the voices of pioneering teachers - including his own. On this issue the State Department in repositioning the school with central policies, in mandating curriculum reform sought to embed the use of learning technologies in all learning areas and in the monitoring of compliance. The creation of a new administration role - that of the Learning Technology Coordinator was the school’s response.

**Narrator (continuing):** Leslie. Earlier, Alex and Max described how they became Experienced users of the new technology, prior to their appointment as coordinators with responsibility for helping teachers use the technology in their practice. You indicated in an earlier response that with the support of your Principal you became a field officer for the Mag-Net project. In this role you became a staff development consultant to primary and secondary schools. However, you felt that ‘you didn’t know enough to be going around teaching people’. So how did you become skilled in the use of the new media? What challenges emerged and how did you deal with them?

**Leslie:** In 1997 I joined the Virtual Science and Technology Centre project known as Mag-Net. The project was funded as an experiment by the state government alongside the bricks and mortar Navigator Schools on advice from a few teacher power users. Mag-Net used computer networking and field officers to service teachers in their own schools. The small Project team had an office at Monash University. I spent three days a week sitting in front of a computer screen making Web pages or visiting a few schools. I hated my first six months of Mag-Net. I really hated it. This was not because of who I was working with. I had not met Bill at this stage, and Jerry was fantastic. He gave me so much training. Alan, the Mag-Net Director was fantastic. He didn’t ring up all the time and say: What are you doing today? Have you done this? Have you done that? We would meet once a month or whatever. He just let the project speak for itself.

At the beginning of Mag-Net we used Microsoft FrontPage to create Web pages. Jerry helped me with FrontPage. A lot of it is trial and error. I’ve never been one of these people who’s been afraid to have a go. I don’t think, ‘Oh! My goodness,
I’m going to break the computer’. Like I just have a go. Every time I go into a school I’m always looking around, listening to other people, and watching what they did, thinking: That’s a good idea. How could I change that and use it in my Grade? Just being prepared to be open minded about the use of computers in the classroom. I did a Learning with the Internet Course at Monash University. I didn’t really get anything out of that formal learning activity. It had just started and I don’t think it was very effective. I didn’t really learn anything of value to me. I thought it was a big waste of my time.

I suppose one of the big changes was that I had to let my own Mac go and get an IBM compatible computer because FrontPage at the time didn’t have a Mac version. This made it easier to create Web pages at home. I could then publish stuff from home. I became more confident with FrontPage and, more familiar with IBM compatibles.

Initially working at Monash University was just so different to being in a classroom. I’d spent six months driving to Monash every day. I sat in this office in front of a computer, thinking: My goodness! What am I doing here? I just really … really missed having a Grade. That’s just me as a person. I love the rapport that you develop with the kids. You would be sitting there in your office and you’d be thinking: ‘Oh! 10.30 the bell must be going soon. I wonder when can I go to the toilet? That sort of thing. I’ve taught in a primary school environment all my 11 year working life and it was a real culture shock. Just being in charge of yourself. Organising your diary. That sort of thing. So, during the first six months if I could have gone back to a classroom I probably would have. In the second half of the year, once I actually … started to go to schools and work in Grades with teachers I felt a lot happier. However, I also had these feelings of inadequacy. I mean Jerry is really a computer whiz. While at my school, I suppose people looked up at me. However, in comparison with Jerry I felt really, really lacking in technical skill and knowledge. I was also going out to schools and working with teachers. I was thinking: Well, how am I going to teach them anything? They probably know more than me.
Analysis of Supererogatory Positioning

Leslie. Seconded. A primary teacher now a part-time project officer. Invested with moral authority doubted her moral capacity to effect change. Leslie’s re-positioning as a change agent whose site location is an office at a university began re-interpreting all the meaningful aspects of her world as a teacher-agent: teachers, children, school, grade, imposed rules, expectations, timetable, - the work practice of a classroom teacher. Her day-to-day transactions with others and the interactions with the technology reshaped her umwelt or semiotic model of the world. In re-establishing meaningful semiosis Leslie intentionally privileges informal Vygotskian dialectic intervention and/or the individualistic trial and error approach to knowledge acquisition and technical skills development over the formal structured course - a sentiment which she passionately weaves into the Mag-Net staff development storyline. In seeking to make intelligible what it means to be a project officer of a virtual science and technology centre, Leslie also is making sense of what it means to be an itinerant agent of change. Her personal professional identity is transformed in the conversations about technology with members of Mag-Net.

Narrator (continuing): Alex, Max and Leslie from your perspectives as Coordinators with responsibility for implementing the school’s Technology Plan, what challenges emerged and how did you resolve them?

Alex: I think staff attendance at professional development and working with some Coordinators are my biggest challenges at Digital High. I think professional development needs to be mandated and that coordinators should be appointed to implement change. For example, school based professional development is regularly scheduled. All teachers are supposed to be there. Unfortunately the staff who need it most play games. They’ll say, ‘We’re going to the Maths PD’. So in the science PD I’ll get maybe two or three teachers but at the same time the maths coordinator will say, ‘Well, no they didn’t come over here’. Until the administration really got firmly behind the idea of implementing change it was very difficult.

Another example is in the Maths faculty. Last year, 1998, the school wanted to install a very common and expensive computational program called Graphmatica onto the students’ Laptops. At the time the new Maths Coordinator
argued that the program was a ‘wank’ and that it was a waste of time. Nothing beats pen and paper graphing! So, yeah! It’s that sort of cultural thing. Until that is addressed either by mandate or by the roll-over of teachers it was very difficult to implement change.

Max: The challenge for me and the Learning Technology Coordinator is to work out how to transfer any teachers’ technical skill across into a learning environment for kids. ‘You might have a Laptop but what are you going to do with it?’ Getting people to focus on the curriculum really that’s the difficulty. Some of the Maths teachers have been looking at the use of Calculator Based Learning and for others the use of the digital video camera.

Even though we have the computers with which you can access information, kids don’t necessarily know how to access this information. In some cases, nor do the staff. In some ways staff are more comfortable taking students to the library because they know where to go to access information, more quickly, than if they are on the Internet. Because they’re still not competent themselves, on the Internet.

This is also true for kids. I think kids still need strategies to do things like searching for information. And that’s where the ‘skill program’ can be used. Show - Go ahead! Show - Go ahead! I show kids how to use the software to complete a task. And then I say, ‘Now you try it and see what happens’. When someone else has done something, I’ll say, ‘Oh! Let’s look at that! Let’s go for it, see if you can do the same thing’.

Leslie: In 1997, my first year with Mag-Net I was part-time at school, and the Learning Technology Coordinator. It was just a big, big change. Even though I was still a teacher, I didn’t have a Grade. I had English as a second language sessions. I did some things with the technology but obviously this is not the same as having a Grade to work with. I was also new to using the technology and being a consultant. When I was going out to teachers in other schools and you’re saying, ‘You should be doing these things in the classroom’. I knew suggestions have much more impact on primary teachers if I could say, ‘Look I tried this activity with my kids. This part worked. This part didn’t. I’d do it this
way next time’. Teachers take you more seriously when you demonstrate things with kids.

The second half of the year was much, much better. In 1998 I probably enjoyed it more because I had a Grade as well. I’m really lucky this year 1999 because I teach two days at my school in a Grade. I also have a day a week at school where I can work with teachers in my school in their Grade, or help them one to one. I can show them how to do something, use an application, or log onto the Internet. I think that the classroom use of computers at my school has been better in terms of actually using it in a meaningful way. A lot of that change has been because I have been doing the Mag-Net work. Getting out and meeting other people. Maybe it was because my own confidence with the technology was increasing.

Analysis of Supererogatory Positioning

Alex in reflecting on the ontological landscape identified people not technology as the source of the challenge to his moral capacity in effecting pedagogical change. He positioned himself as the victim: firstly of those individuals who had moral authority and capacity to control structural settings, and secondly, of those individuals who intentionally resisted or circumvented his efforts in implementing the change agenda. Alex’s doctrine of change was expressed in terms of mandates, directives and implied choice. In Alex’s account of the conversation of change two diametrically-opposed storylines emerged: one of compulsion and commitment and the other of challenge and resistance; which position proponents and opponents on opposite sides of the local moral order. He positioned himself in favour of the enforcement of rules and positioned the school’s administration as negligent in their duty to ensure staff compliance. His interpretation of the ‘rules’ of change and change management are not supported by the administration, who from his perspective locate the construction of his notion of rules, mandates and commitment outside the local moral order.

Max identifies three challenges: the first concerns the relationship with another role-bearer, the second concerns the possibility and extent of ‘fused horizons’ in joint-construction of constitutive orders, the third concerns the nature of possible interventions. Max favours structured Vygotskian-style dialectical development
programs in which teachers and students acquire or apply technical skill within the context of relevant curriculum experiences. In Max’s account two storylines emerge in the conversation of change: one of actualities, embedded in the analogue learning environment and one of possibilities, embedded in an analogue-digital learning environment. In the conversation of change he positioned the Learning Technology Coordinator and himself as partners delegated to engage in a language game with other members of staff. The conversation explores their collective engagement in the curricula use of new technology.

Leslie is challenged by her positioning as a role-bearer across two distinctively different sites or communities of practice. At school, while the environment was familiar, her umwelt had changed. At Mag-Net, making sense of her unfamiliar surroundings became very important. In resolving a myriad of existential questions of identity and purpose, Leslie re-established her umwelt - a meaningful semiosis in which being both a person of the teacher-agent and being a person of the teacher as an agent of technological and pedagogical change was intelligible to her. For Leslie her moral capacity as a teacher change agent in demonstrating technical skill or curriculum use - comes from sharing the knowledge, skills and ideas of her practice. In Leslie’s account her lack of an authentic identity was associated with a lack of moral authority with contact with her primary class. This was rectified when she was able to reposition herself at the private/public interface, as both teacher and an agent of change. The ‘how’ rather than ‘what’ could then form the basis of her agential storylines.

**Narrator** (continuing): From your perspectives as technology change agents, how do you assess the success or otherwise of the process of change at your school?

**Alex:** Patia [pseudonym] is a good example of progress. She is one of my science staff who has been working for two years now with learning technologies. After initial encouragement she attempted a collaborative project with her students through the Internet. Before then she would stand in front of the class with the chalk in her hand. Now for at least one unit a year she’ll will take the kids into a computer room or bring the computers into the science room. Her kids can then interact with scientists or other kids in a collaborative project like the Mars Pathfinder project or the Globe project. Initially her own technical expertise improved and now she feels comfortable that her kids can do it.
Max: I wanted to go for the position of Learning Technology Coordinator but I felt that I wouldn’t have a chance because of the culture of the school. At that time there was an illusion that if you’re a trained IT teacher you were also a Learning Technology person. I disagree with this rather narrow characterisation. Predictably, the IT person became the Learning Technology Coordinator. Ironically, the first thing he did was to ask me for a copy of my technology audit. I felt that in some ways I had been pushing from the ground-up, but until there was an external force pushing from the top-down things like the PD initiative weren’t going to happen.

Leslie: Last year in 1998 I taught in the Grade five and six area. All the staff were asked to be involved in their own kind of computer type project during second, third and fourth terms. It was fantastic! Because I was a five and six teacher it was easy for me to get the other five and six teachers to do things with their kids for this project. However, it was more difficult for me to have as big an impact on the teachers in the other grades - Preps to Grade four.

Analysis of Supererogatory Positioning

In Alex’s account, he positioned himself as the knowledgeable story-teller and Patia as his heroine: a teacher lacking technical skill who overcomes the digital divide through engagement in online collaborative projects. In his story Patia transitions from chalk (analogue technology) to the Internet (digital technology); from monologic talk to dialogic collaboration; from an analogue practice to an analogue-digital hybrid practice.

Max attaches significance to the decision-making process as a measure of progress in redressing disadvantage in schools and in education more generally. In challenging the privileged position afforded the gatekeepers via the local moral order Max positions himself as the victim in his storyline of change In which the beliefs and actions of gatekeepers are determinate: controlling what can be done and who can do it. In his account Max believed that the politics of everyday life shaped and influenced the gatekeeper’s interpretation of the rules governing access to cultural resources and role-bearer appointments. Max unsuccessfully had used the moral authority invested in the role of staff development in advocating on behalf of others in promoting technological change. The appointment of a Learning Technology Coordinator signalled a
restructuring of roles and attendant moral authority in the social order. Advocates of
technological change are repositioned as Agents prosecuting the change agenda on
behalf of institutions and society.
In Max’s evaluation of the process of change he identifies his struggle for personal
legitimacy as an advocate of change during the period that a new moral order was
emerging. In Max’s account his ‘advocacy’ agenda was repositioned in terms of the
school’s ‘facilitation’ agenda.

In Leslie’s account, in which she positions herself and other grade five and six teachers
as co-collaborators, she is afforded a greater moral authority than otherwise possible.
Leslie privileges teacher-student-technology triologues as a measure of her moral
capacity as a change agent to mediate pedagogical change. She understands that her
moral capacity as a change agent is dependent on working closely with teachers and that
her moral authority is necessary but not sufficient in establishing and sustaining
meaningful working relations.

**Act Three Scene Two - Rules, Resources and Responsibilities**

**Narrator:** Alex, in your role as the Science Coordinator, Max as the Professional
Development Coordinator, and Leslie as the Learning Technology Coordinator,
can you describe how you structured staff development in the use of new
technology?

**Alex:** In the first and second terms every Wednesday afternoon in my school I ran a
one hour after school PD activity on, A Basic Introduction to Computers. The
staff would turn up and we’d slowly work through how to email, and how to surf
the Internet. When planning these PD activities I assumed that they knew
nothing about computers. I was fully correct in my assumption. I said, ‘Right!
This is how you switch on the computer. This is how you navigate around the
computer screen’, and so on, and so on. We started off with email and then
moved to the Internet and then Data Loggers, increasing the levels of complexity
and application as required over the weeks. Generally there was something that
people did not know how to use, like an application, so they would want to bring
it to the class for help.
Max: I started going to staff meetings, faculty meetings and offering things like my individual PD package. I thought that there was a need to show teachers a greater variety of classroom activities. I offered them a mentor, someone in the school who had computer knowledge and skill. I offered them time release, and any other assistance that they may need to look at ways in which they could incorporate, maybe, one simple software application into their practice. I offered each teacher personal assistance to help them use the technology in their classroom or outside their classroom. I also offered to run formal PD. This was the first time formal PD was being offered in those kinds of areas as technology across the curriculum. Staff also had the option to simply use time at the end of the year to play with the software.

I virtually said to them, ‘Look, if you want to do anything with computers, or anything with these kinds of software packages, I’m willing to provide you with any assistance you need’. … All the staff had to do at the end was to write up a lesson in which they had used the technology which they then could evaluate and I could put together as a document. The idea was that other staff would then have access to these particular classroom examples. Depressingly, the staffs’ response to this initiative was Zilch!!

Leslie: I’m really lucky. At my school I’ve got a really good Computer Committee. We’ve just had a timetable change. So we’re actually going to run our committee meetings every second Monday after the short staff meeting. … We don’t meet a lot because I don’t like having meetings for the sake of it. When we have a Curriculum Day we’ll have a lot of meetings running up to the event.

As the Learning Technology Coordinator I chair the meetings. However the members of the committee might say to me, ‘Look, so and so is worried about this’. We’ll then talk about it at the meeting. If they came to me and said, ‘Look people really want to do this’. I don’t think there’s been anything where I’ve said, ‘No way. There’s no way. We’re not doing that.’ So I suppose if they’ve got feelings, or thoughts, or if they bring feedback from their team, then we would go along with it.

I’ve worked with these teachers for the last three years from 1997 to 1999. They’re a really good support backup for me. They’ve grown too because
they’re part of the Committee. They’re really committed to it. Last year I had them running sessions on the Curriculum Day. I was trying to get them to build up their professional skills in terms of presenting a session. This year, on the Curriculum Day, a couple of them are going to be the helpers who go around and advise other people presenting about what to do.

Analysis of Supererogatory Positioning

Alex positioned himself as a skilled performer capable of meeting their need for technical skills in a power using institution. Alex positioned staff as having a vulnerability or lack which he had a moral obligation to rectify. In his “imposition” style demonstration workshops Alex’s monologue, a rich blend of instructions, descriptions, and explanations, was woven into the narrative of an analogue-digital future that accompanied his demonstration of various software/hardware combinations: increasing in their levels of complexity, application and understanding. His conceptual understanding and trial and error experiences afforded him mastery of the available resources and confidence in demonstrating the use of hitherto unfamiliar applications.

Max positioned himself as an advocate for the educational use of new technology and teachers as critical consumers who were interested in their personal professional development. In promoting an awareness of the technological imperative in education Max repositioned his moral authority beyond that permitted by the local moral order in his community of practice. He promoted a range of self-improvement possibilities centring on the principle of flexible customization. In Max’s storyline of self-cultivation teachers would willingly document the evaluation of their pedagogical use of the technology - producing a resource to be shared with other members of staff. In response, teachers declined the offer denying Max’s moral capacity to act.

In committee, Leslie positioned herself and other members as joint decision-makers and as advocates of the teachers and students whose interests they represent. In chairing meetings Leslie exercises moral authority in determining the schedule and the agenda. In encouraging other voices in the discourse dialectic of decision-making Leslie strengthens her moral capacity in garnishing staff support in their willingness to use technology in their practice. In recognizing members of the committee as novice users
of technology, and that they lack skills in implementing educational policy, Leslie in suggesting self-improvement strategies repositions herself as their mentor.

**Narrator (continuing):** What were your intentions? What were your challenges? What did you learn about being an agent of change?

**Alex:** Unfortunately the data logging was the least successful PD activity of the lot. The science teachers had no need to learn data logging because the current Science Course, that was prescribed, didn’t mandate their use. So I decided to rewrite the Science Course, and I embedded the learning technologies into the new Course. Writing the new Course was easy to do but bringing everyone along with me was very difficult! We spent Term Three … developing the ground rules for what the shape of the Course was going to be. What’s going to be learned? How it’s going to be approached. ‘It’s going to be a unitised course with discrete units. Six units a year to give you that balance between breadth of coverage and depth of coverage. There’s going to be a major non-exam assignment and a test.’ … Each week we looked at one unit and one area. Then in Term Four the teachers who would be teaching a particular level, brainstormed ideas of what the content was going to be, and the style of the session. That sort of thing.

I’d take those ideas away and process them. Later on I’d give them back to the teachers. Now I am still very much aware that even two years after that planning and development of the new Course some teachers are still teaching the Course that was there before I arrived. They have been dishonest when it came to describing the assessment tasks that they included in the reports, as they were based on the previous course design. Unfortunately I’d have to say that the administration is aware of this and they’re not willing to address it.

**Max:** I try to get the teachers to be aware of how important the technology was. A lot of teachers felt that there were other things more important for them to do. ‘We don’t need to know that right now.’ ‘My learning about the computer is not important right now, as I have got kids who have difficulties with their learning.’ ‘It is not important now because we have financial difficulties.’ I was trying to say to them, ‘Look, those things are also important but you need to do this PD activity for your own professional benefit’. I would say, ‘These are things you
can incorporate into your classroom practice which may assist kids with their learning’.

I was trying to push that line - my crusade! Somewhere along the way I may have upset a few people. People weren’t willing to listen. I felt that the Principal wasn’t willing to assist me in my efforts. Similarly, the Curriculum Coordinator was more interested in other aspects of the curriculum. I think that I was pushing too hard and I didn’t have the right support. It’s not the product, the PD initiative, but how you sell it. I didn’t think I sold it the PD concept well enough.

**Leslie:** Last year, 1998, we, the Computer Committee, had already decided what we thought people needed but we still surveyed the staff. The survey results actually sort of supported our ideas. So we did a mixture of different things both hardware and software. Since most staff were Mac users who were now going to be supplied with Laptops, an IBM format, we needed to show people how to use the Laptops and how to organise their files. We also ran some sessions on how to use the digital camera, the scanner, and Microsoft Publisher.

This year [1999] I gave them my own questionnaire rather than the Department’s Teacher Capability survey. For some of them filling in the whole survey would have been a nightmare. I mean even I couldn’t do some of the stuff. I said that to them, ‘Look, don’t feel bad about it ‘cause I can’t do some of these things’. So, I gave them just a one page sheet and asked them to write something they achieved last year. It might have been that they learned how to use the scanner, or how to organise their files. Something positive! I then wanted them to write down what their personal goal was for the year. Then they had to write down what their goal was for their Grade. Finally they had to write down what assistance they’re going to need to achieve their goal. ‘We want you to show us how to do this - scan a document.’ Or, ‘We want you to come in to our Grade and work with us’.

I also wanted people to be a little bit positive about what they have achieved because people tend to put themselves down. They need to write it down even if it is a little thing. Now, even though they might only know how to do this one thing, that’s still a positive step. I think that such successes should be emphasised a lot. I try always to be positive. To encourage people no matter
how small the step is. I try to be really positive about that step. Saying things like, ‘Well, before you did the activity, you couldn’t do that task and now you can’. Support, like that is really, really important to teachers.

Analysis of Supererogatory Positioning

Puzzled by the failure of science teachers to embrace digital sensor technology, Alex positions his colleagues as lacking a purpose for using the new resource in their practice. In identifying prescription and mandates as the teleological imperative, he intentionally addresses the question of necessity in embedding the pedagogical use of new technology in the science curriculum. In convening meetings, in outlining the draft of a possible analogue-digital science curriculum, in requiring a collaborative approach in the revision process, Alex was able to exert his moral authority as Science coordinator. For Alex the logic in binding practice with technology was intentional, however, his moral capacity to bind teachers in the use of technology was intentionally resisted. In his account of his moral capacity to persuade others in using the revised curriculum Alex positioned teachers as being dishonest, the administration as being complicit in the subterfuge and himself as the agent of change, as the aggrieved party. The storyline that emerges from Alex’s account is that neither access to the technology, nor the articulation of rules that govern the use of resources, was sufficient to change teacher behaviour.

In prosecuting his analogue-digital storyline Max was challenging the teachers’ existing analogue form of life. A form of life or teaching practice where new technology was not significant in the discourse on improving learning outcomes of students. Even though Max positioned teachers in need of understanding the possibilities of an analogue-digital curriculum, and the teachers (and other role-bearers) had accepted his moral authority as a role-bearer, they refused him moral capacity to engage them in his project. Max in crafting an alternative storyline of teacher self-improvement, technology-based pedagogy and enhanced student learning repositioned more clearly the argument for new technology in terms of a moral rather than a practical imperative. The storyline that emerges from Max’s account is of an evangelical technology-advocate engaged in a conversation to persuade teachers of their moral duty towards the use of new technology for both themselves and their students. However, the teachers were engaged in a different conversation. One in which they were seeking solutions to
their unresolved practical concerns relevant to an analogue educational reality which took precedence over those that may be plausible in an alternative analogue-digital hybrid reality.

The storyline that emerges from Leslie’s account is one of prioritizing local social embeddedness: specifically the development of an interactive and responsible communication process within the Computer Committee and between the Committee and classroom teachers. The committee initially positioned itself as the guardian: exercising their right to make decisions based on what they believed teachers needed. Later the committee actively sought and responded to the views and suggestions of teachers. In becoming a teacher agent of change Leslie positioned herself and her committee as having the moral authority to mediate between imperatives of institutional orders and the necessities of staff in understanding an emergent analogue-digital future. Leslie, in building her moral capacity as a teacher agent of change repositioned staff development as self-improvement combining Vygotskian zone of proximal development techniques with necessities of learner-centeredness in which she gently encouraged open-mindedness as a prelude in building relations of mutual trust. She positioned herself as the ‘analogue-digital language facilitator. She positioned the teachers as language learners, something they were already embedded and embodied in as primary teachers. Leslie encouraged their involvement in the conversation initiated by the teachers need to use their Laptop computers. She encouraged celebratory responses to formal bureaucratic interrogation, defusing fear of personal criticism.

**Narrator** (continuing): As a Coordinator with responsibility for the classroom use of new technology how do you engage teachers who are reluctant or resistant users?

**Alex:** I don’t yet have a strategy to cope with this issue. I’ve been thinking. I just don’t have the structures. I can’t help them. These are the teachers who will take their kids into the computer room but then write on the blackboard! The ones who tend to be more reluctant are the more senior teachers. The ones who tend to get the VCE classes. … I’ve had a number of negotiations with Ronnie, the Deputy Principal, to the effect that unless they are regularly using learning technologies in the science classroom, we will find them another school. The
Deputy-Principal is in agreement with this idea; however the Principal believes that this is a bit extreme.

The expectation is from the Principal that we will implement the school’s Technology Plan. People like the Computer Coordinator, Jamie, the Navigator Officer, the person looking after Reporting and Assessment, myself, and Andy, the Technology Coordinator. The school has an assumption that the coordinators can implement that change - that a good coordinator can make sure it has happened. They can change anything!

However there is little support when we try to effect these changes. … Because no one up above is hounding the Principal and nothing will happen. I can understand why this happens. The Principal likes the kudos associated with the public esteem of a Science and Technology School. He does not like the flack. When large scale change occurs a lot of people feel distressed and uncomfortable. He does not like his staff feeling distressed and uncomfortable; he is also not able to manage the change.

Max: When I ran staff PD I felt I was trying to get teachers to move more quickly than they wanted to. All they wanted to know was how to use the software. … In 1997 and 1998, I ran basic PD activities like, How to use Word, PowerPoint and Basic programming. The feeling I got when they attended the PD activities was that they weren’t interested in questions like, ‘How can I utilise this application in my classroom?’ They were more interested in the question, ‘How does this software work?’ So I ran a few PD sessions. For example, I got the guy from Monash University - Learning with the Internet - to run a few in-services. We networked the PCs and ran an Internet connection through them. The staff were really interested in that activity so there was a shift in the direction they wanted to go, and away from the direction I wanted to take them. As the PD coordinator I found that difficult to handle, because I felt that the shift shouldn’t be towards knowing the software, but rather in the direction of classroom usage. And the advantages for the kids. But anyway the PD sessions were very popular. Many more staff attended them.
Leslie: I’m lucky in that there are only a couple of people who are reluctant to use the computers. My philosophy. What I try to do is to get one more person onside each year. So I start off by working with people who are positive. Then when other people see what they’re doing, they ask, ‘Oh! What’s so and so doing?’ ‘Oh! Gee! Could I do that?’ ‘Oh! Yeah! Of course you can.’ I prefer to do it that way rather than riding roughshod over them and saying something like, ‘Right! You’re going to do this’. That doesn’t work for me.

Analysis of Supererogatory Positioning

Perplexed by the teachers whose behaviour he positioned as reluctant or resistant, Alex probes the nature of the relations between role-bearers and between role-bearers and non-compliant staff. He positions the Principal as being interested more in the entrepreneurial affordances of being a specialist educational centre than in the management of the disruptive process of change affecting the daily activities of individuals, groups and the local community. In Alex’s account the imperative of the Principal is in meeting community aspirations in being a school of excellence while role-bearers are expected to bring about relevant change in teacher practice within the permissions and constraints of the local moral order. From Alex’s teleological perspective the moral authority of role-bearers should include coercive powers in addressing non-compliant behaviour of teachers. A power denied by the Principal. An act in which Alex is repositioned as subordinate and accountable to the local moral order. In challenging this positioning Alex seeks the support of other role-bearers in creating an alternative storyline of change agentry. One in which includes the powers of coercion in the form of mandates and transfers. The arrangement in which Alex would have the necessary bureaucratic “structures” to ensure compliance of institutional orders.

Max in offering technology-based staff development exercised the moral authority bestowed in role-bearers. In challenging his epistemological framework staff refused him moral capacity to independently determine the nature of their self-improvement trajectory. Max had positioned teachers as having a lack of understanding of the educational benefits of new technology. The staff had positioned themselves as having a lack of technical understanding of the technology. In re-positioning these storylines not in terms of competitors but rather in terms of a developmental sequence constitutive of
the new resource becoming a social object that Max’s moral capacity in performing the role of change agent was permitted.

Leslie in positioning teachers as either willing or reluctant users of technology, in offering self-improvement as staff development, affords teachers, individually or in groups, the possibility of access to historically available resources via intentional decision-making. In Leslie’s account she avoided challenges to the local moral order and her authority by engaging teachers in what they ‘could do’ and not by telling them what they ‘should do’. She engaged them in a storyline of expressive possibilities, rather than one of maintenance and sanctions.

**Narrator** (continuing): From your perspectives as technology change agents describe a situation in which you questioned or challenged the decisions of others.

**Alex:** I’d have to say the School’s Technology Plan is a good example: because the Technology Plan is not used by the administration to guide the future direction of staff employment or the use of computers in the classroom; because they employ staff who do not know how to use the technology. That is not their first consideration. Also, I would dispute quite strongly the notion that most teachers use computers in their classroom. I would say that the teachers have come a long way in their learning. Most of them now know how to use the computer. The majority of them can use the computer for report writing. However, the majority of teachers who use computers in the classroom will sit there while the students work on self directed and corrected tasks. They don’t actually teach with it.

English in Year Seven is meant to have one period a week doing word processing. The teachers are supposed to teach them how to use word processing technology. For most teachers that simply is not happening. Last year most of these Year Seven classes had their English teacher changed for failing to use learning technologies in their classrooms. The administration realised that these teachers were refusing to teach computing to their students. In Year Eight maths, again there’s supposed to be one period a week to teach spreadsheets. Many of the teachers sit up the front of the classroom. The students work on whatever they work on. Quite often it’s computer games. The teachers will just fill in that period rather than show kids what to do with the computer.
Max: In 1998, the Department of Education introduced two Learning Technology initiatives: VicOne - the networking of all government schools connecting them to the Internet; and, the Teacher Laptop Computer incentive program. The Principal announced that he was going to decide who would be given a Laptop. In the staff meeting I said that that process is incorrect. I said that, ‘What you should have is a committee involving a staff member, the principal and even an outside person like another principal from the Region. They’d look at the CVs - where the applicants explained why they felt that it is important for them to be given a Laptop.’ A lot of people felt that my idea wasn’t fair. One Vice-Principal said, we should just put everybody’s name into a bag and whoever’s name is chosen … gets the thing’. I had to push really hard for my idea. I’m not putting myself up, but I had to push really hard to put in place a structure which I felt was fair and equitable to all staff. This structure also needed to be open so people could see that a fair process was gone through. Prior to that decision we were just going to leave it to the Principal’s discretion. Now, interested teachers have to fill in the Department’s proforma showing how they had incorporated computers into a diverse range of teaching and learning areas.

I tried to get people to apply for a computer, but not many people did. When I said, ‘You should apply for a Laptop’. Many people would say, ‘I’m not very good’. I’d say, ‘Well you won’t improve if you don’t get a computer’. In the first allocation we got 15 computers and 15 people applied. 10 people took the Mac option and five people - including myself - took the IBM option.

Leslie: This morning I rang the Principal of a school whom I had met at a Principals Conference, two years ago. The school had joined Mag-Net last year but they haven’t rejoined for this year. When I rang I said, ‘What’s happening with Mag-Net? Are you going to join again this year?’ The Principal said, ‘Oh! But we didn’t get a piece of paper telling us to rejoin’. I said, ‘We can’t write a reminder letter to every single school in Victoria. Mag-Net is open to everybody in Victoria, and is advertised in the Victorian School News.’ Other schools would contact me and say, ‘When do we have to register our school?’

Once the school is a registered Mag-Net school, a project officer would organise a visit. We try to talk to both the Principal and the contact person. … We believe
that the Principal needs to be aware of what the contact person is hoping they’ll achieve. Generally the contact person knows what they want to achieve but if they don’t get the support from the Principal it’s not going to happen. When I’d go out to visit them, I’d ask, ‘What are your plans for this year? Which of our Mag-Net web-based projects do you want to be involved in? What help are you going to need?’ These questions help them crystallise what their thoughts are, so that then we, the Principal, the Mag-Net contact person and I should have got a clear idea of what assistance is required. Unfortunately, it doesn’t always work out that way. For example, last year [1998] I went out to a school to talk about the Mag-Net Project. When I went back this year I met the Assistant Principal who wasn’t at that first planning session. He said, ‘Oh! It would be good if you could come out and talk to the teachers about the Project and what’s on offer’. I said, ‘Well, I don’t think so! I did that last year. What you the administration need to do is devote some time to giving your staff the skills to be involved in those projects. Then they can get involved in the projects. That’s the best way for them to learn about using the technology in their classroom.’

Analysis of Supererogatory Positioning

In Alex’s account of the lack of intention or commitment of others to ensure or enforce compliance he highlights the gap between the official storyline or possible future as represented in or afforded by the Technology Plan and the actual-present or storyline as lived and experienced by the staff at Digital High. In positioning the School’s Technology Plan as an administrative mechanism of decision-making, he challenges the Principal’s interpretation of the intent of the policy in guiding his appointments of staff. Alex in drawing a distinction between technical- and pedagogical-use of the technology, in the language game in relation to the explicit goal of staff development, is critical of those using the former rather than the latter as a measure of success. In positioning the Technology Plan as a ‘critical’ technology policy to guide subjective and objective decisions, Alex is challenging the judgment of the institutional order.

In declining the moral authority of the Principal in making discretionary decisions concerning the allocation of scarce resources, in advocating an alternate process: a committee, criterion referenced and transparent; in challenging the decision-making structure in his community of practice, Max positions himself as an advocate of teachers
rights and responsibilities. Potential applicants in repositioning his democratic measures in countering arbitrary or biased decisions in favour of merit as unfair, arguing that existing users of technology have an advantage, rejecting his moral capacity in representing their interests.

Leslie is located in a conversation of discursive change via a storyline of responsibility that begins with the Principal. Leslie reaffirms the rules of consultancy: establishing the technology in the local moral order and her moral authority as an agent of change. In Leslie’s account as a role-bearer, she was responsible for establishing, negotiating and maintaining awareness of the communication protocols between Mag-Net and its members. Leslie positioned some members as proactive, taking charge of their responsibility in their self-improvement and others as mechanical, waiting instructions in what to do next. In her role as a change agent, in meeting with the principal and the staff representative, in facilitating discourse on an analogue-digital future, Leslie sought to negotiate support via the school’s local moral order for the staff self-improvement project. In some situations, Leslie, in clarifying the language game repositioned Mag-Net’s technology-based staff development as being a self-improvement project in which project officers are facilitators and not instructors, and teachers are the intentional decision-makers.

**Act Three Scene Three - Distribution of Duties and Responsibilities**

**Narrator:** As agents of change how do you balance duties and responsibilities?

**Alex:** This year 1999 I spent time trying to bed down and resource the new Science Course at the Science and Technology School. I offered assistance when requested and encouraged the use of learning technologies. I turned over science staff meeting time for training in the use of the learning technologies in class. Unfortunately I’ve been given two other duties which distracted me; the School Industry project in particular, and the writing of the Year Seven Textbook. Learning technology worksheets were embedded in it. So again the teachers have got a practical resource for their use. The 1998 Science Faculty Handbook has been approved by the Curriculum Coordinator. The Principal has also been holding it up as an exemplar of the embedding of the use of Learning Technologies as a matter of Faculty policy. However, the implementation of this
initiative comes down to personalities. It’s very, very hard to follow through with that aspect.

I don’t want to have any distractions next year [2000]. I want to set up a Science Resource Centre. That’ll be my office and the Lab Tech’s office. I’ll have these things set up because I was annoyed last year [1998], when after we’d written the Year Eight course, new people came in to teach it. On the very last day of the year they complained about how difficult the new course was to teach. How they didn’t enjoy teaching the course. How much they actually disliked it. And what a poor course it was.

I said, ‘Why didn’t you do this, this and this?’ They said, ‘Oh! I didn’t know’. They weren’t asking me for advice or assistance. I wasn’t around enough to see what they were up to. So I couldn’t help them when they needed it. That really annoyed me. That sort of thing.

Max: In 1998, I said to the Learning Technology Coordinator, ‘What do you want to run this year?’ ‘What are the kinds of things you think the staff need?’ He said, ‘Oh! I’ll have a think about it and will get back to you’. He put together some ideas and we ran the technology PD activities together. My focus shifted towards the Department’s learning technology priorities. … There’s no question that the Learning Technology Coordinator has done his job well, in developing the School’s Technology Plan. But, I think he hasn’t incorporated the relationship between Professional Development and Learning Technology, into the School’s Technology Plan. That’s my difficulty. I don’t want to impinge upon his area. I hold back now. I don’t say, ‘We should do this. We should do that’. I attend the meetings and I do what I have to do to assist him in the implementation of the Technology Plan. In some ways I feel like I’m going back to where there’s been a separation of things the computer and the classroom practice. I feel that I’m being barred again from the computers or the learning technology stuff. So, I do what the Learning Technology Committee says needs to be done. I don’t actually instigate anything anymore, really!

Leslie: When I go out as a Mag-Net Project Officer some of the people you work with are really nice and some of them are quite horrible. You just can’t afford to get emotional about it. You just try to be as professional as you can.
Analysis of Supererogatory Positioning

Annoyed by the critical disapproval of recently appointed science teachers of his moral capacity as a teacher-agent of change, Alex judged his additional duties in industry liaison and curriculum writing in constraining his capacity in managing the implementation of the revised science course. In his account he had taken responsibility in exercising his moral authority setting up enabling conditions, in scheduling staff development, in encouraging the pedagogical use of new technology and in assisting teachers on request. His personality politics storyline in positioning teachers as intentional agents, who are responsible for implementing school policy, does not recognize a lack in his understanding of a social psychological dimension in his relationship with staff. The dynamic nature of Alex’s duties locates him in two conversations: one with the Department and Industry and one with the faculty. Alex finds that maintaining a presence in the faculty conversation is problematic. And that adoption of policy guidance and even provision of resources of themselves is not sufficient to implement his vision of the new technology in science teaching. Alex feels that he is no longer located in the conversation of change at the local level because he is no longer approached.

In accepting the moral authority of staff development as being subordinate to learning technology, in repositioning himself as a follower and not a leader, in positioning himself as an instrument of others in implementing their interpretation of an analogue-digital future, in keeping his ideas and reservations to himself, Max could not sustain his identity as an agent of change without derailing the project of others, nor maintain a voice in the conversation of change.

Leslie, in the role of a change agent, in the realm of personality politics, in facilitating transactions between people who are willing or reluctant users, maintains a professional/sociable identity. In the language game of change Leslie when positioned as an instrument of change repositions herself as an agent of change. In doing so Leslie affirms her moral authority within the local moral order of her school and the Mag-Net project. Leslie’s ‘professional zone’ is the intentional space of teachers constitutive of the resolution of the tension between duties and responsibilities. Her identity as an agent of change is constructed at the intersection of intentions and necessities.
Narrator (continuing): I now invite each of you to reflect on your journey in becoming an agent of change and share some of your perceptions.

Alex: When I was appointed Science coordinator I said: ‘Okay. I’ve got three years, and I’m going to have to make change right from the start. None of this notion of spending a year getting to know everyone.’ A couple of other coordinators who came in at the same time as me decided to spend a year getting to know everyone. When they tried to implement change they found the resistance was there. However, because I went in and implemented change right from the start the resistance was there but there was nothing which prevented me from saying, ‘No! This is what I expect’.

Andy [pseudonym], the Learning Technology Coordinator provided the general guidelines for the Science Technology Plan. This document was developed over a series of three Science Faculty meetings. I took the guidelines into the Science Faculty and said, ‘Okay! What do you think folks?’ The staff was rather non-committal. I took it away and wrote the draft Science Technology Plan. I brought it back to the next science meeting and said, ‘Right, it will be locked in unless you say something’. They didn’t say much. So again I took it away. I had a second go at it, and then brought it back to the faculty. I said, ‘Okay! This is it, the final draft. Last chance!’ Apathy is a very difficult thing to deal with!

This response was common across the school. The scary thing, and this is a very scary thing, is that this School is regarded as being two or three years ahead of everyone else. The young teachers who are coming out now from teacher education institutions are comfortable and familiar with the technologies. Teachers, I would say the majority of teachers, over the age of thirty are not comfortable and don’t want to use the technology. Until you’ve got more new young teachers coming in and a lot of the older teachers leaving the service, you’re not going to get whole scale changes in the school curriculum.

Max: From my perspective as a Professional Development Coordinator there’s a lot of lessons or things that I have learnt about helping to bring about change. You need to have support from specific people within the school; power base people, if you want to make things happen. I’m not very good at playing politics. Therefore, I don’t feel I’m very successful in making things change at a formal
level. What I have noticed about my approach to people when I focus on making them computer literate is that I ‘attack people’ individually, and I’m more successful, at this informal level. For example, last year I actually … told people that they were going to attend in-services on Learning Technology and it will be paid for by their PD funds. In some ways I found this grassroots stuff works a lot better than the ‘organised’ PD sessions. By focusing on people who you feel would benefit from the time and assistance they move very quickly and gain a lot of confidence in the classroom use of the technology. I do those things quite well.

I find that the administrative culture of the school has to be willing to see individuals who are willing to assist the school and say, ‘Yeah, we’ll support you’. ‘We’ll help you along the way.’ But if the supportive culture isn’t there, then there’s nothing you can do about it. You have to be careful not to say or do things which may be seen as stepping on people or doing the wrong things if you want to succeed.

**Leslie:** In comparison to a lot of primary schools, we are pretty well off because David, the Principal is prepared to make the money commitment. Before my involvement as the Computer Coordinator and Mag-Net Project Officer people in my school would just use the computer to fill in time. ‘After you finish your work you can go and play on the computer.’ I don’t think that’s the purpose of the computer. Nowadays it’s easier to get most people to try and use it in a meaningful way in the classroom. That’s something that I’ve learnt through my involvement with Mag-Net, from people like Jerry and Bill, indeed from all the other great people that I’ve got to meet through the job. I guess that’s what I try to pass on to the other people when I visit them in their schools. They are perhaps where I was a couple of years ago. I’ve got a better understanding of the technology and the change process.

In my personal opinion, I think the Department of education is misguided if they think that putting everything out on CDs or putting everything out on the Net is all that teachers need to be able to implement the department's three-year Technology strategy. … There are still a large number of teachers … who don’t know how to get online. … I believe teachers actually need two to three years with the technology to feel comfortable with it before they can begin to use it
effectively in their classroom. I think the Government’s Laptop program for teachers is really good. Giving people the resources like … the Laptops. But, I don’t agree … that people have to do 40 hours training to be eligible for the Laptop. I think, the whole purpose of giving them the Laptop is … so they could train themselves. I believe that the best way for teachers … to learn is to sit down and have time to play with their Laptop. That is how I’ve learned a lot of my stuff, by just having the chance to have a play.

Analysis of Supererogatory Positioning

In enacting the outsider/stranger storyline of change, in taking charge, in implementing immediate and ongoing interventions over a defined period, Alex, in experimenting with a three-step process of change management: planning, taking action, and measuring results; positions himself as the role-bearer with moral authority and faculty members as subordinate and marginalized in the school’s discourse on educational change. The staff, in refusing to cooperate, in exercising minimal effort, in rejecting his moral capacity, positions curriculum change as Alex’s project which he interprets as apathy or passive resistance. In Alex’s account resistance or apathy is the norm among staff/faculty change activities and not a unique feature of his professional identity or intervention style.

In his storyline of change, Alex, in proposing recruitment and attrition in bringing about statewide curriculum change in schools, positions graduands and recently recruited teachers as willing users of technology and experienced teachers as reluctant users, revealing his primary purpose in developing processes, systems and structures, in challenging the local moral order, rather than focusing on developing teachers’ readiness for change via self-improvement. Alex’s interventions are about change and therefore involved people, not as collaborators but rather as nominal pawns in his game of organizational change.

From Alex’s perspective restructuring and resistance are inextricably linked. Thinking like a systems manager, Alex anticipates resistance believing that the moral authority associated with his role as science coordinator is sufficient to overcome the resistance encountered when he introduces the rules governing the use of new technology. When Alex encountered resistance in the form of apathy he positioned himself as the
instrument through which the rules would be negotiated and then embedded in the curriculum. For Alex, effective institutionalized curriculum change is conditional on the appropriate alignment of the confluence of rules/policies that govern employment, technical and pedagogical skill and pre-service training. He sees the ‘role’ of change agents is to develop and manage these policies.

In forming his identity as an agent of change, Max enacts three advocacy storylines: in challenging the existing moral order; in presenting a whole of school approach to staff development; and in facilitating self-improvement possibilities for individual teachers. Gatekeepers, in responding to his challenge of the local moral order, in restructuring the social order, in signalling that Learning Technology had carriage of technological change, in reasserting Staff Development as subordinate to both the Curriculum Committee and the Learning Technology Committee, denies Max moral authority to act independently of other role-bearers, repositioning him as an assistant rather than an advocate.

Max’s primary interest is in staff development and not in negotiating with gatekeepers in developing processes, systems and structures constitutive of the politics of organizational change. In presenting staff development as a whole of school approach, Max positions himself as an advocate of educational change, he positions reasoned argument in mediating technological change in teacher practice, and he positions teachers in need of skills development and knowledge acquisition. Without the support of other role-bearers and gatekeepers, the staff denies Max moral capacity in engaging them in constituting a possible analogue-digital future. In response, Max, moderates his interpersonal skills, uses his moral authority at an individual rather than a group level, facilitates teacher’s self-improvement possibilities, and repositions himself as an adviser rather than an advocate. In the language game of institutional restructuring and teacher self-improvement, Max, in discourse with gatekeepers accepts repositioning as an assistant, in discourse with teachers accepts repositioning as an advisor.

Max feels that for agents of change to be effective they need the moral authority that is provided by the social structure. He finds that his advocacy was necessary but not a sufficient condition of institutionalized change. Max has positioned himself as an informal agent of change and as such is located outside the conversation of institutional change. From Max’s perspective advocates of change rely on a synergistic relationship with the local moral order. Max is reluctant to challenge or campaign to re-orient the
local moral order as such action often evokes negative personal and social consequences. Max is unable to reposition himself as an activist: an agent of change who intentionally challenges the local moral order in an attempt to gain access to the conversation of change, so as to provide a voice for people in the grassroots vanguard of change.

In the discourse of institutional restructuring and teacher self-improvement, in the politics of socialization, in the development of her identity as an agent of change, Leslie constructs a storyline of educational reform, emphasising the need for technical and pedagogical skills development through collaborative and individual self-improvement facilitated via teacher change agents, challenging the bureaucratic policy of conditional technology access, CD-ROM and online technical support. In Leslie’s narrative of change she acknowledges that funding of new technology and access to appropriate training are necessary but not sufficient conditions to ensure the use of the technology in teacher practice. Her resistance to technological innovation should be understood from the perspective of the concerns of individual teachers and that those agents of change need to engage teachers in authentic pedagogical activities. Leslie sees herself joining a conversation of change in which she positions herself as a project officer working in the immediate ‘how-to’ private-public spaces of her own grade and Mag-Net project. She extends her professional umwelt to better model how to respond to the shadows that others saw falling over their private garden walls.

Act Three Scene Four – Narrator’s Reprise

ALEX - Teacher Agency is Working Through the Structure

Alex came to recognize that his incapacity to engineer a sustainable conversation of change as Science Coordinator in his own department, even in a “lighthouse” school, reflected his lack of moral authority to influence curriculum or staffing policy and hence teaching practice in a school. By 1999 when the State was seeking to make appointments at head office to develop and manage policy that would modernize both industry and school education, his working knowledge of the new technologies and his advocacy of technical reform in science teaching practice in the lighthouse school program made him an attractive applicant. Even though he recognized that the promulgation of rational policies and the provision of well-articulated resources did not
of themselves produce a committed grammar amongst teachers. Alex located himself in another conversation within the State Department of Education and Industry. Resigning from teaching to accept a policy development position in the public service.

**MAX - Teacher Agency is a Grassroots Voice in the Conversation of Change**

For Max, his appointment as the Professional Development Coordinator in his school, after his formative experience in academic teacher education, afforded access to the school’s conversation of change. While he positioned himself in that role as an advocate of the pedagogical use of new technology, the social structure repositioned him as an instrument of systemic and school change, as the assistant to the newly created office of the Learning Technology Coordinator. While accepting at one level this epistemological repositioning of his role aligned with a perceived teacher retraining function directed to a new curricular order, Max could not sustain the expressive function he found engaging as Professional Development Coordinator, as a committed advocate of embodied skills, in the new technologies. Conducting professional development for the school community under the moral authority of the Learning Technology Coordinator, Max lost his voice, speaking from a grassroots or ontological perspective in the conversation of change.

In 1999 Max reconsidered his ongoing contribution at his school. The next year his application for transfer as a Timber teacher to another school was successful. Max did not pursue coordination or the advocacy of the pedagogical use of new technology.

**LESLIE - Teacher Agency is Working with People**

For Leslie, she saw herself as her Principal saw her, as a people-worker in the State’s Virtual Science and Technology Centre project. She liked to work alongside teachers in schools as practice communities encouraging student engagement. She believed that agents of change like herself needed to engage teachers and students in authentic pedagogical activities, and that funding and appropriate training were essential for the use of new technologies in teaching practice. She believed that resistance to an innovation should be understood cognitively and emotionally, if not aesthetically and morally, from the perspective of the concerns of each individual teacher. She acknowledged that helping others with change was sometimes stressful, and her solution is to enter a private ‘professional zone’. This was an intentional space which
afforded resolution of the tension between duties she had to accept and responsibilities she embraced and from which her sense of identity as an agent of change was sustained and enlarged.

In the language game of change Leslie’s position on the social function of the new technology and her developmental ‘role’ changed from that of practical maintenance to an emphasis on the expressive transformative power. In everyday conversations in her actor networks she reflected on her re-positionings as transforming her professional self-identity.

In 1999 the State government announced that the Virtual Science and Technology Centre project would no longer be funded. Leslie returned to her primary school as a full-time grade teacher, retaining her responsibility for the coordination of learning technology.

**Reviewing the Chapter 4 Conversations in the Context of the Thesis Argument: Self Positioned Teacher Agency**

Reconnecting to the key arguments in the thesis, in this rendering of curriculum restructuring/transformation and teacher agency, ‘structure’ is understood as defining a ‘psychological’ space in which each of the actors is ‘acting’ in. There is not just one organizational structure: each dramaturgical account attends to different situations and the different organizational configurations that shaped them. (While acknowledging differences between organizational structures such as those of primary and secondary schools and between the private and the public sectors, it is not my intention to describe or analyse these differences, since the task at hand is to make sense of the dynamics of teacher agency.) Teachers enacting projects endorsed by individuals or groups located higher in the local moral order such as principals/headmasters or departments of education/school councils/boards of governors, are doing so within the organizational structure.

In this study the accounts of teachers are assumed to be referencing a ‘round table’ conversation - the discourse community - in which everyone knows each other’s biography. In discursive circles each person’s psychological location and possible relocation in the social order is on the table and in which roles/responsibilities in
relation to projects constitutive of maintaining/improving the existing organizational structure are distributed. The ‘regular staff meeting’ is the discourse circle in which the positioned practices constitutive of particular day-to-day acts and actions of the community are rehearsed but are already known in a general sense by Participants. In these discursive circles participants work out which people are ascribed duties in relation to the various maintenance/improvement projects which manifest the values of the community of practice. The associated responsibilities become personal attributes or role identities. That ‘at the table’ biography is as important as ‘how you see your self’ - your autobiography at any temporal and spatial location. In this sense the teacher-agents are expected to understand themselves in conjoint dialectics between cultural reproduction and self-cultivation and between social reproduction/transformation and self-improvement.

How interactions between cultural forms and self-cultivation unfold is uncertain. Individual teachers generally do not appoint themselves as agents like Alex, Max or even Leslie. ‘Oh, I have just found a new object. Let’s all use it in our teaching.’ People stop listening or leave the table/discursive circle. ‘Oh, that is nice for you.’ Why don’t you keep working on it?’ This is a typical response. The gatekeepers in the moral order are expected to position practices in the process distributing duties and responsibilities in relation to new resources, letting people know who are agents and who are not. This is the social-psychological context of the teachers’ agential account in Chapters 5 and 6. Alex, Max and Leslie however enact supererogatory positioning, they position themselves, in their acts and acting above their established duties and extending their own responsibilities in their ascribed roles in the local moral order as science coordinator, professional development coordinator, and classroom teacher respectively. In doing this they reimagine their agency as teachers generally and in their everyday roles and reclaim change.

The dramaturgical account affords the reader, both, an experience of the ‘structure of feeling’ of a period, somewhat outside analysis by the actors at the time, in this case when computer and communications technology were introduced to society and schools, and an ethogenic perspective on educational meaning making or personal and institutional identity formation. The changes are illuminated by the actors in their discursive practices occurring at determinate locations in time and space, in which they are located in narratives of school reform and educational change in which they were positioned and repositioned, enabling or constraining their practice in shaping their place and the place of others in an emerging analogue-digital future.
Alex, Max and Leslie, in their accounts of their pioneering pedagogical use of new media describe time-space detailed situations that at one and the same time are rooted in past time-space detailed situations and serve as the potential roots of future time-space detailed situations. Alex, Max and Leslie’s biographies describe their interactions/transactions with both digital technology and other users: as retrospective and prospective agentive accounts. The temporally and spatially specific actions, knowledge build-up, and biographies of the teacher participants in this study constitutive of the cultural and necessarily political life of teachers during a time of institutional disruption. Locating themselves in the discourse practices of school reform or educational change they address the moral imperative to construct new organizational ‘rules’ to govern the use of new technology. Typically conventional accounts of educational change describe new rules emerging from which new or modified practices emerged. The structures are seen as causal. However the teacher accounts in this study of their changed practice precede the emergence of changed rules even where an attempt is made to manage the organizational change. It is the teacher practices, discursive and non-discursive that are causal.
Chapter 5  A Private School on a Mission: Inventing a Technology-enhanced Pedagogical Practice

A Private School on a Mission: Inventing a Technology-enhanced Pedagogical Practice

A Drama in Two Acts

In 1996, the innovative decision by the Headmaster of Cyber Grammar (pseudonym), a small private school, supported by the Board of Governors required all Year Nine students to use Notebook computers in 1998. Teachers who were expected to teach Year Nine in 1998 were asked to plan the technology-enhanced year nine syllabus, and, as all staff needed access to computers the Headmaster (im)posed the mandatory technology professional development contract. In exchange for a Notebook computer, each member of staff would undertake 40 hours of computer-based professional development. What moved Cyber Grammar School towards the greater application of technology in their curriculum - that is in the cultural work of teachers? How is the school’s corporate identity maintained? "Who“ we are, where we are coming from, where we are going towards?” Cyber Grammar School’s corporate identity is the background of values, beliefs and norms against which its community of teachers, parents and students tastes and desires and opinions and aspirations make sense. The transformational account of A Private School on a Mission, presented here as a two-act dialectical drama, emerged from the verbatim recollections of the lived experience of Kim, Jessie, Sandy, Pat, Sam, Dale, Shannon and Devon (pseudonyms), which were collected during the 1997 school year.

Act One - The Actors as Role-bearers and Position-takers

Scene One:  Kim  Director of Computing
Scene Two:  Jessie  Chair of the Curriculum Technologies Forum
Scene Three:  Sandy  Director of Curriculum
Scene Four:  Pat  Newly Appointed Deputy Headmaster
Scene Five:  Dale  Subject Coordinator
Scene Six:  Sam  Secondary Teacher
Scene Seven:  Shannon  Primary Teacher
Scene Eight:  Devon  Primary Teacher

Act Two - The Actors in Conversation

Scene One:  “But They’ll Spend 40 Hours”
Scene Two:  “So I Was Talking To People Below 10 Hours”
Scene Three:  “This Is What I Want But I Don’t Know How To Achieve It”
Scene Four:  “It’s The Way Of The Future”
Scene Five:  “We Are All In This Together”
Scene Six:  “Let’s Talk About How It Will Be Used In Your Classroom”
Scene Seven:  “Hello, I’m From Cyber Grammar”
Scene Eight:  “They, Not We Are Doing Great”

END

Figure 8. A Private School on a Mission – a Drama in Three Acts
A Private School on a Mission: Inventing a Technology-enhanced Pedagogical Practice

After the actors are formally introduced, they present their accounts of the managed process of introducing the new technologies in classroom teaching in their school: of institutional restructuring and self-improvement.

Act One - The Actors as Role-bearers and Position-takers

As stage lights fade to black, a projection screen above the actors is illuminated

Narrator: Pat, the Deputy Headmaster welcomes you as you enter the foyer of Cyber Grammar School, and offers to take you to the staff lounge. Upon entering the lounge, you are introduced to a group of teachers seated in a circle, who were chatting among themselves. The staff in turn, introduce themselves: beginning with their role and then talking about the issues that were important to them in their quest to use or persuade others to use new media in their pedagogical practice.

Act One Scene One - Kim - Director of Computing

Kim: I’m the Director of Computing. The Systems Manager with overall responsibility for the administration of the senior and junior campus network. From my perspective as the Director of Computing I’m happy with our progress in implementing the school’s Notebook program. For me, it has been a combination of circumstances. The right staff. The right time. The Head. The previous Deputy with the vision. The turn around. The Board of Governors. To me, it has been putting the Notebook in the hands of staff. Not simply to say, ‘You can buy one if you want’, but actually to say to staff, ‘Here it is, and, this is the PD expectation’. It really has worked extremely well. But then again I am biased.

One thing I am conscious of is my role as Director of Computing … to make sure the use of technology happens with all students, in all classrooms. Not just some. … I am more logistical. … I might do the PD but really I don’t tell them
what to do. If … the Junior School tells me that they want to buy software, well it’s their money. I don’t try and control what they do. To me it is a carrot and a stick. What I am trying to do is put pressure on the faculties. ‘You have to do the PD and use the Notebook. The parents are paying money. But we are here to support you as much as possible.’ Sometimes you have to say, ‘Look, I can’t help you now, but see me later’. Like in week three, I was very busy with some hassles I was having with the network. I was probably hard to find. Last year I would have been the person that people probably went to first. Now … Jessie, was getting collared. Now there are a number of different people who can help. The expertise of other staff may be 13, 20, whatever. This is very, very good because it takes the pressure off … the two people - Jessie and me. But when it comes down to the nitty gritty, you know, the technical stuff, then you need the more experienced people.

Positioning Statement

Kim is positioned as the technology trouble-shooter for both the leadership team and the staff.

Act One Scene Two - Jessie - Chair of the Technologies Forum

Jessie: I’m the Chair of the Curriculum Technologies Forum. I developed the Notebook Implementation Policy. I also take multimedia training for staff and parents. I’m also a Geography and History teacher. I have been here for two and a half years. I was at … Quantum [pseudonym [College for eight and a half years before that. … And it would be - perhaps four or five years ago - a Year Seven team teaching project evolved involving a fairly low-level IT program. The school resourced Year Seven with class sets of Notebooks. Basically, they identified staff who were already actively using computers to teach a period a week. These teachers were also asked to help other staff develop skills and to develop programs for use in the curriculum. I was one of those people. And shortly after that Internet dial-up accounts were organised. … They sent me to a course out at La Trobe University on using the Internet. At the time the Web was still something that many people had not
heard of. ‘Wow! Gee, pictures and colours and all that.’ Not all the multimedia stuff that there is now of course. … That is where I started.

‘Okay. Here is this resource, how can I use it?’ That is largely what I have specialised in. You know, choosing computers for research techniques and so on. … At Quantum … I began recommending to other people who were starting off, ‘Try it this way’. ‘How about doing this?’ When somebody got stuck with a problem I would help them out. That is where it started.

After I came to Cyber Grammar the staff … were able to identify people who they thought knew what they were on about, ‘We will ask them about computers’. It has made life busy this year. But one of the good things about this staff is that it is very supportive and friendly. And I don’t mind spending five or ten minutes helping someone fix a problem. Yesterday a PE teacher was using a spreadsheet to work his marks. He had his percentages set to look up grade ranges - to put in the grade ranges automatically. This was great stuff which had been learnt at PD. But he had mucked up the formatting. They were set to percentages rather than ordinary numbers, whole numbers or decimals. So I just spent a few minutes showing him what to do. … If I can’t answer a question I will either say so or if I can ‘sus-out’ what they are on about I might give it a go, saying, ‘I might try this’. Nine times out of ten that might work. If the one time out of ten it doesn’t then I say, ‘I will speak to so-and-so who could probably help with this’. So I guess that is where I am at present.

In terms of my own computer use it is almost integral to the way I am now. The Notebook goes everywhere. … Whenever I am in my office I hook into the Network if I need to communicate with somebody. I check my email a dozen times a day. Sending email to other staff members, or whatever. It is just how things are. Worksheets straight into the word processor. Marks straight into the spreadsheet. And then checking things out on the Internet or whatever. Finding the next couple of good sources for a class. That is just how it is. I have to say that a lot of that has risen from personal interest. I am now teaching Info Tech. I have written quite extensively on the use of computers in the curriculum, and offer Professional Development for Subject Associations. It is just part of the way I am now. And is obviously part of the way I am heading with my studies next year, in Geographic Information Systems.
Positioning Statement

Jessie is a technology-aware, self-taught user, who is positioned as a facilitator.

Act One Scene Three - Sandy - Director of Curriculum

Sandy: I’m the Director of Curriculum. I chair the Computer Reference Committee, which monitors teacher Professional Development activities. For teacher PD we have relied on a model here of the willing volunteer. ‘Look, Kelly, you know a little about Word. What about doing something next Wednesday night?’ … ‘If I have to? Yeah, all right. I don’t know a lot about it, but I will have a go’. So you go along to a group of your colleagues and say ‘I don’t know much but we can work on this together’. And because you have got that atmosphere the colleagues, who come, the half a dozen who come to your session, don’t feel too threatened. They don’t feel too overwhelmed. And you finish at the end of the hour with nobody learning a huge amount, but people feeling much better about themselves.

I think it has been the strength of our computer policy formulation and monitoring of practices that we actually have that group - the Computer Reference Committee - that meets regularly. … There is a cross section of staff represented on this Committee. It is not a decision-making body. It is a forum for the sharing of ideas, or raising issues to pass on to those who do make decisions. … We looked at the Current Practices Document, which is … student policy on student behaviour with computers. We went through and made changes.

How to book the computer labs was another practical issue for the Computer Reference Committee. ‘Why some teachers … got themselves non-computer classes permanently booked into computer labs?’ A sweetheart deal between them and the time-tabler! That was something we found out about, and realised that that was wrong. So it was a forum to discuss that sort of thing.
I think we have taken reasonably seriously the attempt to bring the Notebook program in next year. … Having got the skills levels up - we now have to let the grassroots ‘classroom practices’ model take over. A good professional will see someone else in the next room doing something better and will say, ‘Hey, maybe I will have a try’. I am trying to do an assessment exercise for the end of the year exam, except I want it done in the computer labs, using the hard drive for students to respond to some poetry. … Now, I have to take the Form Three [Year Nine] Result coordinator, the Form Three English coordinator, and the Form Three English teachers through the process. So, that is where I see the PD for next year. That kind of thing.

Positioning Statement

Sandy is positioned as the diplomatic persuader, professional development critic and advocate of ‘grassroots’ classroom practices.

Act One Scene Four - Pat - Newly Appointed Deputy Headmaster

Pat: I have recently been appointed Deputy Head. I have found that being a learner again was very interesting. During the school holidays I participated in the computer-based professional development program. In one of my early sessions I had a former student, now on staff, and … running the computer session. That was just a terrific experience to have this young female teacher running the show. In my previous contact I was the teacher and she was the student. Suddenly not only were roles reversed but she was also doing a lot of the teaching. And that intermingling has been very beneficial. During this program of Professional Development it has for many been the only time they have had to socialise sitting in the classroom together.
Positioning Statement

Pat is a teacher repositioned as learner.

Act One Scene Five - Dale – Subject Coordinator

Dale: I’m the SOSE Coordinator. I chair the Study of Society and the Environment. And I teach in the Junior School. For me, I need to be a step ahead of the children so that I can use the Computer appropriately in the classroom. Use it effectively. I don’t think that there is anything worse than … being in the classroom having an idea of how to use Multimedia. But, when you get it up on the screen, you think, ‘Can I remember which drop down menu it is on?’ Things like that. Because that’s a waste of time for the children. They’re paying good money to have my professional advice and waste as little time as possible. Therefore, I suppose my main aim is to be able to use the technology effectively and efficiently in the classroom. So that it enhances the classroom and is not a burden upon time: my time or the children’s time.

I suppose I want to be able to use … the technology as a vehicle of expression, both for myself and for the children. For them to be able to write to me using email. For them to be able to use it to research information and then communicate that information. To be able to use … multimedia applications, like Scala or PowerPoint, to present information that they’ve found out to the rest of the class. I’m still deciding as to whether Scala or PowerPoint is the one I would like to use.

There is no way I can ever say that I’m an expert. I think that that comes down to time. I just don’t have the time to sit at the computer for hours on end to learn the ins and outs. I suppose I don’t have the patience for it either. Personally I would like to learn as much as I can about the different programs that will put me in good stead to further my career. I suppose furthering my interests. Because I have got an interest in the computer side.

Positioning Statement

Dale is positioned as a self-improving pragmatist.
Act One Scene Six - Sam - Secondary Teacher

Sam: I’m a senior English, Economics and Outdoor Education teacher. I’ve recently completed my Masters of Education thesis. I asked the question: ‘The Internet is it Emancipatory?’ In my research, I was looking at … how students were forging relationships with each other and with their understanding of what the Internet could offer them. The question was, ‘Is it offering them a new liberated autonomous view of the world, which was less dependant on the conventional paradigms of teacher-learner?’ I was reluctant to draw any conclusions because of the limited nature of the study. … Because I could see that there were a number of factors in the school setting which - if they were somewhat different in another setting could have been more beneficial in that emancipatory sense. But there were a number of constraints in the school setting which to some degree were being loosened. Even over the course of the study, things such as access to the equipment improved. I looked at students’ intent in designing, developing and managing the school’s website: how much of this was imposed on them and how much of it was something they sought for themselves? Those sorts of power questions. Power and control questions - are essentially the ones which tended to reduce the emancipatory benefits that I could see. Nevertheless, the school did loosen its hold on these students over the course of this study - to some degree because of the feedback that I gave the school as a result of my interim findings. … There was definitely at the time I was studying the group, an emancipatory value for the students, to what they were doing and the way they were doing it.

It was a very small group. The way in which they were working - self-directed, minimal teacher supervision - was not accessible at that time to the greater populous of students. There were … also questions of equity being raised. ‘We
have a sort of a super-group here. That is all very well for them but how do these pedagogical benefits flow on to the wider group? Especially for students who do not have the same access. Or who may not have the same desire to be involved in this project.’

I was interested in the fact that what these students were being offered was a risk-taking venture. To a great degree, it was a risk-taking venture for the school. Because the school was magnanimous - some may say silly enough to put themselves in a position of allowing the students almost complete control of what they were doing. They were constructing the school’s Web pages. The point when the school will consent to allowing students to design, create and upload the Web pages in total - on their own as students not with the censorship of staff and the issues which involve the public face of … the school. … When the school can do that, it will be able to say that it is liberated. So, it is not just for the students, the emancipation. It is for the school as an institution also. That was another strong and growing element that became more and more apparent as the study went on.

To me the appropriate pedagogical use of new media would have the staff member prepared to say to their students: ‘What I am going to teach you will teach you not to need me.’ That is an incredibly bold and courageous step for anyone to plan their own obsolescence. It is not necessarily going to happen in the next generation. It is happening already though in many ways. But (a long pause) there is a question of the courage of the staff involved to be - without implying any sexism or chauvinism - to be man enough to say, ‘there is going to come a time when I am not going to be needed like I am needed now’. But, am I prepared to change to what is going to be required of me?

So, a few years ago when I was at a point in my teaching career - I was still at the early end of it - and I thought if I was to remain valid as a professional it was my responsibility to make sure that I get myself an adequate level of familiarity with the technology. … Being an expert is not something I am interested in. … Being a facilitator is where it is at for me. You don’t need to be an expert to be a facilitator. … I enjoy helping staff … doing their professional development. Last night, I was teaching them about some of the drives that we have on the network. I really get something out of that. There is a fulfilment there because I am in a position to help people who I see were perhaps in my shoes now but I
was in their shoes two or three years ago. … I realised that I was becoming one of the … staff who was … interested in learning about the technology - … as well as helping others learn about it. … I started to see that I had something to offer other people without being an expert.

Positioning Statement

Sam is positioned as a pedagogical idealist and activist sensing the dissolution of the macro-micro divide in the everyday interactions/transactions of staff, students and the new media.

Act One Scene Seven - Shannon - Primary Teacher

Shannon: I’m a Grade Six Junior School teacher. … When I heard about the decision to network the school and for the staff and students to use Laptop computers, I guess my initial response was one of mixed feelings - ‘Yes, it’s terrific that we’re taking this step’ - because … there are children in the classroom who are in advance of you. And you think, ‘I need to get a hold of it - you know, using the computer’. And then the second reaction is, ‘It’s scary’, because the amount of time that it deserves to learn these sorts of tasks, is time that’s virtually our leisure time, which is once again going to be eroded. However, I think that the way the school’s gone about it here, providing us with an incentive - (tapping the Laptop) - well it’s an incentive - this package here in exchange for 40 hours.

I now bring … my Laptop … to and from school on a daily basis. When we first got them that was not the case. It was cumbersome. It was annoying. It was an extra thing apart from the corrections … that you had to do. It was something else that you had to carry. Because of the geographic spread of our campus - to make things efficient, email is probably the thing that we use the most. To inform. To delegate. To call a meeting. It’s just so easy to forward on information that you get. I mean whole distribution lists. The whole thing is just so easy and so quick. That’s something that I praise. I think it saves us walking all over the place putting things in pigeon holes. Waiting for a response, which are often too late. In a busy school this is the best thing that’s happened since ‘sliced bread’. So I would say that most staff would use that program … Pegasus
mail, more than any other. Just in a daily routine of admin that they have to get through.

So my Laptop is on my desk every day. Receiving and sending email. You can do it virtually straight away. I was a bit reluctant to do that - email - in the first place because I thought, ‘Look, if it’s there I’m going to neglect my teaching duties. I’m just going to play with this thing - the computer, the Internet’. That hasn’t really happened. I mean I’ve got it open and the programs are working. I tend not to do that - waste time - and I still get done, work that has to be done. I find now I word process their assignments and their assessments. So it’s all professionally done. It’s easy because I’ve got the Laptop … connected to the printer. I can do it, you know, print on the spot if I wish. Databases, scores, tests, assessments. Very, very easy.

The 40 hours professional development can be done in many ways. You can be a learner or you can be a teacher. … I think the professional development sessions have been very good. I think I’m at a stage where I’m ready for the next stage. I don’t want to go back and have repeats of any of them. I’m ready to go on to the next stage. Yet there are some programs that I still need to go over at a very basic level. The multimedia ones, are the ones … that I’m avoiding.

I sometimes find the professional development comes not necessarily when you want it to come. You may be working on a program with the children. However, what’s on for the week in PD might be something quite different. So the need to learn specific skills through whatever work you’re setting up for the children isn’t there in this week’s PD. So, you tend to go away from the PD session often forgetting what you did, unless you go home and practice those things.

For me the most productive learning takes place when I’m in the classroom. When I say to one of my Grade Six students, ‘Is there a quicker way I can do this? Come and show me’. The kids will just say, ‘Oh! It’s control X’. Or, ‘No, do this’. I’ve got it. Because … I am right in the middle of what I want to do. That’s when the learning takes place more than anything. I find the menu or the help menu in some of the programs don’t give me enough specific information for what I want to do. Sometimes I’m not prepared to spend the time drifting through the ‘maze of little help boxes’ to find out what I want to do. Once again I’ll call on the kids or I’ll go to a member of staff who knows the way it’s done.
I guess it’s been a big adjustment. There’s still a lot to learn. I just think that it has to be done. The teachers who find it too threatening … they’ve either left or they’re still a little bit tentative about it. Probably not using their Laptop to the best that they can. I think that you’ll find after this 12 months that the Laptop has been there. It’s been easy to use. It’s been accessible. It works. So, why not use it? I think that that’s been the idea. The 40 hours that people roll their eyes at - I’m of the opinion that if the PD is going to be provided, take it. It doesn’t matter how many hours you do because you need these skills as a teacher. The 40 hours really don’t worry me. Whether I go over or whatever.

Positioning Statement

Shannon positions her computer as her personal assistant and students and staff as her personal tutors.

Act One Scene Eight - Devon - Primary Teacher

Devon: I’m a teacher in the Junior School. I teach physical education in Grades Four, Five and Six. I take sport, gymnastics, and swimming. And I’m a Preps to Grade Three Special Education teacher. When they announced the Notebook program I was thrilled. Couldn’t believe it. I rushed in to get the Notebook before Christmas. I took it away on holidays. I started playing around. I think it’s marvellous. The school would never have had the staff so computer literate without providing Notebooks and PD for teachers. … I think - at the school - if you’re not going to go along. If you’re not going to be doing this 40 hours professional development. If you can’t keep up. Well, this is not going to be the school for you. …

I think that everybody has latched onto it the PD and run with it. All you’ve got to do is say, ‘I don’t understand’. And you can go to Word-basics PD four times if you want. I heard one staff member, one day, say, ‘Oh, that’s basics’. ‘I don’t think I could go again, although I wanted the hour.’ If they’re not catering for you, it’s your own fault for not speaking up. I mean, Sandy keeps sending out forms, saying, ‘What do you want next term?’ If you don’t send it back in, well you don’t have any right to complain about what’s there.
I think that my level of usage is pretty good for the position that I’m in. Now if I was in a classroom it would be different altogether. I prepare a lot of work for my special ed children. I suppose once I would have handwritten the instructions, notes, activities, or just sort of ‘plonked’ it into a word processor. Now we’re bringing in other programs, as well as the word processor. I certainly keep all their records on computer. … In a way I sort of feel that I miss out not having a grade because I could be doing a lot more. But as I say, we use it all the time as a teacher based resource. It would be fun to do more with the children. I hope to certainly do that next year.

I suppose there are the old concerns about, ‘Are they ever going to learn to write properly?’ They don’t really need to any more. Well, does it matter? I don’t know. I haven’t quite sorted out about those things yet. … At home, I tend to still go to an encyclopaedia that I know, when I’m looking for something. Whereas the girls will go straight to the computer. I’ve got to make sure that they still keep all those skills for ‘looking up’. For researching things. I don’t know whether they’ll go entirely to computer based skills. Will we eventually do everything on the computers? I don’t know. I’d like to keep a balance just to make sure. … I’m a bit of the old school. I don’t know. I’ll have to wait and see how it changes. I think from the traditional line. I’ve got concerns. I just don’t want the children taking the easy way out because it’s easier to find things on the computer. I want to make sure that they can still do research - the other way - using library sources. But then, is that going to be outmoded anyway?

I did a course a while ago. A fellow came in and did this calculator session. By the end of the session, I believed everything he said. ‘Every child should have a calculator. They should be doing this, this and this.’ Whereas I was the old school. You know. You had to know how to do it all by hand or in your head. Students, now ask, ‘Why do you need to know how to do long multiplication?’ ‘Why do we have to waste that time with a pen and paper when we can just do it on here - the calculator - very quickly?’ Whereas we had to understand it - working out the answer. Yu know, it was sort of anti-calculator. Well by the end of the session, I had turned around completely. I absolutely believed what they said. I came back to school thinking, ‘Oh, we’ve got to get more calculators in here’. But, it’s the same thing with computers really isn’t it? Are we going to have to go back a step, I don’t know, to basics? I guess the next generation will
cope better than we will because we’ve still got all those old methods ingrained in us to try and get passed. Don’t we?

**Positioning Statement**

Devon is positioned as a gatekeeper who is uncertain as to the pedagogical merits of new media.

**Act Two - The Actors in Conversation**

As stage lights fade to black, a projection screen above the actors is illuminated

**Narrator:** In September 1996, the Headmaster announced to staff that in 1997, the school community would embark on two technology-enhanced initiatives: to computerise the students’ learning environment; and, to improve the computer literacy of the staff. The intentional actions of the Deputy Headmaster, several technology enthusiasts and two technology committees: the Computer Reference Committee (CRC) and the Curriculum Technologies Forum, a sub-committee of the CRC, created the circumstances and contexts necessary in actualizing the Headmaster’s reform agenda.

**Act Two Scene One - “But They’ll All Spend 40 Hours”**

**Fullan’s Homily One for Managers of Change**

When complex change is … [needed], people do not and cannot change by being told to do … [it!] Effective change agents neither embrace nor ignore mandates. They use them as catalysts to re-examine what they are doing.

Michael Fullan, 1993:24
The following exchange between Kim, Dale, Sandy, Pat and Sam takes place in Sandy’s (Director of Curriculum) office after reflecting on the question: Does your rhetoric match your practice?

**Kim** (Director of Computing): Except for the Headmaster, all staff at Cyber Grammar School are expected to undertake 40 hours computer-based professional development.

**Pat** (recently appointed Deputy Headmaster): The Junior School teachers are also involved in this program. They have also been provided with Notebooks. … Each of the teachers in the Junior School is expected to be included in the 40 hour PD program.

**Dale** (Subject Coordinator): It was interesting the way … the technology initiative came about. … It was announced by the Headmaster that we had made a deal with NEC (Australia). And people said, ‘Oh! That’s good. That helps us’. I think that was the first announcement. The second announcement that you will all be given a Laptop. … People were quite excited about that offer. The third announcement came in segments. It … filtered through … our Deputy Head. Our Deputy Head of the Junior School. ‘You’ll be required to do 40 hours professional development.’ … Then it was announced that all staff were required to be involved with parent evenings. This is where I may have been asleep but I don’t necessarily remember that being said at the start of the year. It seemed to come in half way through the year - this … requirement.

**Kim:** Sandy … is the keeper of the hours. The record-keeping process is an honour based system, where teachers complete a written proforma indicating the particular activity attended or presented and the number of hours they want credited.

**Sandy** (laughter, looking through a folder): There is an interesting document if I can find it. … The Headmaster has made the policy clear from the end of last September, 1996. We have known for the last twelve months what to expect. … I don’t have it here, but I do have it somewhere. Ah, it is a memo from the
Headmaster that said: ‘If you are not keeping up to date with this, you are making yourself unemployable.’ And I think that is true. I mean, I think that is a hard thing to say but I think it is true. Here it is. This is in ‘Notes to Staff, 16 June, 1997’.

… (reading from the document):

I am pleased by the amount of in-service that staff have undertaken. A few staff seemed to have lagged behind in this vital area. I want to make it clear that the deal was that the school would provide computers for every member of staff free of cost. In return every member of staff would undertake 40 hours of Computer Professional Development, each year. Staff would also administer a program of computer instruction for parents.

There is no future for teachers who are not totally computer literate. Next year all curricula in Form Three [Year Nine] will be taught with the aid of Notebooks. There will be regular monitoring of the use of Notebooks, as there is of homework, notes and standards, etc.

The degree of computer awareness on the part of individual members of staff cannot be taken into account when allocating classes at Form Three level. Those who cannot swim will simply sink. If there are any staff who are not coming to terms with this issue they must realise that they are making themselves redundant.

This is not a decision on my part or on the school’s part. It is simply a fact of life as it is lived for teachers in 1998. I therefore urge the few whose professional development has so far been inadequate to correct this with a degree of urgency. (Headmaster's memo, June 1997)

**Kim:** In some ways this requirement of the 40 hours really put a bomb under those people who were reluctant or apprehensive or who were down right terrified of having to use a computer.

**Dale:** It’s only been a couple of years that I’ve use the computer, but this year is the one. You know, because of the 40 hours requirement and things like that. I think that’s been the best thing as far as staff is concerned. As far as my own
development is concerned. Whilst you’re forced to do it - the 40 hours - you can pick and choose what is valuable to you. I honestly don’t believe in doing everything in those 40 hours.

Sandy: I think in retrospect it was probably an unwise a thing to expect to be so precise. But I think it arose from the fact that the Headmaster had to sell that to the Council, the cost of providing Notebooks. And I think it was a good thing to say - ‘But they will all spend 40 hours in their own time.’ That doesn’t seem a lot, when you say it quickly last January.

Dale: I think that the 40 hours have been great. Everyone talks computer language now. … I think it’s a great thing walking into the staffroom where people are talking to each other and you’re not afraid to say, ‘Look, I don’t understand’. ‘Can you show me?’ This learning culture within the school is a very healthy thing. I think … that in this school situation teachers are learning also and being given the opportunity to learn.

Sandy: I have been extremely flexible about how I interpret hours. And it has not been a rigid thing. Someone says, ‘I went off to a STAV meeting at Swinburne and we looked at Biology. And in the course of that we had about two hours on a computer’. I will credit two hours. That’s fine. … I get little notes saying, ‘I sat with Stan last night for an hour and he helped me set up my marks book in Excel’. It doesn’t have to be formal PD. But they need to let me know, if they want the figure recorded. … I try to be generous with the allocation of hours. The point is not to trip people up. It is to encourage them. I suppose each time I put it on the board I might get two people saying, ‘Hey! I think you missed out a piece from here’. It is more likely that once I have put the information on the board, people say, ‘Oh! I forgot to tell you. Can you put it down for me now’? ‘Sure. Just write it down on a piece of paper and give it to me.’

Sam (Secondary teacher): I came from a sceptical position. At Cyber Grammar School I learnt to feel comfortable about having a computer in the room with me. … I learnt to use a Mac which we had in the English workroom. … I realised that I would benefit immensely if I learnt to touch type. Which I did. I enrolled in one of the school sessions which were run for students or staff for the
first couple of years. I was one of the sceptics. I was one of the people who thought that the Internet and all that went with it … was all just marketing. It seemed to me that that was the main thrust. It was more matter of keeping up with the other schools rather than offering anything that was genuinely educationally valid which was underpinned by research and would not be outdated in a couple of months. So here I am – a firm believer that the technology really has something to offer us. I am using my Notebook: checking my email, sending things around the place. … I am the reformed sceptic. … That is a healthy thing to have been, a sceptic. Because what I now believe in has come to me because I have come to it. It has not been something I have simply opened up to and said: Yes, I’ll swallow that. It has taken me a while to get there - to accept the educational benefit of the technology.

Ethogenic Interpretation

Mandates create conditions of compliance and/or resistance. Under mandatory conditions, personal action is interpreted within the local moral order as either compliant or resistive. ‘Attendance’ signals ‘compliance’ while ‘non-attendance’ infers ‘resistance’. Where mandates require monitoring, non-compliance raises the spectre of sanctions. Resistance is a complex psychological phenomenon constitutive of teacher reasoning and reflexive action. Intentional action guided by the local moral order is more complex than knowing what one should or should not do. What I may do - what I have permission to do - is not the same as what I can do - what I am able (physically, psychologically, emotionally) to do. While the storyline justifying the mandate is couched in terms of a plausible rationale, reasons for non-compliance (ideological, personal/family) are considered problematic by managers as they have the potential to challenge the local moral order, and therefore, are less likely to meet with approval. However, managers who exercise discretion in the interpretation of what constitutes ‘compliance’ create ‘new’ rules for fulfilling the spirit of the mandate.
Act Two Scene Two - “So I Was Talking To People Below 10 Hours”

Fullan’s Homily Two for Managers of Change

Productive educational change, like productive life itself, really is a [conversational] journey that doesn’t end until we do.

Michael Fullan, 1993:25

Narrator

The following exchange between Kim, Sandy, Devon, and Sam takes place in Sandy’s (Director of Curriculum) office after reflecting on questions concerning staff attendance of the 40 hours professional development program.

Kim: I think most staff are doing pretty well. Maybe some are having difficulty.

Sandy: I think in fairness to those who have taken it conscientiously and have taken it seriously, we do have to enforce some kind of monitoring. I mean the Headmaster has been quite clear about the policy. We have known about the need for professional development for the last twelve months. (Flipping through the ‘records’.) So these blokes haven’t done much. … Some of them - half a dozen of them - will say they will leave. That is their choice. But at this stage of the year - it’s now October - I have done two things. First of all, at the end of June I sent this gentle letter to selected members of staff:

‘You are aware of the policy. You know what we are working towards. The Headmaster has required this. It is half way through the year, I expected you to be on about 20 hours. The figures I have suggest that you reached a quarter of that.’

… So I was talking to people who were below 10.
‘Are my figures wrong? Don’t you like my training procedures? If you have got good skills and don’t need to come why aren’t you offering to help other people?’

And I sent this. A few people came to me and said, ‘Oh! That’s all very well but I don’t have the time’, or ‘I will do this’, or ‘I’ll do that’. And as a result of that reminder, I have seen some people with quite high hours now.

**Devon** (Junior School teacher): At the moment I’m struggling to reach my 40 hours. … Last night I thought, ‘Quick, what can I go and do an hour of?’ It also encouraged me to do a parent session. I probably wouldn’t have done it otherwise. I’ve got to madly go and do another parent session because you get double hours for that.

**Sandy:** We have now got a scenario like this. We have a scenario where the Junior School staff - the primary staff - are all well on the way to meeting their 40 hours. … I could really turn off now to the primary staff. So they are basically together and have met the spirit of it. … This is not so with some of the Senior School staff. I am sending this letter to Senior staff. (Reading aloud): ‘The Headmaster required you … according to the figures you have completed X hours’. I will fill that in. And I will send this as individual letters.

‘If my figures are wrong get in touch with me. If the training provided hasn’t met your needs then I hope you have communicated this. We would be glad if you had offered to help others. If I can help let me know. The whole PD program has not been for the development of computer operators but for confident and professionally competent teachers who are able to adapt new technologies into their routine classroom practices, in order to improve the learning experiences of the students.’

… (selecting another document): This is one which I am sending out with this special paragraph.

‘As a Senior member of staff I believe your example is watched by and is crucial to others. Your personal adoption of an electronic culture of
communication and the modification of your own classroom practices to incorporate the new technologies is crucial to the success of the school’s program. All staff are asked to write a note to … Jai [pseudonym, the Director of Staff Development] telling him how you are going to meet your 40 hours before the end of the term.’

**Devon:** I think the idea of 40 hours PD is very sound, I suppose. Though I’m not sure whether we have to do 40 next year as well. If that’s the case, I think certainly the program will have to change.

**Kim:** No decision has been made as to whether the 40 hour PD would be an ongoing obligation by all members of staff. It has been considered that in future years there would be two categories of staff, those having undertaken the … Cyber Grammar School professional development program and those who had not. Additionally, new staff would possibly have different computer literacy skills and knowledge on how to incorporate learning technologies into the curriculum. Some alternative ideas have been canvassed including the notion that existing staff may be required to undertake 15 hours of computer-based professional development, while new staff may be required to undertake 30 hours. However, it was recognised that such ideas were speculative since there was no data or models from which to base these decisions.

**Sam:** So the ongoing expectation of 40 hours - I think in the Review process by the Computer Reference Committee, the Heads and the other people who deal with this - I think if they don’t look at the quality versus quantity question then they are looking at the wrong things. Twenty hours of really well spent PD is of course going to be more worthwhile than an ad hoc 40 hours. A bit here and a bit there was useful. But, I did the bit in the middle because I needed the hours. … So that is a problem that I can see.

I am probably not involved in the PD program as much as I could be. … I have all these other things that I need to do. I am fairly sure that I will get close to the 40 hours. So I reckon I will be alright. And I am leaving at the end of the year to travel. So they can come and get me in Nepal if they want to. They may send me an email: ‘You can run but you cannot hide!’ (Laughs.)
Sandy: I think we have to let the grassroots - having got the skills levels up - we now have to let the grassroots ‘classroom practices’ model take over. A good professional will see someone else in the next room doing something better and will say, ‘Hey, maybe I will have a try’.

Devon: What about employment? Are there any strings attached to employment?

Jessie (Chair of Curriculum Technologies): I actually asked that question last night. We are all presuming that in the interviews of staff … one of the things that will be sought after is technology experience. Even if it is not for a technology position. I would say that an English teacher or a Maths teacher coming in would want to have a good grounding in the use of computers in the curriculum, somewhere, somehow, before they are seriously considered. We have now got a highly trained staff. To keep bringing in staff who has absolutely zero computer skills isn’t in anyone’s best interest. So while I can’t say for certain - you would have to ask others - whether this level of expertise must be required before, you get a job here. I would say it is fairly implicit in the interviewing process, that this is an expectation. But I can’t say for certain.

Sam: The sense that I have is that we are going somewhere that we don’t really know where we are going to end up. It is one of those magical mystery tours. ‘Get on the Bus. Where are we going?’ It doesn’t matter, but we are going to have a lot of fun getting there.’ That is the sense I have. I mean I am enthused because I was a sceptic, you know. This is like a reformed smoker being the worst evangelist.

Ethogenic Interpretation

Role-bearers in monitoring mandates invent rules and negotiate the meaning of compliance. In the conversation of change, role-bearers responsible for monitoring mandates can be positioned either as the ‘bureaucratic enforcer’ or they can reposition themselves as the ‘diplomatic persuader’ through their dialogical interaction with teachers who they position as non-compliant or with teachers who have positioned themselves as resistive. The diplomatic persuader’s interpretation of compliance together with the rules of compliance they create affords teachers Intentional actions to
be continually positioned and repositioned as compliant, non-compliant or resistive. Teacher’s intentional actions are in turn informed by their participation in the conversation of change as they challenge, speculate on or interpret the ‘new’ moral order as constraining or empowering their personal agency.

**Act Two Scene Three - “This Is What I want but I Don’t Know How to Achieve It”**

**Fullan’s Homily Three for Managers of Change**

Successful change management requires problem-finding techniques like ‘worry lists’ and regular review of problem-solving decisions at subsequent meetings to see what happened. Since circumstances and context are constantly changing, sometimes in surprising ways, an embedded spirit of constant inquiry is essential.

Michael Fullan, 1993:26

**Narrator**

While on a guided tour of the school’s computer facilities, Change managers, Kim, Sandy and Jessie discuss the problems that arise and how they deal with them.

**Kim** (entering the Network Centre): We cabled the school during the Christmas holidays - December to January this year. … We now have … an ATM network. … This is the Hub or nerve centre. … (Moving towards Paul, [pseudonym]) Paul is our fix-it Systems Administrator. It is interesting to have someone like Paul to work in an environment, where it is not a business environment. In a business environment he would be able to tell people that in the next two hours that the network will be off. Whereas in a school environment there are CATs - you know, the Common Assessment Tasks - going on and students doing work. … One time Paul rang me up about 12 o’clock and asked if he could have the network down. I said No! Because it is such a different environment than a business environment. … Most times I say No! This time I have said Yes (laughs). I have had warning for tomorrow. This time Paul needs to have the network down so he can work on it. I will talk to the staff. (Leaving the Network Centre.)
… (on the way to Sandy’s office): Paul is good because he pushes my ideas. I need somebody to be critical. Paul knows what is possible. Sometimes I ask Paul something which is not possible, and Paul will tell me. Sometimes he will say to me ‘Why aren’t you doing that?’ I may not be aware of that possibility but Paul does. I see this as a good mixing between the educational wish list and the technical side of things. Most people don’t say to the technical people ‘This is what I want, and I don’t know how to achieve it’. My idea is that you ask for everything and if you can get back half of what you want, then it is a bonus. And maybe you get back a bit more because they say, ‘Have you thought of doing this?’ And I say ‘No’. Paul is good value in this way. He often says, ‘What are you doing that for?’ And that is what I need.

… (walking across the quadrangle): You may be interested in the Computer Reference Committee which meets every Tuesday morning. … We also have a Technology Forum, which is a small group interested in curriculum development. … You should talk to Sandy and Jessie about their roles, because my views about these things are probably different to theirs.

… (Knocks on the door before entering Sandy’s office. This is followed by the ritualistic exchange of greetings.)

We were just talking about the Computer Reference Committee and the Curriculum Technologies Forum.

Sandy: You could have come this morning, if I had known that you were interested. (Handing you two documents.) That’s what we did last week. That was the Agenda for today. The Computer Reference Committee has attracted criticism in that there is no Maths person on it because the Head of Maths doesn’t want to be involved. And the woman who comes representing Maths is not one of the leaders in the field. Basically, the people who come along are movers and shakers. That’s the crucial issue. So you have got committed people who really are thinking through issues rather than people who are there for their status or position. I have had a lot of flack from that, because people say, ‘Why is it not representative?’ ‘Where is the official body?’ I said:
We have plenty of official bodies. We have Heads of Faculties. We have a Policy Committee. We have got Heads of Houses. We have got all those forums. But this is just for the ‘movers and shakers’ - which is to really move and shake each other. I guess if I can put it that way.’

… There is a cross section of people represented on this Computer Reference Committee. It is not a decision-making body. It is a forum for the sharing of ideas, or raising issues to pass on to those who do make decisions. These are the types of issues (referring to the matters on the committee’s agenda/minutes - pausing while scanning the document) - issues like the printer in C1 are an on-going irritation. It is now fixed, although it has been on the agenda every week. So, it is the kind of place where people could bring that up (pause, scanning). The Junior School scanner is now working. Some computers are not working. This was the first time that we found out about that. So, it was the avenue for the Junior School person to tell us, without exposing themselves to risk from above.

… We looked at the Current Practices Document. … Current Practices is student policy on student behaviour with computers. We went through and made changes. Then that went through to the School’s Policy Committee for approval. The essence of it was that we wanted to know whether teachers had the right to check what students were doing with their email on their Notebook computers. ‘Was this email private?’ The conclusion was that it wasn’t private but we shouldn’t be looking at it without the student being there. We used the analogy of the English journal. So long as it is at school it is a school document. Teachers had a right to see it. It is not a private thing. So, email that they are doing at school is not private. This is the conclusion we came up with. The Systems Administrator would have the authority to look at students’ accounts. … He does not do that without the kid being there.

… returning to the agenda): Jessie, the Chair of the Curriculum Technologies Forum reported on the progress of their work on classroom practices with Notebook Computers. ‘How do you actually change the classroom environment, when you have a Notebook computer?’ ‘What are the discipline measures when students don’t bring to class their Notebook Computer?’ All that sort of thing. So this is how we keep everybody up to date on what was going on. The Curriculum Technologies Forum - a sub-committee of the Computer Reference Committee - was partly political in that a couple of people wanted a bit more status. So, we said, ‘Why don’t we have a sub-committee?’ There were some
real technical issues. Like, ‘What are we doing with the ‘S’ drive?’ ‘How is it different from the ‘X’ drive on the mainframe?’ And, ‘Is that clear to teachers?’ Staff wanted to know the answers. So too did Kim in his role as the Director of Computing … needed some advice. So, ‘Let’s get together a group of people who could work through these issues’.

**Kim** (sitting at the computer): I have emailed Jessie to join us.

**Sandy:** Now, the Curriculum Technologies Forum which Jessie chairs has developed into a committee that has looked at how we are going to actually teach computing. How we are going to set up computing in classes next year with Notebooks. So, there are some policy issues that we have to refer to the Headmaster.

**Jessie:** (Knocks and enters. Ritualistic exchange of greetings.)

**Sandy:** I was just explaining about the work of the Curriculum Technologies Forum.

**Jessie:** Okay. So, I’ve been chairing a small group, the Curriculum Technologies Forum of the CRC which has been brainstorming … a list of possible classroom situations that we have come across. Just one line questions. Once we had the list established we explored possible solutions. For example, ‘How do we get attention from the students?’ We try to get three or four different strategies that might apply depending whether you are using Notebooks in a normal classroom, or desktops in a lab. Whether the students are older or younger. It is surprising how simple something like, ‘Turn the monitors off’, stops the kids from logging on at the beginning of the class until you are ready for them to do so. ‘Close the lids on your Notebook.’ Those simple things are not immediately obvious to staff members who have never had computers in the classrooms. So, we are trying to put those sorts of things on paper. We have done that largely. We are now at the point where through the next month or so we will be workshopping some of these ideas.

**Sandy:** We are developing these strategies into a practices document which Jessie and several other members of the Curriculum Technologies Forum …
will workshop with groups of staff. We are planning to do this in November …
over four nights. We will ask every member of staff to sign on for one of those
four nights. We will take a group of about thirty staff at a time. ‘Bring your
Notebook. Plug it into the network. You are the class. Now these are some of the
problems that you might have.’ We will take the document that we have
prepared and we will workshop it with them. And then as a result of staff input
we will then finalise what we will call a Common Practices Document for
Classes with Notebook Computers. This will be PD for them as well.

**Jessie:** We think it is important for the staff to be able to make sense of why they are
using the technology and to apply it appropriately on a personal level. Not
because someone said this is a good program, teach it! But to gain that
understanding, while getting the classroom management side of it down. It is all
very well teaching teachers how to use the computers. … But you need to have a
plan ‘B’ always in your mind. Like when the network is down. When the
Internet is down. When a kid cannot get his Notebook working. You have to
have plan ‘B’. You cannot say, ‘Sit there for the period’. That is not an option.
And that sort of flexibility in thinking on your feet develops with experience.
We are trying to point other staff - on the basis of our experiences - in the right
direction. Or at least give them some starting points.

**Sandy:** It is simple things like that. It is nothing profound. But, we need to
make teachers aware of some of those practical issues. And that is where I see
that committee doing a great job.

**Ethogenic Interpretation**

Role-bearers as change managers use problem-finding and problem-solving activities to
engage others in the conversation of change. From this perspective the change managers
position others as co-authors of the technological, staff development, pedagogical and
classroom management storylines. Together, their dialogical interactions both challenge
existing orthodoxy and create new rules and new policies for the use and management
of new resources through the codification of expected behaviours (practice).
Act Two Scene Four - “It’s The Way of the Future!”

Fullan’s Homily Four for Managers of Change

[The leaders] … shared vision, which is essential for success must evolve through the dynamic interaction of organisational members and leaders. This takes time and will not succeed unless the vision building process is somewhat open-ended. … Visions come later because the process of merging personal [or those of other interest groups] and shared visions takes time.

Michael Fullan, 1993:28

Narrator

The following exchange between Jessie, Kim, Sandy and Dale takes place in the staff lounge, in response to questions concerning the decision to introduce networked computing across the curriculum.

Jessie: The Headmaster … saw the Internet five or six years ago - 1991 or 92 - in the US, when he was on one of his study tours. I think it wasn’t actually in schools. However, he saw the Internet and he came back to school saying, ‘We have to get the Internet. It is the way of the future’. And this was before anyone else was talking about it. In that sense he is visionary. But that is where it stops. He hasn’t got the technical knowledge to carry it through. But he has the vision and the awareness of where things are going. And to back those sorts of things. The Headmaster backed getting the money through the Board of Governors. He has backed certain decisions about directions. He has backed total commitment to a certain plan. And all of this has been done with quite elaborate Future Planning exercises. … I mean we can go back to about two years ago, to 1995. The Head sort of mentioned it - that the existing computer structures and facilities would
be reviewed. The Head talked about the need for teacher professional development with respect to computers and the use of computers in the curriculum. That's where it started.

**Kim:** What we do with Future Planning is usually to carry out a whole-of-school review over a term or two terms of each year - where we look at next year. … So, in 1996 we began Future Planning on the Internet. How it was to be used with students in 1998. (Flicking through a document) All the concerns that came up. For example, the lack of access to existing computer labs by students and staff; the existing Network infrastructure backbone is inadequate; technical support; staffing; and problems associated with predicting future trends. The whole idea is that we go through all these sort of things. … There were three big items that I was after, one was the Connectivity, one was the Labs, and one was the PD. We just couldn’t afford it all. We couldn’t afford to provide Notebooks as well. Class sets of them. We couldn’t do everything. … We can’t afford as a school, to provide all these resources that were needed to meet the needs of students.

… (Walks over to a filing cabinet and removes a file.) The answer came down at that stage. … ‘We can’t afford to do this.’ ‘Do we unload some of the cost to parents?’ One of the ways we could do this is through Notebooks. Then it came to us. What a good idea this would be. … ‘Why don’t we’ - this is the Deputy Headmaster, Hal’s [pseudonym] idea - ‘do a Business Plan?’ Vision. ‘What do we want to do?’ ‘Where do we want to be?’ Our vision is to be the best school in Australia for delivering curriculum technologies. Okay. You might as well aim big. … So we determined what we wanted and then tendered out for it. Hal made it part of our business plan.

**Sandy:** I think we have a culture of huge demand in this school. And I guess … I am being critical of the nature of the school. I think we have a school where a number of things intersect. One is that you have a Headmaster with a vision, who can see more clearly than most other Headmasters would see where the school might be in five years’ time. And I think that that is tremendously positive. He is out there. But that leaves the rest of us a bit panting to catch up. While he is there in five years’ time I am not sure he knows what is going on
here and now. Today. And what the real practicalities are for some of the teachers here and now. We don’t have a natural drawing base for our students. We don’t have a huge group of past students. We are not a Scotch or a Caulfield Grammar, that can draw on the Old Boys to naturally send their children here. We are not in a geographical area with a natural resident population who will send their children here. … Most of them are bussed in from all over. So what are we doing to sell ourselves? We are doing … gymnastics. We are doing the best aerobics. We are doing more drama. We are doing lots of outdoor Ed. And now technology-based learning.

Dale: I think that we’re going down the right track. I think we need to keep abreast … of the information technology. I’m concerned, I suppose, that some of the other skills … could go out the window: the social skills that are so very vital for the future of humanity. The other concern is the amount of hours in the day that we need. As we still need to teach the basic curriculum. I don’t think that we are at a point where everything is so computerised that we can do everything on the computer. So there are some basic knowledge and learning skills that need to be taught, like the basic English, maths and science, sose and music. We also need to teach basic computer skills. And it’s just another dimension within our day. … We’re stretched and I suppose unless we can come to a reasonable way of using our time and to make sure that we’re covering SOSE - we might be doing it in the computer way - I think that we’re going to get more and more frustrated as teachers … as professionals. I mean we’ve got a degree of intelligence … and we can work it out. We need to put our heads together and make sure that we do. And I think that takes on … different areas, like resourcing, timetabling, and understanding the socially disruptive aspects of the technology.

Jessie: This year 1997 in the Future Planning process we looked at Notebooks in the classroom and set up a Virtual Campus sub-committee. Because Cyber Grammar School is looking very much to providing courses and resources to customers not present here at the school. And also to link in with our overseas students before and after they even get here. There are obvious benefits there for us. … So, I don’t think it is one person’s vision any longer. That is, the vision that has evolved is a result of groups of staff. I would say that many staff have been directly involved in forming the vision itself. On the first level, probably five or six people, and then another fifteen beyond that who have directly
contributed in making it happen. Perhaps twenty or twenty-five staff members who have shaped the way we are going. Obviously to varying degrees. And then after that there are staff who are just coming along. Because that is the way the school is heading.

**Ethogenic Interpretation**

The Headmaster, as the principal change agent, initiates the conversation of change. In the dialogical interactions between role-bearers he positioned as change managers. In and between various discourse circles competing and contrasting storylines of Change emerge, such as ‘the Internet - it is the way of the future’ or ‘the need for technology-based teacher professional development’ or ‘the need for a technology-Based business plan’ or ‘the need for a marketing campaign highlighting the school’s Technology-enhanced curriculum’. Likewise storylines focusing on aspects of teacher professional identity emerge when discussing ‘socially disruptive aspects of the technology’ and ‘what it means to teach in a Virtual Campus’. From these dialogical interactions between role-bearers and position-takers, various storylines emerge affording the possibility of transforming the change narrative.

**Act Two Scene Five - “We Are All In This Together”**

**Fullan’s Homily Five for Managers of Change**

Isolation is a problem because it imposes a ceiling affect on inquiry and learning. Solutions are limited to the experiences of the individual. For complex change you need many people working insightfully on the solution and committing themselves to concentrated action together.

Michael Fullan, 1993:34
The following exchange between Devon, Kim, Sandy and Sam takes place in the Junior School staffroom questioning the merits or otherwise of the whole-of-school professional development program.

**Devon** (Junior School teacher): Tim [pseudonym] who I work with in phys Ed … is very computer oriented. He had one year here before I came. He did everything on the computer. I’d never turned one on six years ago. When I came here I said, ‘Where’s the class list?’ He said, ‘It’s all on the computer’. I said, ‘Could you run one off for me?’ He said, ‘No. You can learn how to do it’. So, he taught me and I learnt to do the basics: database and Word. The applications that we needed for phys Ed. … So, when I need to know something he’ll just quickly show me. It is difficult to force yourself to go off to a professional development session when you already know what’s happening with a specific application. I suppose in Term Three I didn’t go to many professional development sessions because I had a lot of other things on. I thought, ‘Look. I know how to use the application and if I don’t I’ll ask Tim’.

**Kim:** The teachers have started to work together. This has developed during the last couple of years, where the Senior School has begun to work better with the Junior School. There is more sharing now. Professional development used to be a little more separate. The Junior School was left to its own devices. … All the PD is now all joined. When you have twenty senior staff and six junior staff in sessions the professional development activities are just booked by anybody and everybody.

**Devon:** Quite a few of our meetings are held in the computer labs - as a whole Junior School staff meeting. Where, either one staff member is giving a session on something that can be useful in the classroom, or somebody wanted to know about setting up work programs on computers. All that sort of thing. The Senior School staff often come across and take a session on something that is going to be useful for Junior School classes and smaller areas as well. I mean it’s just computers all the time. It gets a lot of talk in the staffroom. … If it’s not meetings and just staff talking then a lot of it is, you know: How do you do this?
Did you know that you could do this? Do you know what I did last night on the computer? There’s a lot of that talk that goes on.

Sandy: The Computer Reference Committee … I think it has been tremendously valuable in letting the Junior School think that they are really part of the system. It’s a tangible way of saying, ‘Hey! You are part of the whole thing’. And, we are all in this together. … People know that there is a place where they can have their say.

Devon: Our Junior School Computer Coordinator is certainly a part of that discussion. And when I couldn’t get the CD-ROM machine running - Anna [pseudonym] was pushing its repair through that meeting … we got that done. And then I asked, ‘Please could I be on the Network so that I could print!’ And that was followed up through that meeting. So I think it’s a very useful group. It was frustrating that I had for months and months that computer sitting there and I just couldn’t use it. I mean Kim kept saying, ‘Look, I’ll get there as soon as I can’ … I understand. It’s been a massive job to set all this up. … I’m sure that by next year we’ll get even quicker service with these things. Although I don’t know when the next stage is … where they’ll put in more cable-lines and things. Yeah, I think you do have to have some sort of committee or things will just go round and round.

Sandy: I think that the place where PD has worked best this year is in the LOTE Faculty. LOTE would be my exemplar of what I think should happen in a faculty. They went away for a weekend - a couple of days … at the Head of Faculty’s beach house. They talked through all the issues. They had tried a whole lot of software in the different language programs. They have used the data projector. They have planned things on their own computers. Then taken it into their own classrooms and used the data projector. I have seen them trying a whole range of things. They have got their own little lab, with eight computers now networked. They had a lecturer from Monash come out and give them a PD session. The woman who runs LOTE at PLC came and gave a PD session. … I would have said twelve months ago this was the most reluctant and unlikely group of staff. We have now got some of the most committed staff. It is not a revolution. It is not wonderful, but it is moving. And, I have seen that as a faculty thing. Because the Head of Faculty has gradually brought them together.
The whole group together. They have a meeting every Friday afternoon, for an hour after school, to talk about what they have done. They really communicate within their faculty.

**Sam:** I’m not sure if this can work across the whole school. There are factions within the staff. They have different approaches to the technology. … You are never going to get a staff who all believe in the same thing in the same way. This would be a dangerous thing. That is a Nazi type of approach, isn’t it? That is dangerous. Because of its narrow mindedness I suppose. And dissent. Dissent has always been important in the way in which I think the school has handled its policy formulation. Especially at the grassroots level. Especially between classes and class teachers at the same level.

**Devon:** I think the PD formal sessions in the Junior School have dropped off a bit. There are supposed to be more PD in each teaching area. Which I think is easier in the Senior School because the French staff say, ‘We are going to do something on X’, you know, whatever it is. That doesn’t really apply to us in the Junior School. And it’s harder for us to - I think - to run more sessions now. It’s sort of hard to explain, I suppose. But what else do they do? They’re the sort of sessions that the Senior LOTE staff are doing … which is not so much the formal learning about how to use the computer because it’s just in faculty or in a area or on a specific topic. … We don’t perhaps get … as many opportunities to do that sort of thing just because of the range of education we do in the Junior School. I don’t know how we get around that. Perhaps there are more uses for the technology in the Junior School in a different sort of way. But I don’t know.

**Ethogenic Interpretation**

The school as a community of practice emerges from the interpersonal agency (doings, sayings) of members of different groups (junior school, senior school, faculty, committee) as well as from the transactions between these groups afforded by and through their interactions with the technology. These actions and interactions are made intelligible through the stories they tell each other of the positions they have taken (compliant, resistive) which are constitutive of the local moral order. In so doing, the different perspectives of managers and the managed fuse when their actions, interactions and transactions dialectically co-construct an analogue- digital present-
future. Furthermore, from this perspective, the institution’s change narrative is an emergent property of the change conversation that is informed not only by the dialogical transactions of role-bearers but also by the positioning and repositioning of the managers of change and the classroom teachers as they participate in the discourse of change. The narrative, *A Private School on a Mission* emerged and continues to be refined through the dialogical transactions via participants discursive circles.
Act Two Scene Six - “Let’s Talk About How It Will Be Used In Your Classroom”

Fullan’s Homily Six for Managers of Change

Both top-down and bottom-up strategies are necessary. Centralisation errs on the side of overcontrol, decentralisation errs on the side of chaos.

Michael Fullan, 1993:37

Narrator

The following exchange between Devon, Jessie, Kim and Sandy takes place in the Senior School staff lounge concerning their assessment of the suitability and future of networked and mobile computing at Cyber Grammar School.

Devon: We change year by year. I think that it’s been a big step for them to decide about introducing Laptops for Form Three’s next year. … I guess the decision is always what’s going to be best for the students. And which is why they grappled for a long time about ‘Should we have Laptops in classrooms as some of the other private schools have?’ And they decided that it was better not to do so. I guess now they’ve decided that it’s going to be better for the school to introduce a Student Laptop program. I know that they just want to stay ahead of other private schools all the time, and do what’s best for the students.

Jessie: It is probably fair to say that these changes emerged as a result of the 1996 Future Planning process. It wasn’t as though it just happened. There was a lot of questions being asked, as people knew that technology was a large chunk of that planning. … When the announcements about, ‘You will get a Notebook’. ‘We will have this sort of Network.’ ‘This year level will get computers.’ … I think that immediately there were a few alarm bells going off with some staff. … To the school’s credit, the PD activities got underway very quickly. So that the people who might have been thinking that this is going too fast, were actually picked up quickly in the PD strand and brought along.
Kim: Yeah, the staff feels that it is a big call by the Board of Governors and a big show of faith in them. So, staff generally are happy to pay them back by attending professional development activities. … A large number of staff have respected that. Some staff like me are up to 80 hours.

Sandy: I think we shouldn’t go on in this kind of ‘Big Brother is watching you’, sort of mode. I think it has served its purpose. I think we have to use a much more of a ‘You beaut!’ ‘Look what’s happening in the classrooms.’ Because I think that will generate and stimulate interest. … Twelve months ago I could have taken you to classrooms and I could have said, ‘Look what this group of kids are doing with some collaborative projects with another school’. ‘Look what this group of students is doing incorporating Internet research into their work.’ ‘Look at how they have tried this program’, and so forth. I couldn’t show you those kinds of things now. I think the Faculties have a role to play. If we are going to use Probes in Form Three Science next year. And they are all going to record data on their Excel spreadsheet on their Notebooks. Then we had better have a PD session with the Form Three science teachers on probes and Excel at the start of next year. That is where the PD has to head.

Devon: Yeah, I think that some of the Junior School staff have done that. I don’t know a lot of details about them but I know that Tim, the other phys ed teacher, last year entered his grade into a worldwide athletics game over the Internet. He’s very involved with computers and loves them. So that was pretty exciting. We put all the results up on the board and we thought the overseas schools cheated, terribly with the age groups and their times for the 100 metres. They should have been in the Olympics! Yeah, I think that some of the teachers have done that - used the Internet - but not so much this year. I think that there is a difference between really loving using the computer and being able to use it, and using it when you’re able to in class.

Sandy: I think we have gone backwards in actual classroom use of computers, because we have put our emphasis on PD of staff. The staff is at the point of exhaustion. … The teachers … know how to use their email and Notebooks for their important programs. And now we have to say, ‘Okay. Forget about that and take it for granted the use of your computer. Treat it like you are using a pencil and
paper. Let’s get on and talk about how it will be used in your classroom’. I think we have to put that emphasis on next year. I don’t think you can structure that. I think it has to generate from the movers and shakers within a faculty or within a staffroom. People have got to say, ‘Hey, look what happened when I tried this’. ‘Would you come to my classroom while I have a go at it, in case I make a mess of it.’ Now, if that starts to happen more next year - it is certainly the ideal. But, I don’t think it will happen if we go on with this Big Brother is watching you model.

**Ethogenic Interpretation**

The intentional actions of the Headmaster, the Board of Governors and the role-bearers collectively transformed the local moral order, positioning themselves as the leaders and managers and the staff as followers and inheritors of a program of technological and pedagogical change. At first teachers accept their positioning as compliant or reluctant followers of the Headmaster's staff development requirements. However, managers of pedagogical change lament the loss of personal agency of individuals or groups of teachers in the use of the new media in their teaching practice. The conversation of change is focused on compliance rather than on practice. For the school’s narrative of change to transform teacher’s pedagogical practice the managers argue for both the repositioning of teachers (individually and collectively) as intentional pedagogical users of new media, and their subsequent engagement of them in a conversation of pedagogical change. The school’s narrative of change emerges in the dialogical transactions of both leaders and followers, constitutive of the game of change agentry.
Act Two Scene Seven - “Hello, I’m From Cyber Grammar School”

Fullan’s Homily Seven for Managers of Change

Teachers must look for opportunities to join forces with others [outside experts], and must realise that they are part of a larger movement to develop a learning society through their work with students and parents.

Michael Fullan, 1993:39

Narrator

The following exchange between Kim, Jessie, Sandy, Devon and Dale takes place in Kim’s office concerning the nature of the conversations, Plans and actions which emerged as they managed the transformation to a ‘virtual campus’.

Kim: At the Future Planning meetings we discussed the future of computers:
portability, … connectivity, … the curriculum, … faculty requirements, … how the Internet was to be used, and other schools’ policies.

Sandy (referring to a document): This is the research that we have done on other people who had problems with Notebook computers and what they did. … We went and talked to the teachers at Glen Waverly, Wesley … MLC and Scotch. These other schools - Trinity Grammar, St Paul’s, Scotch - in Adelaide, and Penrith, were all contacted by phone.

Jessie: It was patently obvious with what we had on paper that at the end of the Future Planning process that we could not afford to computerise the school. We needed to be in a partnership. It was Hal, the Deputy Headmaster who had the foresight and confidence that a partnership could work. He suggested that we go with it, and actually make it happen.

Kim: There is a benefit for having NEC (Australia) looking after us, since it is in their interest. There is a value added type idea. They want to hold us up as a showcase because we have their ATM network onsite. Thus, if it is not working they will
send someone out here to fix it. They are looking after us. It is that kind of two-way relationship. … We are sort of buying the whole lot. The hardware, software and the service relationship as well. They have been very good to us. I almost seem to be a walking advertisement for them.

**Jessie:** We also use Scala, a multimedia programming language from New Magic. We got a good deal but obviously they get something back because they can use the school as a reference site. We have also spoken to Ozemail and Telstra about a cost of an ISDN line. … We also have a relationship with Byte Publishing, in terms of electronic texts. Cyber Grammar School in a way prides itself on more than using published textbooks. We create our own for each Year Level. For Geography, at Years Seven, Eight, Nine & Ten we have for each semester a booklet that contains the resources and activities, designed and compiled just for our course. So parents … don't need to buy a textbook which they may not use fully. So Byte Publishing converts just that information we want across to an electronic form, especially for Year Nine next year.

**Kim:** It does take a school with a certain sort of philosophy to do that. Not all schools are comfortable with throwing the doors open to the corporate world and inviting them in.

**Jessie:** We have talked about the fact that we might have Logos, although I don’t see it going this far - certainly on a lot of literature that goes out from the school for various reasons it might in fact have various Logos on it. Something like Cyber Grammar School proudly sponsored by X. Although most of them are in the education market, we have broadened our view to bring in corporate people if that is warranted. Like, having the NEC Logo in the Network Centre has been good for us. Just like having NEC bringing around people has been good for them.

**Sandy:** I think the parent-training nights have worked marvellously. We have had a huge response from parents. I set this up … in May this year. I invited staff to indicate if they would like to teach it. I also tagged certain people. ‘Okay! You know Excel. You can run this course, with a minimum of four and a maximum of twenty participants. These are the dates’. I then gave each teacher eight hours professional development credit. And then I doubled it. I think coming out at
night teaching parents is hideous. Parents are awful. They are very touchy about what you teach them.

**Devon:** In my basic email and internet session, we had one fellow who came in and said, ‘Are you going to teach us how to do a homepage?’ And Sandy said, ‘This is a beginner’s class. You can come to an advanced one if you want.’ But really we had two two-hour sessions and there were some parents in that class that you could have spent the whole four hours just sending one email. I mean it was hard to comprehend really. I suppose that means that I’ve improved. I must say that Tim has trained me pretty well in the phys ed office over the last five years. So I was pretty good on the basics of emailing and searching the Internet.

**Dale:** Like Devon, I certainly got involved with educating the parents. I have done two parent evenings, which consist of four hours each session. That was good. It makes you realise how much you do know ‘cause the parents are coming in where we were probably a year ago. They’ve got basic understanding but not really knowing what to do. I think I get … frustrated because they’re not able to do it. When you are standing behind them, you want to just go up to that ‘drop-down’ menu and ‘click’. But you don’t.

**Ethogenic Interpretation**

When role-bearers are positioned as agents of change, they extend existing rules or create new rules of communication in their interactions with others (individuals, groups, organizations, institutions). These role-bearers while speaking on behalf of their community of practice are still accountable to the local moral order: ‘What should I say?’ ‘What may I say?’ ‘Wat did I say?’ As such, these role-bearers simultaneously extend the conversation of change to others outside their existing discourse community while participating in the discursive circles of business and industry. This experience challenges perspectives of change with the possibility of fusing horizons of significance of both the teacher-agents and the individuals and groups that are constitutive of the continually ‘emerging’ discourse community.
Act Two Scene Eight - “They, Not We, Are doing great”!

Fullan’s Homily Eight for Managers of Change

Each and every teacher has the responsibility to help create an organization capable of individual and collective inquiry and continuous renewal, or it will not happen.

Michael Fullan, 1993:39

Narrator

The following exchange between Jessie and Shannon takes place after school in the library, reflecting on their use of networked computing.

Jessie: We have been preparing the Student Notebook program for next year. … And I am just developing student applications for the technology. … I’m not really re-inventing the wheel … but I’m looking at how technology best serves what we are already doing. … That has been my vision very clearly from the start. So, in my area of Geography, some of the packages are making things available to us now, that we were not able to do before. A classic example is ‘satellite image manipulation’. ‘Remote sensing’ can be used to make decisions about planning for land usage. … In the past, we have been restricted to printed representations in an atlas or whatever. … The packages are a lot more interactive and direct in its feedback. And a lot more accurate for that matter.

Shannon: Teachers in the Junior School are actively ensuring that the curriculum embraces computer technology. So if we have a study unit on Space then … we get onto the Internet to find out about Planets. This year they’re giving us the USA unit on Space to access. There’s massive information. There’s someone on a ‘chat line’ who’s ready to ask or answer any question. The children thought that it was fantastic. They had to ask relevant questions. So they had to go away and think about their questions. They’re asking about the temperature on Mars and temperature here on Earth. And, ‘How many ‘g’ forces are required to get
out of the earth’s atmosphere?’ So, they’re very relevant and they were getting responses from a NASA scientist. They were thrilled to bits.

**Jessie:** At Cyber Grammar we have a school which has a higher overseas student population as a proportion of local students. Geography has a lot of vocabulary that is very new to all students, and is quite a list! Probably at the end of the semester, there may be 150 to 200 new words that the students have not before come across. And using a simple flat file database like Works, we can create a glossary. A searchable glossary. … Things like that enhance productivity, and do not deviate much from the way we normally do business.

**Shannon:** We’ve just been away on camp and Dennis [pseudonym] - the camp manager - has just got an email connection. He said, ‘Oh, yes, I’ve got email now. So you can email me.’ He said, ‘I open it up every four days’. I said, ‘We’re all going to email you before we come and we’ll email you afterwards’. Well, 76 kids emailed him. And he said, ‘How am I going to answer all these emails, because it’s all very new to me?’ So I just said, ‘Send it - your replies - to my email address and I’ll print it off. The kids can read it on the bus, on the way down to the camp’. And, of course, they all emailed and thanked him. For some kids to sit down and write a thank you note - ‘The camp was fun’ - they would see that as boring. But, to send an email and say how much they enjoyed the camp is all part of the excitement. They enjoyed that sort of thing.

**Jessie:** I am not on the Internet as such. I am just on the school’s local area network which acts as a ‘pseudo’ Intranet. … We can set up the local area network to allow students to access documents via Netscape - a Web browser application. … We want to make it easy for staff to create resources and append them to the Intranet. … So, we are working on ‘templates’ into which staff can quickly put information … which then - within half a day - can be uploaded to the system. So we are developing the resources for that - our homepage - and we had planned I guess a full series of Web pages. The top layer of which might be available to people outside the school. Then by a password mechanism, you can get into the stuff most of the rest of the world is not interested in, Like the Enterprise Flexibility Agreement. … So the development of the curriculum an migration I guess of the resources to an electronic form is … the development of
Web-based resources. … But it is not properly set up yet. We have looked at various solutions. Most of which are quite expensive to set up a proper Intranet.

**Shannon:** Well, I think the school certainly wants to be a leader in this field. Certainly in providing computer resources which is what we’ve done at the moment. I think the next stage for us, as part of the vision and as part of how we want that leadership to be perceived in the future, is to set ourselves up as a resource - a technology resource on the Internet. So, that you can not only find out what the school is and what its about, but there can be information provided by students of various faculties or teachers in different faculties or students that provide the information. I think that we’re into that stage, what they’re calling the ‘virtual campus’. But one of the things that we don’t have is the time that it takes to do all of those things. I know our home page needs reviewing, but there’s got to be time to do those things. I think that we don’t have that at this stage.

**Jessie:** The different faculties and departments have been planning for next year - particularly for Year Nine. … So staff within faculties have a very good idea of what sorts of software applications that they will need to know about in order to fill the requirements of that particular subject. … You also need basic competencies. You have to be able to use Word effectively. You have to be able to use Email You have to be able to organise your email distribution lists, create attachments for sending and store and find attachments you receive. Internet research has become an integral part of things here. I am happy to say that over the last two and a half years … the students and staff alike don’t regard Internet research as the absolute source. Rather as merely one of the sources along with other forms of print media and … CD-ROMs as well. … We are generally getting pieces of work where students have used newspapers, journals, books and the Internet. All mixed up, interchangeably for whatever purposes they need.

**Ethogenic Interpretation**

The storyline “a Notebook for 40 Hours” initiated a conversation of change within and between the discourse circles of the managers and the managed. From the perspective of managers, initially, the conversation focused on rules and policies for the provision and
use of new media across the curriculum. From the perspective of classroom teachers, initially, the conversation of change focused on compliance or resistance to the rules and policies. For the macro storyline to embrace pedagogical practice, which shifts the focus from ‘attendance’ to ‘practice’, both the managers of change and receivers of change need to participate in the conversation of pedagogical change. This conversation, while acknowledging the place of access and skill development, illuminates teacher thinking and decision-making constitutive of intentional action in transforming their pedagogical practice, from analogue to a analogue-digital.

**Reviewing the Chapter 5 Conversations in the Context of the Thesis Argument: A Private School on a Mission**

Reconnecting to the key arguments in the thesis, in this rendering of the conversations in Chapter 5 show the teachers in the act of re-constructing the contours and layout of their existence as teachers, beyond thinking and knowing, they are constitutive of teachers struggling with their ethical authenticity in agentive spaces endorsed or otherwise in changing institutional orders of practice and honour.

The Headmaster, the executive officer of the corporate entity known as Cyber Grammar School is positioned, by both the project managers and the managed, as a “Headmaster with a vision, who can see more clearly than most other Headmasters … in seeing where the school might be in five years’ time” (Sandy). On returning from “one of his study tours” … “he came back to school saying, ‘We have to get the Internet. It is the way of the future’. And this was before anyone else was talking about it.”(Jessie). Not having the technical knowledge to lead by example, the Headmaster was positioned as a leader who can determine the ‘enabling conditions’ for social action in negotiating with the Board of Governors and requiring of staff “total commitment” to the professional development plan” … and “use of computers in the curriculum” (Jessie). In his ‘Notes to Staff’ the Headmaster restructured the moral order saying “There is no future for teachers who are not totally computer literate”. The Headmaster reorganized duties and responsibilities as individual choice, as the natural order of things.” If there are any staff who are not coming to terms with this issue they must
realise that they are making themselves redundant. This is not a decision on my part or on the school’s part. It is simply a fact of life as it is lived for teachers in 1998.”

In this new order the Computer Reference Committee, is ascribed the duty of monitoring teacher Professional Development activities. The people who come along to the Computer Reference Committee are positioned as movers and shakers. “You have got committed people who really are thinking through issues rather than people who are there for their status or position. … This is just for the ‘movers and shakers’ - which is to really move and shake each other. … It is not a decision-making body. It is a forum for the sharing of ideas, or raising issues to pass on to those who do make decisions” (Sandy). Interpreting the meaning of compliance or otherwise with the Headmaster’s doctrine is the responsibility of the Director of Curriculum (Sandy) “I think in fairness to those who have taken it conscientiously and have taken it seriously, we do have to enforce some kind of monitoring”. “I have been extremely flexible about how I interpret hours. And it has not been a rigid thing.” Nevertheless, accepting personal responsibility for self-improvement is understood as an individual’s choice: moral or instrumental. ”So these blokes haven’t done much. … Some of them - half a dozen of them - will say they will leave. That is their choice” (Sandy). ”My main aim is to be able to use the technology effectively and efficiently in the classroom. So that it enhances the classroom and is not a burden upon time: my time or the children’s time. They’re paying good money to have my professional advice and waste as little time as possible” (Dale).

The introduction of the new ‘pedagogical’ object disturbed teachers ‘horizons of significance’ challenging their values, beliefs and norms of teaching. “It seemed to me that the Internet and all that went with it … was more of a matter of keeping up with the other schools rather than offering anything that was genuinely educationally valid - underpinned by research” (Sam). “I think from the traditional line. I’ve got concerns. I’m a bit of the old school. … I just don’t want the children taking the easy way out because it’s easier to find things on the computer. I want to make sure that they can still do research - the other way - using library sources. But then, is that going to be outmoded anyway” (Devon)? Other teachers focused on the broader issues at the intersection of societal rhetoric, institutional imperatives and teacher purposes. “I think we need to keep abreast … of the information technology. I’m concerned … that some of the other skills … could go out the window: the social skills that are so very vital for
the future of humanity. The other concern is the amount of hours in the day that we need, as we still need to teach the basic curriculum” (Dale).

For some, the possibilities afforded by an analogue-digital future challenged their authentic identity as teachers. On the one hand, are teachers to become ‘technology-salespeople’: “It does take a school with a certain sort of philosophy to develop education-technology partnerships. Not all schools are comfortable with throwing the doors open to the corporate world and inviting them in” (Kim). On the other hand, are teachers to become redundant or merely an ‘assistant of the technology’. “There is going to come a time when I am not going to be needed like I am needed now. But, am I prepared to change to what is going to be required of me? So, a few years ago when I was … at the early part in my teaching career … - I thought if I was to remain valid as a professional it was my responsibility to make sure that I get myself an adequate level of familiarity with the technology. … Being an expert is not something I am interested in. … Being a facilitator is” (Sam).

Sandy: I think we have a school where a number of things intersect. One is that you have a Headmaster with a vision, who can see more clearly than most other Headmasters would see where the school might be in five years’ time. … He is out there. But that leaves the rest of us a bit panting to catch up. While he is likely to be there in five years’ time I am not sure he knows what is going on here and now, today and what the real practicalities are for some of the teachers here and now.
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Chapter 6  Learning to Navigate an Analogue-digital Future: The Emergence of a Discursive Community of Change

Learning to Navigate an Analogue-digital Future: The Emergence of a Discourse Community of Change

A Drama in Two Acts

In the mid-1990s, the corporate decision by Digital High School to participate in two key technology initiatives of the State Department of Education, namely, the Science and Technology Lighthouse Schools followed soon after by the broader Navigator Schools’ Project disturbed the organizational and psychological structures of this community of practice. Many teachers were confused by these two initiatives. “Am I working in a Science and Technology School?” “Am I working in a Navigator School?” “What does it mean to be both a Science, Technology and a Navigator School?” “Do I need to use the Internet?” “Do I need to change my classroom practice?” The decision of the ‘management team’ of the School to sign up to the policy initiatives occurred with little discussion among the teachers about either. The relationship between the policies and their personal implications as well as the required speed of enactment raised wide concern. Learning to Navigate an Analogue-digital Future is an account of the transformation of a local public High School becoming a Navigator School presented here as a two-act dialectical drama which emerged from the verbatim accounts of the lived doings and sayings of Andy, Jamie, Danny, Ronnie, Avril, Aida and Del (pseudonyms) collected during the 1998 school year.

Act One - The Actors as Role-bearers and Position-takers

Scene One: Andy Learning Technologies Coordinator
Scene Two: Jamie Navigator Schools’ Project Officer
Scene Three: Danny English Teacher, Experienced Computer User
Scene Four: Ronnie Deputy Principal
Scene Five: Avril Part-time ESL Teacher
Scene Six: Aida Librarian
Scene Seven: Del Graphics Teacher

Act Two - The Actors In Conversation

Scene One: New Directions and New Identities
Scene Two: New Roles and New Stories
Scene Three: Stories We Tell Ourselves
Scene Four: An Emerging Dialogue
Scene Five: A Question of Honour
Scene Six: A Discourse Community
Scene Seven: Making It Happen
Scene Eight: Personal Action in a Digital Present

END

Figure 9. Learning to Navigate an Analogue-digital Future – a Drama in Two Acts
Learning to Navigate an Analogue-digital Future: The Emergence of a Discourse Community of Change

After the actors are formally introduced, they present their accounts of the managed process of introducing the new technologies in classroom teaching in their school: of institutional restructuring and personal identity formation.

**Act One - The Actors as Role-bearers and Position-takers**

As stage lights fade to black, a projection screen above the actors is illuminated

**Narrator:** In the guise of Ronnie, the Deputy Principal, you are made welcome as you enter the Foyer of Digital High School, after which you are taken to the staff lounge. Upon entering the lounge, you are introduced to a group of teachers seated in a circle, who were chatting among themselves. The Deputy Principal then introduces each member of the group, inviting them to talk about the issues that were important to them in their quest to use or persuade others to use new media in their pedagogical practice.

**Act One Scene One - Andy - Learning Technologies Coordinator**

**Ronnie:** Andy is the Technology Coordinator, Systems Manager, and Chair of the Learning Technologies Committee. Andy also developed the school’s Technology Plan. So, Andy, how did you get involved in the Navigator Schools’ Project? What are some of the issues that concern you?

**Ronnie:** Andy is the Technology Coordinator, Systems Manager, and Chair of the Learning Technologies Committee. Andy also developed the school’s Technology Plan. So, Andy, how did you get involved in the Navigator Schools’ Project? What are some of the issues that concern you?

**Andy:** It was Don Hayward, the Minister of Education, after going to America, in 1995, and seeing ACOT, you know, Apple Classrooms of Tomorrow, and saying, ‘We should do some of that’. After looking at how much money was available after setting up the primary Schools as Navigator Schools, the decision
was made to piggy back the secondary Navigator schools onto the Science and Technology centres. So from that point Digital High became a Navigator School, which has been very good and very exciting and has broadened our horizons.

In late 1995, just before Digital High school was awarded the Science and Technology Centre status, I was appointed as a Learning Technologies Coordinator. I’m basically a computer type person. … It started out more a faculty coordination position. But, with the onset of the Science and Technology Centre, which quickly burgeoned into the Navigator schools’ project, the computer position became the Learning Technologies position. The Navigator Schools’ Project was very much an add on to the Science and Technology Centre idea.

When I got here in 1995 there was basically no network infrastructure. There was some coaxial cable hooking things in the senior lab computer room. There were no network printers. There was a Mac Plus thing running Digital Card Networks. So it was really in the ‘dark ages’ in terms of infrastructure. … The school set up two committees: a Learning Technologies Committee and a PD Committee. … The Learning Technologies Committee met very often. Probably fortnightly, particularly when there was decisions about money within the Grant accountability process. It now meets more irregularly … as it has dove-tailed in with the PD Committee. And, because the membership would be identical … the Learning Technologies issues are probably dealt with more informally, in other ways.

We developed a Learning Technologies Plan. … I did most of it with the Learning Technologies Committee. We framed the technology statements … outlining the processes - the steps we needed to take, and the sort of support structures we need. … In 1998 it is now due for review … because it was presented … as a three-year cycle. So … basically, I did it. I then took it to other forums for acceptance or for comment or for things to be addressed. It was basically what I did in 1996 before the Science and Technology program and the Navigator Schools’ Project turned up in the school.

So, notionally, a Learning Technologies Committee makes decisions about where things are spent. In practical terms, it’s me. But I consult widely in terms of what I do. In terms of what money is available and what it’s going to be spent on. So it probably works loose. … But it works on the basis of good will
between people and the understanding that I’m not going to do things on my own. … I’ll talk to Jamie. I’ll talk to Ronnie or I’ll talk to the Science coordinator, and say, “Here’s where the money needs to be spent”. And basically I’ll try and make sure that there’s the proper mix … in terms of what is spent on computers, or … peripheral devices, or … technical support, or … PD components or software or whatever. So the management process is basically like a leadership team that … is fairly unstructured at present.

So, the Science and Technology and the Navigator Schools Project combined with our Teacher Laptop program has been a very useful learning experience for the Subject Learning Areas Coordinators. … ‘Cause the classroom curriculum component was what we were missing. So I think that teacher access to the Laptops has been a good thing. I can see changes in people who … might have been reluctant users to some extent … are now sort of saying, ‘Oh! I’ll play with that’. ‘I tried this out.’ … People have to be committed and they realise they have to stay abreast of things or they’re basically pretty well make themselves redundant.

Positioning Statement

Andy, an academically trained technology teacher - these were relatively rare in 1995 - was appointed and positioned within the ‘management’ team in the school with responsibility for financial oversight of the substantial grant funding mainly in the form of computer hardware. He recounts his emerging recognition of the distinction between his duties in relation to allocating access to the new technology and responsibilities for its actual use in classrooms, in his role as a key agent in institutional change. “As a computer-type person” “In practical terms, it’s me … but I consult widely in terms of what I do”

Act One Scene Two - Jamie – Navigator Schools’ Project Officer

Ronnie: Jamie is the school’s Navigator Schools’ Project Officer, who mentors and coaches staff in the use of Information and Communications Technology. Jamie, how would you describe your role as the Project Officer? How would
you describe the steps that needed to be taken to realize the benefits and challenges of using new media?

**Jamie:** In my job as a Navigator Schools’ Project Officer, I am attached to the school, above establishment. I don’t have a teaching load. I’ve actually been able to go out and talk to a hell of a lot of people in this school about what Andy’s Learning Technology Plan was all about. Whereas Andy is teaching 15 or 16 periods a week and doesn’t have the time to do it. I have the time and I have been able to talk to people and sort of allay fears or explain what’s going on, which has been reasonably useful to get the message out a bit.

Our aim is not to have every kid with a Laptop. Not like the private schools. … We’ve got quite a focus on the use of Information and Communications Technology at … Year Seven and Eight. By the time they get to Year 10 and 11 … they’ll know … what software is available. They’ll be choosing what they want to use to produce whatever the work requirements are for the particular subject. There will be computers in the room if they want to use it. There will be various programs available, you know, depending on what they want to do with it. So it’s not the teacher in the front saying, ‘We’ll do six … lessons on Excel and then you can do a project’. They’ll know about Excel. They might use it. They might decide to use FrontPage, or something else.

I try … to be working with a big project. I then just sort of do little projects. It just depends. You know, it could be day to day things. … The other big project I’m working on is the LOTE, you know, the Languages Other Than English Web site. I’m working with LOTE teachers to develop ideas in their LOTE classes. I’m trying to get them into Multimedia. I’m trying to sort of encourage people to use say HyperStudio in their LOTE classes. That’s probably what I’m doing a lot of this term.

**Positioning Statement**

Jamie positioned himself as the cheerful encourager supportive of other members of the ‘management’ team but importantly as the only member with “time to talk to staff”. The emphasis is less on private ownership by staff and students of anew computer than setting up computer classrooms that staff can use. The success of his mentoring and ‘coaching’ persona in the school special projects will be indexed against his success in
Act One Scene Three - Danny – English Teacher, Experienced Computer User

Ronnie: Danny is an experienced Year 12 English teacher, an experienced computer user and passionate advocate of the use of technology across the curriculum. So, Danny, how did you become interested in computers? How is teachers’ use of new media shaping classroom practice?

Danny: I did a Grad Dip in Computer Education while on maternity leave. … I then came to Digital High School in 1983. George [pseudonym], who was Head of the Maths Department, had a number of Apple 2Es. He had a lot of old typewriters and he taught the kids keyboarding on the typewriters. Then he ran some programs on the computers. When I arrived George set up a Computer Committee which had not been set up before. That was in 1983. I was a member of that committee. He said he felt that English was not an appropriate area for computers to be used. The Committee was eventually disbanded that year because he said he saw no use for it. … I think I felt offended. I think I felt a strong belief that there was a valid role for the use of computers especially in the teaching of English.

In 1983, I remember that there was lots of nice little software writing packages … that addressed that whole process approach to student expressive writing which was: Choose a topic. Brainstorm. Draft and edit. It just made the editing process so much easier. Because, up until then, kids had to hand write every draft that they were involved in. So the computer enabled kids to draft, edit and go through that process in a much more accessible and easier way. … Computers were very novel so you had kids really enjoying the whole process of writing. In the following year I persisted and I did get access to six Apple 2Es which I used with a group of Year Seven students. That was 1984. We used those computers for process-writing and Question and Adventure stories which were pre-packaged software. I started doing genre based work with kids. Writing
and creating different texts using different software packages. That was 1984. From then on I have used computers in English and in my teaching here at Digital High School.

I think we got the first Macs here in 1985 or 1986. I was involved in writing submissions. I begged, borrowed and stole a lot. I've got good friends who worked at Apple. I was actually given an Apple Macintosh by those people. I managed to get six Macintoshes to supplement the Apple 2Es. I got them into the room and we started doing Desktop Publishing back in 1985 - 1986.

At that time another Computer Committee had been set up and … formalised. We needed to access funds … to buy equipment. There was a Policy on how … students had access to computers. … Whether through formal subjects like Computer Studies, or whether they actually gained access through using the computers in other subjects. … All of those things were issues that had to be talked through. … In 1998 you find the situation quite different like in Year Eight they have an extra period where they use the computers … in English. And in Year Nine and Ten, you’re able to specialise in subjects specific to computing, like Desktop Publishing or Multimedia or whatever.

When I came back from leave in 1995, I think a lot more people were starting to address that issue of “computers across the curriculum”. There was a broader interest in technology being used in all key learning areas. … The Principal has always had a keen sense of what the community - the parents want. He’s been able to facilitate programs that he considers are worthwhile in attracting students and keeping up the good name of the school. So, if any teachers or admin staff promoted things like Computer Technology … the Principal has always been totally supportive. For instance, Ronnie, one of the Deputy Principals picked up on the idea of introducing a Student Laptop class. She was the person who eventually wrote and presented the submissions for the Science and Technology Centre and the Navigator Schools’ Project.

The Principal took a proactive approach to employing teachers who had skills that existing staff didn’t have. … He nominated a lot of senior teaching positions at Leading Teacher Level 2 and 3 to get people who would have skills that could help us with the whole Science and Technology approach. … To make it more successful. … He brought in a PD person. A Science Coordinator. A Librarian with special interest and skills in the use of the new technologies. He advertised
a new position, Information Technology Coordinator. … All of those were Leading Teacher Level 2 or 3 positions. … All of those people had to be able to address a new approach to the use of technology in the school.

As an English teacher, I am concerned that students create text that is not just a slide show. That they’ve got depth in their presentations and that they develop language use skills that are defined in the English curriculum effectively. … I just see Information and Communications Technology as the new medium. We’re moving away from paper and pen. … We’re moving towards an electronic medium. … We’re in the transition stage. … We can’t even guarantee that we know where we’re going. … Once upon a time, we would have said that we’re going to an electronic medium. I think that the Internet has been a new media that’s come in without us knowing. … It’s not just us here but most people haven’t come to terms with what that’s going to mean for education. So it’s just an evolving process.

**Positioning Statement**

Danny’s committed grammar, self-education and experience in classroom use positions her as a tribal elder in the Project who senses the emergence of an unknowable digital future. “I felt a strong belief … and hope for the use of computers … in the teaching of English”

**Act One Scene Four - Ronnie - Deputy Principal**

**Ronnie:** I am one of two Deputy Principals at Digital High School, the one responsible for the curriculum, that is to do with the work of teachers rather than student management. I was the lead author of the school’s two successful technology submissions: the Science and Technology Centre, and the Navigator Schools’ Project. These days I’m still puzzling over the question of portability and the student laptop program. Is portability - through the use of Laptops - the absolute key to successful learning? We still don’t know the answer. I keep getting various opinions. … There was a parent in on Monday, who works in Multimedia. He said that really “you” meaning a parent should not have to dial into the school because it’s too difficult. “You” the teachers should be posting
everything on the school’s Web Site. Then we can all get into it and that solves your portability problem. I thought, ‘Yes, you’re right’. Of course, you’re right. That is the way to go. You haven’t got those dial-in problems. Then he said: ‘Tell me why you need a Laptop?’ I could understand that there are still reasons why one might want to get a Laptop. But essentially, he’s got a very good point there, hasn’t he? I’m thinking where are we going with that portability issue? I don’t know the answer to that yet. It's still at the cusp stage. In terms of people valuing the use of Laptops by students or not valuing it. There are some people who are very staunch advocates of the use of Laptop computers. And there are others who are not. I don’t know. Maybe that this issue is a dead end? But we’ve got to find out.

**Positioning Statement**

Ronnie in the role of Digital High’s curriculum/programs manager she positions herself as a naive technology pioneer who has accepted the progressive liberal social and organizational imperatives for change to conventional institutional arrangements, relationships and practices afforded by the new learning and communication technologies. As to promoting private access and equity issues surrounding limited public funding in a State school, she reflects “I don’t know the answer to that yet” “I keep getting various opinions”.

**Act One Scene Five - Avril – Part-time ESL Teacher**

**Ronnie:** Avril is a part-time ESL - an English as a Second Language teacher. How do you feel about working with computers and the Internet? Has the Professional Development program at Digital High School helped you use the technology in class with your students?

**Avril:** At the beginning, I think that we were all given the wrong impression. I think that we were given the impression that we were supposed to be at a skill level that most of us felt was absolutely unattainable. … The kind of PD we were given was too confusing. Too … patronising, in some ways. You know, sort of, ‘This is how you do it. Da da! Da! Da! Da!’ And I just thought: ‘Can you run
that past me again?’ I mean, it’s not the way I learn. As to what I learnt from
that approach … obviously that’s not the way the kids learn either.
It’s made me rethink a lot of things I’m doing in my classroom. I haven’t had a
lot of time to think about it. It’s made the point very strongly to me about the
different ways that people learn and kids learn. … People, who said to me, ‘Go
away and play around and make mistakes’. That’s one of the things I’ve learnt
very late in my teaching career. That is that making mistakes is a fantastic way
of learning. That whole thing of individual learning. That I had heard about but
hadn’t really thought enough about and practised in my own classes.

I was one of the people who really hoped it would go away. Now, I feel in a
fairly privileged position to be here at Digital High. At a time when there is
professional development going on. I’m very worried about women who have
been on leave for a long time. And who haven’t had the opportunity to come
back to do PD ‘cause all schools are going to be using the technology.
In the next couple of years women who have been out of schools for a long time
and who have had to come back and … pick this up using technology without
the professional development opportunity that people like me have had to do -
attend PD. Even if it’s meant staying back to five o’clock two nights a week
when you only work two and a half days a week. … There have been the people
here to do it. … There’s been the computers to do it on. … Some people have
been fantastic about giving up their time.
It’s been very, very hard for a lot of us. … When you see some of the other
teachers coming through - you know, they grow up knowing how to do these
things. … It can make people feel very incompetent.

**Positioning Statement**

Avril positions herself as the reformed avoider, not a reluctant learner whose
positioning as ‘learner’ repositions her ‘mistakes’ as something to be embraced rather
than avoided - an insight in reflection has repositioned her thinking about self-
improvement and her classroom practice. But in relation to the formal professional
development sessions on the use of the technology “It’s not the way I learn … that’s not
the way the kids learn either”.

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Act One Scene Six - Aida - Librarian

Ronnie: Aida is one of the Leading Teachers appointed to help manage the change to a Navigator School. Aida, why did you transfer to Digital High?

Aida: I came here at the start of 1997. After the school had become a Navigator School the Principal advertised the library position. I just thought this is what I want. This is where I wanted to go. This is a chance to move in that direction, you know, working with technology. Because where I was at in my school, I was clearly not going to be able to go in that direction. Not nearly fast enough for my liking. And as luck had it, I got the position. It was kind of like falling in the deep end. In so far as the technology, you know the range of stuff available to kids. And the impact was far beyond what I’d kind of envisaged. … I wondered about what it meant to be a Navigator School? I guess I was thinking from a librarian’s perspective. I was thinking it would mean … the beginning of breaking down those computer labs and getting computers into all classrooms. This would mean the role of information services would grow. And the need to ensure students developed really solid information literacy skills. That’s my area of interest. … I wasn’t particularly thinking about the technology itself, because I still think they’re just the tools, you know, the computers and stuff. I was thinking of the big picture, how it would work. I think the vision’s got to come first and then you make the tools. You know, follow the vision. So, what it was going to look like in the school would be like on the ground. When I came to do the tour here the place was such a buzz, like, you know, I’d come from somewhere where people were depressed And the school was shrinking. You know, morale was terribly low. When I came here and while people might think morale is low here, there’s this buzz in the place. And I just thought, ‘No. I want to be here. I want to be part of this’. So that was kind of what happened for me, I guess.

Positioning Statement

Aida positions herself in the role as a born advocate of information literacy skills and positions the ‘Navigator School’ as affording career advancement and the promise of working with a like-minded ‘executive’. “I want to be here. I want to be part of this.”
**Ronnie:** Del is a Graphics Design teacher. I’m wondering how you’ve made the transition from designing by hand to designing with the aid of computers and Design packages?

**Del:** Because my biggest interest is in Graphic Communications, even before there was technology PD at the school, I decided I’d go and do courses on Photoshop, Illustrator and Quark Express. I did them for the Mac which is what commercial designers use. Then I discovered that … the whole school is on IBM. … So I started learning to use these programs with an IBM computer. Now I’ve done lots of courses. But I find that many of the courses that you do are not long enough. You need two or three years of training I think to be able to be competent. … I’ve done a lot of courses that I’ve paid for myself. Like the one on Design and Scanning. These courses were on the weekend or in the holidays. I often forgot things especially in a course that ran for eight weeks: one day a week … usually on weekends. … Then the school started running courses here. I found a lot of them far too simplistic for what I wanted. … I had … advanced to the stage where I was getting around in some of these more complex programs like Photoshop. I mean Word is an easy program. A lot of people at the school were just starting to use the computer. I was a bit ahead of some of them but not that much. That is except for the little clique of teachers that are right into using the technology. They’re working on it all the time. Like Andy and Jamie and others. You can never ask them any questions because they’re always too busy.

During the last holidays I did something at Swinburne - a whole four days of intensive stuff that the school paid for. It was really more about how kids could get into tertiary courses and what they needed as prerequisites. I was amazed at the amount and the level of computer expertise that a lot of the senior high school students had that went to this seminar workshop. It was interesting to me because now I know what the universities want. So I now can help my senior students in developing some of those skills.

I don’t really care how much money I spend because I love learning about computers. I love it but I just feel that I’m not good enough. I really want to do all this design stuff. I really want to be able to load stuff off the internet but I don’t really know how to do that. Designers load backgrounds off the internet.
They load pictures off the internet. The kids know about this and if we had the Internet in all of our classrooms it would be great because the sky’s the limit as to what you can do. … I can get to the Internet anytime but I find it very difficult to find where these things - the web sites are. I’ve been to courses where they show you how to find the web sites. But I still can’t do it at school.

**Positioning Statement**

Del positions self-improvement in the use of new advanced software as her responsibility in order to better develop her skills to help her students gain entry to tertiary IT training. But she feels she has a technical knowledge and needs - in her subject area - that are greater than other staff but are not served by the School’s facilities: “I love learning about computers.” “But I just feel that I’m not good enough”.

**Act Two - The Actors in Conversation**

As stage lights fade to black, a projection screen above the actors is illuminated

**Narrator:** For the Principal and the Deputy Principal the imperative to become a Science and Technology Centre and Navigator School was voluntary and self-imposed, while the staff were either to be conscripted or recruited. Teacher pedagogical practice needed to change. Coordinators were expected to invent and implement the reform agenda. The coordinators were expected to lead by example. They were expected to manage the transformation of a local high school to a Science and Technology Centre and Navigator School. The transformation to a twenty-first century technology-enhanced community of practice.
Moral purpose is complex because it involves altering the power structure, because it is exceedingly difficult to make the changes necessary to motivate and support scores of individual students and teachers, and because moral purpose not only includes academic achievement [agentive performance], but also must find ways of motivating alienated [teachers], students and families.

Michael Fullan, 1999:19

Narrator

The following exchange between Ronnie, Danny, Andy and Jamie takes place in Ronnie’s (Deputy Principal) office as they discuss the questions: How did the school become a Navigator School? What issues arose in the management of the change?

Ronnie: Well we saw it the Science and Technology Tender in the School News, the Department’s monthly broadsheet. I had a talk to the Principal and said, ‘Oh well, we should give it a go’. We went for the first round and didn’t get it. Then there was an advertisement for expressions of interest to be one of the last two Science and Technology Centres. One was to be in the northern corridor. We said, ‘Right, let’s go for it’. I thought we’d do it properly or not do it at all. So we did and we were very lucky.

To some extent, I did involve other staff members. I ran around and asked people their views and thoughts. I only had two weeks to write it. So I had to get things together quickly. I just brainstormed with people. I took their ideas and formed it up into a coherent whole - the submission. … I discussed many of the ideas with Danny. She is very reflective on what she’s doing. Very interested in the learning process. … I’ll listen to her ‘til the cows come home. She has been invaluable. She sits back and thinks about things. She tries things in her own classroom. … I’ve always regarded … Danny as the school’s critical friend. You know what’s going on because you can always rely on her to provide a good perception about what’s going right. Or what’s wrong. She raises issues like: Have you tried this? Have you thought about it this way? … She is just a good thinker.
I have to say that the submission on paper looks nothing like what we now ended up with. It sounded as if we knew what we were talking about. Some of which we did. Some of which we didn’t. … After we got it - the Science and Technology Centre approval, we started to go through the hoops. Designing what we were going to have in the school. They - the Department said: Oh! We’re going into a new idea now. You will be part of the Navigator School’s Project. So the focus changed slightly to Technology Across the Curriculum. Not to the absolute exclusion of Technology in Science but it sort of got muddied and greyed and blurred. So that’s how it happened.

Danny (English teacher): I remember when Andy came to the school as the new Information Technology Coordinator he wrote up a Technology Mission Statement. That was delivered to all staff at a number of meetings. There were a whole pile of … steps to be taken and procedures were set up to implement those steps. … It was assumed that eventually, all the staff would feel confident and competent in the use of technology in their curriculum areas, and be able to integrate it into their curriculum in an effective way. I think … the Technology Plan was a … three year plan.

Andy (Learning Technologies Coordinator): Yeah, developing the Technology Plan was basically what I did in 1996 before the stuff, you know, the resources for the Science and Technology Centre, and the Navigator Schools’ initiatives turned up in the school. One of the things that was set up … with the Science and Technology Grant money … was the Student Laptop program and that … bought say 20 computers. That was for a class of kids. … You basically have a playground for some people. For people if they really want to use it - the technology they could have access to the Laptop computers. Then we were required to develop PD strategies that will work with what people can do. … So we asked, ‘Okay. Where are you at with your personal skills? We need to make you confident. So you’re not going to feel like a dick in the classroom. Here’s what you need to do’. We needed support strategies so there was some help for people in the classroom. It is difficult going from a policy statement and getting that into someone’s head, as a preferred philosophy. We developed the Learning Technology Plan. … The Technology
Plan … that outlined the processes, the steps, and what sort of support structures were required.

The Technology Plan did go through … full staff meetings, for discussion. Generally there was little discussion because people probably didn’t give that much of a toss. …

One of my concerns is that all the stuff that’s basically there in the Technology Plan … like any policy document, which lives under the cupboard, I wonder, ‘Does it really have much meaning for people?’ Probably not, but you need to have that stuff in place whether it’s used to discuss other things. It’s difficult to put that in the forefront of someone’s mind.

**Jamie** (Navigator Schools’ Project Officer): As part of the school’s induction into the Navigator Schools’ Project key members of staff went to North America to see schools that are using computers and the Internet. We were talking to this guy over in New York at the Jefferson School. … We asked: ‘Do you mandate teachers?’ … He said: ‘No! We didn’t think we should mandate teachers to use the technology since we’ve got this democratic environment. So how can we say to teachers this is what you must do? When in the classrooms we say kids can do whatever they want.’ … So, we, you know, the teachers at Digital High felt that there was a bit of truth in this.

**Ronnie:** I think the compulsory 40 hours professional development is a good example. That is a stupid damn thing! What are they - the Department going to do to police it? The Principal simply has to sign off on it, hasn’t he? … It is the carrot and the stick. You see this idea is stupid at least from one point of view. Let’s imagine that Jamie was one of the teachers who went for it and requested a Laptop computer. Why would … Jamie who has delivered thousands of hours of PD himself have to go and bloody undertake another 40 hours? That’s bloody stupid. But for someone who’s a novice this is fair enough. That’s fine. You say to them: Come on. Off you go to the PD’! So it seems that you have to take a bit of judgement in these matters.

**Jamie:** Personally I am reasonably happy in 1998 with the way we are going about the professional development now. There is not so much of this mandating. I don’t know whether it was accidental or it is the Principal’s vision - the way the PD is going to occur without being mandated - or that the Principal just sort of hasn’t thought it through enough.
Danny: When Jamie is running a practicum, I get called in to just talk to the teachers who came in from other schools in the area for PD. The practicum is a very lecture centred type of thing. I don’t do the practical interactive stuff. I come in to show them students’ work. I talk about the teaching and learning processes I use in my class. … I think people are happy with what they get from here. They see DigitalHigh School as a school that they are able to emulate. It's not too far away. It's something accessible for them.

Ronnie: The Coaches’ time release paid for from the Project funds outside the staffing budget are a real support. These coaches have got time to encourage people, talk to people, and ask them to work together.

Andy: Gateway Park High School I hear has cleaned out some amazing number of staff over three years. … it was a fairly ruthless process. Their staff changeover has been 60% … in that time. That would be just about unheard of. … I’ve heard that the Principal … puts the hard word on some staff. ‘This is where we want to go. Is this the way you want to go? If not, I’ll support you in any application to where you want to go.’ That’s what he says anyway. I don’t know whether he’s ever done it - facilitated a transfer, but that’s what he says he’s done. … It hasn’t … occurred at Digital High School.

Ethogenic Interpretation

Ronnie, seemed, in the Science and Technology Centre Program of the State Government, a potential advantage in securing a new educational footing for the school and material opportunity in terms of resource funding. The Science and Technology Program was associated with the Government’s “Schools of the Future” flagship for the State school system. As Deputy Principal she signals here that she felt supported by the Principal to write an application in the second round for the School to become a Science and Technology Centre. She was keen to show that she was Capable of writing a “quality submission”, meaning a successful submission. This required her to demonstrate a high level of commitment in the School to upgrading the School’s Science curriculum using the new information technologies, which would have included a commitment to advertising senior teaching appointments that referenced IT skills.
Time constraints, she realistically argued, here limited the possibility of whole-of-staff participation, repositioning the ownership of the ‘reform’ to a few collaborators. The urgency with which the State was seeking to “roll out” its modernizing agenda required system wide access to professional development in the pedagogical use in all curriculum areas, of the new technologies. The Navigator Schools were to provide this professional development. While the Science and Technology Program could be seen by most teachers as a responsibility of the science teachers, the Navigator Schools’ Project signalled to all teachers a broader institutional expectation and imposed duties and responsibilities.

Andy, in his role of Technology Coordinator exercised moral authority and capacity in the development and presentation of the School’s Technology Plan, which ascribed the general duties and responsibilities to teachers in the implementation of the school’s reform agenda. The Technology Plan described the reform from a ‘technical’ perspective invoking a ‘material’ grammar which could be positioned by staff as ‘useful’ or not relevant to my teaching’. The Technology Plan lacked a ‘person’ grammar sensitive to the ethic of authenticity and self-improvement aspirations of particular teachers. Acknowledging the institutional process by which the policy and the Plan gained “community approval”, Andy questions whether this could ever be a sufficient measure of individual or collective commitment. Both Jamie, in his role as Project Officer, and Ronnie question the moral basis, possibility or desirability, of attempting teacher behaviour as an implementation strategy. They argue that this judgement passes to the Principal. Danny, in her role of professional elder and ethical sponsor of the educational use of The new technologies argues the Practicum, the mandated professional development service afforded by Digital High to other schools, and the collegial coaching support- challenge existing teacher storytelling and their dialogical positioning in the ‘technology-enhanced classroom’: Her storytelling has a moral authenticity drawn from the imagery and the products of actual students’ work, indexing the doings and sayings constitutive of her classroom practice. Teachers in the role of Coach are ascribed moral authority, duties and responsibility to engage teachers in the interactive use of technology in their practice in an emerging local moral order.
Act Two Scene Two - New Roles and New Stories

Fullan’s Homily Two for Managers of Change

There is a valuable but slippery distinction between a theory of education and a theory of change. Although the distinction is not absolutely pure, it is useful to examine change efforts in terms of their theories of education, i.e. what pedagogical assumptions and associated components are essential to the model, and their theories of change or action, i.e., what strategies are formed to guide and support implementation.

Michael Fullan, 1999:20

Narrator

The following exchange between Danny, Andy and Jamie takes place in Andy’s (Learning Technologies Coordinator) office responding to the question: How did being a teacher change at Digital High on becoming a Science and Technology Centre and Navigator School?

Danny (English teacher): The Principal took a pro-active approach to getting in people who had skills that existing staff didn’t have. He nominated a lot of positions at Leading Teacher Level 2 and 3 to get people who would have skills that could help us with the whole science and technology approach, and make it more successful. He brought in a Professional Development person. A Science Coordinator. A Librarian and created a new position, Information Technology Coordinator. … All of those people had to be able to address a new approach to the use of technology in the school. … The school has a philosophy that the coordinators can implement change. A good coordinator can make sure it has happened. They can change anything!

Andy (Learning Technologies Coordinator): When all of us the coordinators started, we tried to move the professional learning activities towards a more subject specific … or things that are really classroom focused.
Jamie (Navigator Schools’ Project Officer): Some people were allocated to be Coaches. … They have got 15 or so staff allocated to them. These people can go to their Coach. They can say, ‘I want to use Word in room 15. What’s the best way to use it?’ Or just general everyday trouble-shooting things. … The Coaches … link up with some staff and work on projects. … Document it, and then say, ‘Right! This is an example of a collaborative project’. … So the coach is just another way of trying to help the staff to come to grips with the technology.

Andy: In Term One 1996 … we had the Student Laptop program which had … 12 machines in a Science classroom. … For the teachers we ran … introductory workshops … ‘Here is the Internet. Here is email’ … That was one of the first things - you know, teacher professional development – we ran. It ran through most of Term Two in 1996. For staff PD we began with the Internet. We ran through introductory workshops … this was the first thing in Term One or Term Two. … ‘Here is the Internet. Here is email.’ That was the Learning Technologies Committee’s big thing. … Getting people use to the Web. … These PD activities were compulsory. They were basically the beginning of … the big shifts away from … meetings. Rather than having people sitting around at meetings just talking to each other - more sort of hands-on PD activities were happening. So it was an exchange of meeting time for professional learning. When we asked about their PD we found that people tend to … tell us different things at different times. Like we get them to fill out surveys and they say they want to do things on collaborative projects. But, when you offer collaborative projects no one turns up to them. … We think about whether you can get around that issue. We think you probably can’t because the PD has got to be when they’re actually using the software application in the classroom. Our focus is really on the computer skills that people want for activities that can be used in the classroom. The PD program certainly started out like this. We think individual technical skills and classroom curriculum skills are very very different and need to be approached differently.

Jamie: So, we … acknowledge that teachers are at different levels … as far as using technology. … If you’re just sort of beginning to use technology we try and encourage them to use the computer in three lessons. If you’ve used it before then we might say, ‘Well, what about doing a PowerPoint presentation of your
stuff’. You can just sort of advance them down the track a bit more to others’ advantage.

**Ethogenic Interpretation**

Danny, positions the Principal as having the moral authority and exhibiting moral capacity in the “pro-active” external recruitment to senior level three Leading Teacher positioned staff who would take on coordination roles, one of these in Science, in implementing the “science and technology approach”. The existing Key Learning Area coordinators, other than Science, were repositioned in Danny’s new moral order. The newly appointed coordinators assigned duties and responsibilities to some teachers to act as teacher coaches. This ascription of duties and responsibilities positioned teachers either as having an imposed duty or a responsibility to exercise: a duty to provide technology-based staff development, or a responsibility to request it. Jamie’s and Andy’s stories imagined a dialogue emerging that was neither purely compulsory nor purely voluntary where ‘time’ traditionally afforded for faculty meetings chaired by a subject area coordinator to discuss classroom teachers’ responses to school/system expectations, became ‘time’ for personal/professional self-improvement possibilities.

**Act Two Scene Three - Stories We Tell Ourselves**

**Fullan’s Homily Three for Managers of Change**

Problems used to be our friends … but it is differences and conflict that are even greater friends. Conflict, if respected, is positively associated with creative breakthroughs under complex, turbulent conditions. Consensus would be pleasant, but actually is impossible to achieve except through superficial agreement.

Michael Fullan, 1999:22
Narrator

The following exchange between Jamie, Andy and Ronnie takes place in Jamie’s (Navigator School’s Project Officer) office in thinking about the question: How are teachers reacting to the school’s staff development strategy including the offer of coaches?

Jamie: With our PD we sort of try and target the needs of the people. We’ve got a few high-fliers who do their own thing. We’ve got some in between … who need a bit of help. And, I think that it would be fair to say that there are those people who are pretty negative … we leave them alone at the moment. We’re trying to move with the people who have got a bit of interest. Once we get them going maybe the negative ones will say, ‘Well, I’ll have to come on board too, otherwise I’ll be left behind’.

Andy: Initially, the Coaches were trying to get things happening in the classroom. … The question as to whether they’re being used effectively is of concern, because they are not well regarded by the teachers. This is because no-one sees the work that they do. They’re one on one people. They’re doing little things about one on one training, for short periods of time. … There was a move last year to get them working on an extended basis with one person. So the teacher would get … another teacher in their classroom.

Ronnie: We’ve had to open up our practices to each other. Help each other and work as teams. … So it is physically opening things as well as philosophically opening things too. I think, we’ve had to open up and talk about, and rethink our teaching practices. … Some people are doing that using the technology. They are doing it using the technology with great interest and fascination. Other people are saying, ‘Leave me alone!’ I think ultimately using the technology will make you rethink about what education is. I always think that’s a fascinating thing to do when you’re involved in education. But you don’t do it very often.
Ethogenic Interpretation

Jamie, in the role of Project Officer positions himself as supportive of teacher’s self-improvement projects in relation to the new technologies, in which teachers seek or do not seek assistance. Some teachers are positioned in the “role” of coaches as an institutional resource with moral authority and implied moral capacity. In other discursive circles Andy describes teachers in staff room discursive circles repositioning the coaches as ineffective and escaping teaching duties. The persistence of privacy in the existing teaching culture is a perceived problem in Ronnie’s staff development storyline which new discourse circles have emerged in which the dialectic of possibilities and significance of the new technologies is discussed in relation to teachers’ personal perspective of that practice. In this storyline the staff development sanctioned by the local moral order affords the dialogical development around the new technologies of a new practical intelligence in the teacher and normative context of horizons of significance.

Act Two Scene Four - An Emerging Dialogue

Fullan’s Homily Four for Managers of Change

Living on the edge of chaos means getting used to a certain degree of uncertainty: The underlying argument is that when systems of any kind (e.g., beehives, businesses [schools], economies) are poised on the edge of chaos between too much structure and too little structure, they ‘self-organize’ to produce complex adaptive behaviour. If there were more structure, then these systems would be too rigid to move. If there were less structure, then they would fly apart chaotically.

Michael Fullan, 1999:23

Narrator

The following exchange between Danny and Jamie takes place in the staffroom as they muse about globalization, the Internet and the changes happening at Digital High.
Danny: It’s an evolving thing. I think that the Internet has added a qualitative change into the whole thing. Perhaps, when we looked at becoming a Science and Technology Centre using Data Loggers those few years ago, no one could have predicted the impact the Internet was going to have on us. I think that it is always going to be an evolving process with the new technologies.

Jamie: Andy wants more focus on the KLA [Key Learning Area] leaders and also tighten up the Coaches for next year 1999. So we haven’t actually worked out exactly how we’re going to do that.

We had this block of time - four weeks - when we didn’t have any meetings after school. We had in-house PD. Some of the things were sort of skills activities. Some of the things were more like, ‘What’s happening in classes?’ Designing ideas to actually implement Information Technology in classes. Like, for instance, the LOTE Faculty were working on how they could use HyperStudio with LOTE. So they did three sessions on HyperStudio and trying to figure out what can you do with it?

So that we’ve moved away from just having tasters. Where you have an hour of this, and, an hour of that. We are now having more in depth things which we will continue again next year. Maybe, even more sessions for each particular topic. So that’s one thing. We keep a database of all the things that staff have attended and we look at that database at the end of the year.

The sort of things that students will be involved in includes guided discovery or inquiry. We are definitely grappling with those issues in all areas of this project. For instance, the integrated project at Year Seven. I think that that is one project which is sort of going to examine some of those issues involved in self-directed learning in Science we’re doing that. But once again it sort of depends on the teachers. … So if you can get one teacher just to do one unit of work where the kids are actually working with say that Year Seven collaborative project, the students would have had to discuss in class what they were getting off the Internet. Maybe, that’s not so collaborative, but it was a good example of a real sort of thing.
**Ethogenic Interpretation**

Danny in her discussion indexes change - educational change/institutional change - as an ambiguous transient/intransient process. Newly available objects like the Internet will have to be socialized in teachers’ practice/being and community institutional reorganization in constituting an unknown and unknowable future afforded in becoming a Science and Technology Centre. The new order is to be formed in everyday conversations at the intersection of institutional imperatives and teachers’ self-improvement projects. Jamie, indexing a previous conversation with Andy discursively relocates the coaches, reinstating the moral authority of the Key Learning Area coordinators to activate a committed grammar in the discourses of subject departments, while indicating the possibility of this also being pursued in other discursive circles.

**Act Two Scene Five - A Question of Honour**

**Fullan’s Homily Five for Managers of Change**

People with moral purpose in troubled times know that a certain amount of anxiety in themselves and others is necessary, even valuable. Complexity creates a change. Change means facing the unknown. Facing the unknown means anxiety. Naturally we want to reduce anxiety, but there are good and bad ways of containing anxiety.

Michael Fullan, 1999:24-25

**Narrator**

The following exchange between Ronnie, Andy and Avril (part-time ESL teacher) takes place in the staffroom concerning the personal challenges faced by staff as a result of the changes in professional expectations of being a teacher in a Navigator School.

**Ronnie:** There are professional demands. These come along on a regular basis. I don’t think that's a problem, although, there’s a steep learning curve that we’re asking people to get up. But the emotional support. I think that that’s something
that we haven’t provided enough of it. I think that’s the case because we haven’t had the ability to. You’ve got to have expertise within the school to do that. We’ve got to have time and money. That’s a resource problem.

**Andy:** I’d say for a lot of people here … it’s on that personal level that people are confronted by the technology and they are still in that transition stage. They’re at a certain age where they’re saying, ‘I’ve got … nearly ten years to go ’til retirement’. So, there’s not much you can do that makes using the computer interesting. It’s also a personal attitude to change and growth in yourself. If you set yourself new changes or if you’re just happy to mark time which I think some of our teaching staff are doing.

**Avril (part-time ESL teacher):** When this school became a Navigator School, I thought: ‘Oh shit!’ … I’m part-time. I work two and a half days a week. I am … the average age for teachers in this State that is … about … 45. I’ve got small children so that I’m unlike most women my age. My children are younger. So I’ve got a lot of pressures now.

When we became a Navigator School most of us knew nothing about using the computer. There were several people on the staff who know quite a lot but there were a lot of people like me who knew very little and we were thrown into a lot of PD after school. Word. HyperStudio, or whatever. Just a lot of general stuff. … So everything goes on after school. You know, the PD.

I wished it would go away. I thought about leaving the school. It was stopping me from sleeping. I was getting really stressed about it. I was really concerned about why I couldn’t do things that other people could do. I was thinking: ‘I better stop teaching. I have to get out of teaching.’ All this kind of stuff. … I got to the point where I thought this is ridiculous. It’s taking over my life. I’ve got to set my own personal goals.

I’m … not here on the day that they run PD. … So I organised my childcare so that one night a week I could sit back til five o’clock. I begged, borrowed and stole other people. I asked them to stay back with me and show me how to do things with the computer. … My goals weren’t that high. I wanted to know some basic things like word processing. So that I had nice looking worksheets. I wanted to know how to do columns and all that sort of stuff. I wanted to know how to use the scanner. I wanted to know how to use HyperStudio because I
knew that the kids really enjoyed that. … Now, within a couple of weeks I was showing other people how to do HyperStudio. I thought: ‘Oh, this feels okay.’

When Jamie … was asked by the … Northern Region Network to run something called a practicum after school … our ESL Coordinator said, ‘Oh, Avril knows how to do HyperStudio’. I said, ‘I don’t know how to do HyperStudio. But I know everything that anybody needs to know to get started’ … So I said, ‘Okay. How much do they know? If they know nothing about HyperStudio, I’ll do it. If they know something about it, there’s other people who can do it’. He said, ‘I don’t think they know anything’.

I spent hours and hours writing up a document on how you do HyperStudio. Agonising over it. Practicing. Trying to work out how you do this. Do that. It was really good for me. I did the session. It was only 20 minutes, the session.

**Ethogenic Interpretation**

Ronnie and Andy in their roles as neo-gatekeepers, have both ascribed and self-attributed duties and responsibilities for managing the schools discursive practices around the new technologies. The discursive practices that they seek to manage encompass positioning behaviour, institutional practice and societal rhetoric. Ronnie positions the dynamic nature of professional expectations as being the natural order in the social and cultural life of teachers. She indexes ‘emotional support’ as a resource that should be an institutional imperative provided by the social structure as it repositions professional expectations to achieve its agenda of reform. Andy, in shifting the focus from the structures to the agentive behaviour of teachers, indexes the ‘technology’ - the perceived newly available cultural resource and its educational potential, in repositioning technology-enhanced teacher practice being in accord with the local moral order, positions teachers with a duty and responsibility to engage in technology-based self-improvement projects.

The requirement of technology-based staff development for all teachers equally ascribed duties and responsibilities for self-improvement regardless of employment status. Avril, in her role as a part-time teacher positioned herself with both work/home and school responsibilities. Although set an ostensibly unfair task of matching other teachers’ professional development efforts she positioned herself as triumphant in the expressive order pursuing her own self-improvement project: “I got to set my own personal goals.”
The illocutionary force of her presentation of her storyline at the Practicum signals both her achievement and her repositioning in the local moral order of the school.

**Act Two Scene Six - A Discursive Community**

**Fullan’s Homily Six for Managers of Change**

Closely related to the dual role of collaborative cultures. On the one hand, collaboration to be effective must foster a degree of difference. In talking about ‘creative abrasion’ … managers of innovative organizations often select people with different ideas.

Michael Fullan, 1999:26

**Narrator**

The following exchange between Ronnie, Andy, Jamie and Aida takes place in the Library in response to questions: How does the school manage the reforms? How would you describe your working relationship with the teachers?

**Ronnie:** The Learning Technologies Committee is A small tight group that steers the changes in the use of technology in the classroom. It’s an open committee but it ends up as a small tight group. Generally speaking, these are the drivers of what goes on in the school. They think ahead to future problems and how we’re going to solve them. In terms of the peak leadership. Yes, pretty much everyone has got very serious and earnest about using the technology. Most have taken it up with a vengeance, except for a couple of people who have just gone, ‘I don’t want to know about it’.

**Andy:** When some teachers show they are unhappy about the changes, probably their stirring does annoy some people. Their snips are more a way of speaking - to get up your nose. But, I think people have been won over by a genuineness in … what we’re trying to do. Jamie is that way genuine and I’m that way. We … want to help people and we’re not … closeting things away. We don’t try and screw people over. … So … we’ve worked in that way consistently over … a
three or four year period. So that means you get a certain standing in the school community, in that people have a sense of wanting to give a bit back after a period of time. They say they want to try things anyway. That’s what we’re trying to promote. We haven’t hit people over the head with mandates - threaten people. We’ve just tried to … offer things - as much as possible, things that people want to do. … Very few people have actually … challenged the new initiatives. For some it was probably more in terms of their teaching position and worrying about how they’re going to get equipment. Or whether it was going to require a change in their classroom practice or just their normal personality. Anyway, whether they’re just shit stirrers I don’t mind because I … take them fairly light heartedly. I don’t take it to heart. So, I think there’s been very little conflict because I’ve certainly had no one … challenging me directly.

**Jamie:**  We have been a bit lucky there because as Project Officer … I have actually been able to … talk to a hell of a lot of people in this school about what is the Technology Plan. … I have been able to talk to people and sort of allay fears or explain what is going on.

With the collaborative projects there’s an opportunity to pick and choose for the teachers. Hopefully, once those teachers have done a reasonably simple one - a collaborative project, the next time they might be ready to do something else. They now know that it has got good potential in Science. The sort of project to get your kids involved in something real. Where you’re getting real data and using that data straight off the Internet or from some other online project.

**Ronnie:**  I find interesting things happen when the staff try to talk to the Practicums. Visiting teachers come to the Navigator Schools’ Practicums and see what our teachers are doing in their classroom. There’s that aspect of it when talking to other teachers, you know, feeling confident about what they are doing. Feeling in control of the presentation or demonstration. So, having to articulate what it is that they are doing actually is a great change thing for people. When they speak to other people about what they’re doing and talk about it. … They get this sense of pride about what they’re doing. … In these practicums you can show off your wares and that’s a great thing. It’s a bit of affirmation really, isn’t it, for people? So I think it’s been terrific from that point of view. As well it puts a bit of pep and liveliness into people. I’m very much in favour of the Practicum.
I think it’s just opened up everything basically. This is I talking. I’m sure lots of staff won’t see it the same way that I see it. I see it as if it’s almost a revolution in a lot of the things that we do. To some extent it will change the school quite markedly in its culture and in its approach to what its doing. I think that is the important thing. Because it’s just gadgetry that you’re talking about. The effect of the gadgetry I think makes for a much more cooperative approach by everybody in the school. It's like the classrooms have been completely opened up totally. In a sense, people walk in and out of classrooms now a lot more. This is quite natural, because we have got a lot more visitors in the school now.

I think teachers participating in the practicum … has a number of effects. It does make them examine what they are doing. It does put on them an onus to be innovative. And to think really about what this means in their classroom. … They have had to come to grips with the technology in a very real sense, in terms of their teaching.

Aida (Librarian): I’ve been in schools where there are people in key positions who have got there through years of loyal service. And, they’re nice, good, hard working people, but there’s no vision. Whereas, the people in key positions in this school, have a vision. Ronnie, is certainly a prime mover on It, you know, the technology vision. Jamie is good to talk to about how to use the technology in the classroom. Also, Andy has been a godsend. He … seems to be able to combine amazing technical knowhow with amazing educational knowledge. That’s pretty rare in itself. In my experience, the educationalists and the technologists, you know … they’re not usually in the same place at all. Andy happens to be both: in the one person. There’s Alex, the Science Coordinator. And, I would say myself. I’ve had a role in there too.

I think, the school recruited well, when it … advertised the Leading Teacher positions, and made appointments virtually, entirely from outside the school. That’s a very unusual thing for this school. I think that decision to recruit staff from other schools has worked to its benefit, in getting some fresh blood into the place. I’m not saying that the people who came in from outside are better than the people who are here. But, they just brought fresh ideas with them. And, there’s some good people here, I think, who got caught up in the Buzz around the school. So, there’s sort of like a group of about 20 people who informally connect with one another all the way down the line. They’re the people that I
work very closely with. Because, we have similar views on education and the
rest of it, you know, using technology.
So, you sort of form this informal sub group, which links somehow into
somebody else’s informal sub group. It just happens and I don’t know how. You
can’t plan for that. You can say, ‘Well, that’s the model that works here’. But,
you can’t make that model happen. ‘Cause it’s everybody: from the people who
decided that trying some integrated curriculum projects at Year Seven might be
an interesting thing to do, and to the people … who were drawn to the idea to
make it happen.

**Ethogenic Interpretation**

Ronnie in the role of the Deputy Principal indexes members of the learning
technologies management circle as having the duty and responsibility to anticipate the
present-future maintenance and self-improvement possibilities of staff development
and resourcing constitutive of the school’s reform agenda. Selected members as
coordinators or coaches are positioned to use their moral authority to engage others in
technology-enhanced curriculum projects but need to develop the moral capacity
through their working relations with teachers. Referencing authentic self, Andy
positions himself and Jamie as “genuine”, not driven by bureaucratic forces, in their
dealings with teachers. Claiming acceptance by staff of their moral authority to
engage them in individual or collaborative projects. Ronnie indexes both the doings
and the sayings of the Practicum-teachers in the new expressive order of Digital High.
In his storyline the Practicum-teachers in publishing their self-improvement transform
themselves grammatically from possibility into actuality. Simultaneously, the
technology is transformed into an ‘artefact’ of their teaching, and becomes
institutionalized in both the Practicum school and a possibility in the Visitor’s
school.
Aida’s librarian storyline is an information systems view. She indexes her world as a
network of interconnecting discursive circles, which dissolve the distinction between
external and internal conversational spaces in the school. Agency dissolves into
discourse, signification, talk, text and conversation in her storyline of the local
successes of the school’s learning technologies committee and its interest to other
schools. Alex, the Science Coordinator, an actor in his own play in Chapter 4
re-enters this play in Aida’s storyline.
Act Two Scene Seven - Making it Happen

Fullan’s Homily Seven for Managers of Change

With change forces abounding it is easy to experience overload, fragmentation and incoherence. In fact, in education this is the more typical state. Policies get passed independently of each other, innovations are introduced before previous ones are adequately implemented, the sheer presence of problems and multiple unconnected solutions are overwhelming. Many schools and school systems make matters worse by indiscriminately taking on every innovation that comes along.

Michael Fullan, 1999:27

Narrator

The following exchange between Andy and Jamie takes place in Andy’s office after reflection on the challenge of working in a school that appears to be continuously changing its identity.

Andy: There has been … some very heavy doubt about the various projects because the school had been through a process of being constantly upgraded and outfitted. … I think for over 10 years and so there’s been initially … some resistance. On visiting America … a field trip for being a Navigator School, I’ve basically driven the Integrated Curriculum Project. America was very interesting because there the Department of Education was basically picking winners in particular classrooms. … It was just one person getting funded from the School Board who was doing this particular kind of stuff. It was pretty ‘Mickey Mouse’ stuff … and had nothing to do with whole school change or the whole school change process. By contrast, Canada was very interesting. That’s where there’s a whole school approach for the use of the technology in the classroom. … They’re trying to work together with kids making products and really making a dynamic thing, you know, the learning environment. They’re interacting with their local community. They’re getting things, the school and community projects to
They were breaking down the walls and really having fun with stuff. Their curriculum initiatives provided … real meaning to information products as they were working with the community.

**Jamie:** We went on a local field visit to Essendon North Primary School while trying to work on the collaborative project. The Year Seven Integrated Curriculum Project. Getting some groups of teachers to work with Year Seven together. A two-day in-service was held over at Essendon North Primary School. They had a look at how the teachers go about using Learning Technologies in primary schools.

**Andy:** That’s what I’ve adjusted and tweaked. When we … went over to Essendon North to look at their program, We had to make our own adjustments and our own learning environment to make it fit into a junior secondary curriculum model.

**Jamie:** When staff wants to go and do PD the Principal sees it as a top priority. He doesn’t say, ‘Oh! We haven’t got the money. We can’t replace the teachers’. He sort of tries to make it happen. … So, as an example, … when all of the Science teachers went on a two day in-service last year 1997, down at Geelong, we stayed overnight. On the Friday, there were a hell of a lot of replacement classes. They had to put us all up staying at a Motel. That was a big thing. So that was very useful.

**Andy:** The real push, you know, for change came when the Department decided to move away from Science and Technology into this whole school approach. Using the Navigator Schools’ Project to explore dynamic learning environments. But, the Department’s been pulling back again, because the Minister is not as keen as Haywood. So that’s the political background to it, you know, the Sci Tech Navigator thing.

I’ve been in it from the beginning and I’ve seen its shift in focus and emphasis. Because they’re, you know, the people in Learning Technologies are all bureaucrats, when there’s a wink from the Minister; they have to jump on things. And, you really can feel the change in the direction the wind’s blowing. Now, certainly the push has gone back into Science and Technology. Because the
Department wants those sort of hard competency based subjects. Where they can say that we’re doing X, you know doing things to do with the big picture, you know, Science and the Economy. Like, making links to Industry. And training young people in trades. Where the Department becomes a leader in that area … of the future, you know employment prospects and all that sort of stuff.

**Ethogenic Interpretation**

Andy, in his storyline, indexes the experience of some teachers of the change process in past infrastructure upgrades accounting for their resistance to the current reform agenda. He indexes as positive the scientific signing of the ‘fact-finding’ field trip in staff development and its corporate rather than individual focus. The technical skills and curriculum projects required were seen as components of a whole-of-school approach to institutional reform. Andy accepts the responsibility in developing protocols constitutive of a dynamic learning environment constitutive of a collaborative partnership between the teacher, students and the technology. Jamie and Andy position other teachers in other schools as interested participants in their school’s staff development project in which the participants could witness and appropriate the doing and sayings of primary teachers working with students on technology based projects over the top of conventional subject boundaries of the secondary school curriculum. In their storylines those interdisciplinary appropriations of doings and sayings are transformed by teachers individually and in their discursive circles expressed as possible ways of co-constructing teacher-student-technology interactions/transactions as proto-classroom practice at the low stakes end of secondary education. In staff development these ‘proto-classroom practices are ‘adjusted and tweaked’ until accepted by becoming conventional classroom behaviour in the secondary school institutional setting. The local moral order of the primary school is signed by the gatekeepers sanctions of what ought/can be done in the distribution of scarce material, financial and human resources (both students and teachers) in the pursuit of the new institutional imperatives while simultaneously endorsing/encouraging individuals’ or groups’ self-improvement projects that align with the School’s reform agenda. In Andy’s storyline the school’s reform agenda is located in the wider economic discourse of Government and industry in which Science and Technology education are centrally positioned in the economic future of Victoria. However, in both Jamie’s and Andy’s storyline positions the Lighthouse Project’s focus on learning technologies across the curriculum as a
priority that supersedes or invigorates the Science and Technology Centre initiative signalling to them a wider Government commitment to the new technologies.

**Act Two Scene Eight - Personal Action in a Digital Present**

**Fullan’s Homily Eight for Managers of Change**

The change process is too intricate and organic, organization by organization, to be captured in any single model. Yet there is great vulnerability to packaged solutions because the change process is so nerve-wracking. Even when you know what research and published advice has to say you will not know exactly how to apply it to your particular situation with its unique problems, and opportunities. Your own organization has its own special combination of personalities and prehistories, and ‘firm-specific’ realities. You can get ideas, insights and lines of thought and action, but you can never know exactly how to proceed. … [N]o one can solve your change problems but yourself.

Michael Fullan, 1999:28-29

**Narrator**

The following exchange between Ronnie, Del and Aida takes place in the library after considering what aspect of the technology project that they felt passionate about.

**Ronnie:** In September 1995 we won the Science and Technology Submission. In 1996, the Navigator Schools’ Project started. Then we had to write a Tender for the infrastructure upgrade of the school. I didn’t know a damn thing. I just had to start talking madly to people again to write that tender. Gee, that was a learning curve. A steep learning curve. … I never want to go through it again. Although, it’s been terribly exciting and very, very interesting. It’s always interesting when you’re learning new stuff. It’s invigorating. I can see possibilities. You’re not stuck in the drudgery of it all, you know, the routine of teaching. Although, at the time the workload is enormous. It can be exciting and invigorating doing it. When you know that you’re doing it for something real. So from that point of view I think I’ve really enjoyed it.
Del (Graphics teacher): Well, it’s a bit different if you are in a faculty like Graphics. For the last two or three years I’ve been trying to say to staff about the various programs that we need to use in Graphics. And nobody is listening. I’ve said, ‘Look, if kids want to go to a Graphics Design Course … they’ve got to know how to use these Graphics programs. … And we’re not teaching them here. They’re learning it somewhere else like in some other key learning areas - like Info Tech’. For example, I think they do a lot of this sort of thing, you know, design Web sites - but they’re not teaching them to be Designers. They’re designing Web pages and things. … Some of the Web pages here are absolutely awful, because some of the projects I’ve seen, in Scala and PowerPoint – oh they’re dreadful. You know, brown and green together! And so on.

I think most members of the faculty would be amenable to change but it’s just so slow. So, they still teach the same way in their classrooms. You know, I do too. I suppose … we’re so bogged down with other things you know. You can’t get people to change immediately. Everyone says, ‘Oh, yes, we’ll write a paper’. And we’ll do this and do that. And nothing ever happens. I think they’re all a bit scared of what has to be done. And who has to do it.

I thought about this problem while on yard duty. Even if you were given one period a week time release. And the administration said you could do whatever you like in that period on a computer. The problem is that this is a big ask of the school but there’s been nothing given to the school from the Department to do this. As I see it, everyone’s always frantic. Everyone’s always pushed to do things. We need time. Time to sit at the computer. Time to play with the computer. … There are so many barriers stopping teachers. The barriers are our lack of knowledge, our lack of training, our lack of being actually able to get on this technology at any time and be very skilled in it. And the barriers are the timetable and room restrictions. The people that are the administration are good. They’re trying to do their best but they’re always frantic like us. And sometimes you ask for something and they just laugh and say, ‘We haven’t got time to do that’.

Aida (Librarian): I’m actually writing a paper on teachers as research facilitators. When I say I’m writing a paper, I mean, I’ve got all my notes. I’ve got a pile of
notes like this. It’s my holiday job. Because, in schools projects like this are hobbies you do in your spare time. I agree with Del, there’s no mechanism to allow people any time out to do stuff like this. And, I think given the … nature of the rapidly changing world, it kind of worries me that there’s no mechanism for people, you know, teachers, to conduct some serious research. Like, Danny - an English teacher - and I are applying for … some sort of funding, I think, up to $3000, from the Department. … We’re looking at Electronic Online Information as a new genre. Danny’s coming at it from a journalistic perspective. And I’m more interested in the perspective of Information Literacy. … It is something I’d like to explore, because I think that it’s something that does need to be thought about. I think electronic online information is a whole new world. And it does require people to understand information in a completely different way to how they are used to with print materials. I’m interested in … developing a model or sort of semi developing a model that we’ll use here. … It’s based on something the School Library Association of Victoria produced.

These days I think that you need to be aware … of the directions and the thinking of your profession. I always considered, the reading an important part of my job. So, you just do it, without question. I mean, I don’t think that being a teacher, you know, being in front of the class, talking. Nor is it correcting, preparing lessons, or being on committees, and doing committee work. This is not all that our job entails. I’ve always considered that professional reading is a sort of ongoing professional development. Which I believe to be important. … I would certainly spend eight to ten hours a week on official reading. I think that’s critical. See that’s never counted as part of our job. It’s not counted in our preparation time. Even when people ask me, ‘How many hours a week do I work?’ I tend not to count my professional reading as part of it. You tend to think that … you don’t have to do that kind of thing: the reading. But, at the end of the day, I think, you do. Because, you have to be up with what’s going on in education. What’s going on overseas. What’s going on in your curriculum area. And, if you’re not keeping up in a rapidly changing world, I think there will be consequences: for your career, for your teaching. It’s not that you have to be up with everything. … You just jump in at the level you find comfortable for yourself. And deal with it.
So, I’m on an email discussion group. That’s OZTL the teacher librarian group. … When there’s professional discussion … it’s fantastic. I guess one way or the other, librarians are really interesting people. I’ve got a network of good librarians, I now know, right across the country. You know, I’ve actually met some of them, face to face. I’ve spoken to them, you know, that kind of stuff. And, we contact one another when something really big arises for us. You know, like when we hit a wall on a problem and we don’t know where to take it. We ask for input. Or, when you do have a breakthrough. When you come up with a good idea, you’ll contact them on the discussion group. And, say, ‘Listen, I did this. What were you doing? How did you go with that …?’ You know, we’ll do that kind of thing. Like, on a more personal level, I might speak to them on the phone or just send them personal email or something like that.

**Ethogenic Interpretation**

Ronnie, in her storyline of her identity formation as a change agent in the expressive order of the school. She here positions the School community at large as the beneficiary of her supererogatory positioning as the author with the moral authority of a Deputy Principal responsible for the crafting of the tender/submission for the wiring up of the School. Ronnie, positions members of her discursive circle as collaborators in constituting through her the new order of practice possibilities or structures appropriated, internalized, transformed and published as the ‘Tender’. She indexes her moral capacity as change agent in her narrative to the success of her submission in gaining Government funding. Ronnie speaks of her self-improvement as a difficult dialogical process, as ‘a steep learning curve’ in which her social actions are structured and their structure is the realization of prior structure, located in intentions and the belief systems of teacher actors including herself, sometimes individually, but more often collectively, referenced. Reflecting on the personal challenge, technical difficulties and the serious fear of failure she declares “I never want to go through it again”. “Although, it’s been terribly exciting and very, very interesting”. This is something as a classroom teacher, absorbed by necessity, in the “daily grind” she reflects she could never have contemplated, let alone set out to bridge the chasm between her hopes and the reality in everyday teaching. In this discursive circle Ronnie positions and repositions her agentive self in her unfinished storyline, indexes ‘possibilities’, ‘teaching’ as a form of life, ‘exciting’, ‘something real’ and declaring: “I think I’ve really enjoyed it.”
Del, in indexing her teacher agency to Graphical Design Technology positions herself in the agentive space of her ‘faculty’. Her storyline indexes student ‘access to design technology’ as her Faculty’s imperative. Expressing a personal lack of authority in the moral order of the School and her own lack of moral capacity, her storyline expresses moral outrage that her faculty’s discursive practice has no causal power while referencing teacher conversations in which responsibilities, as duties to which one is psychologically committed, influence motivations. ‘I’ll write a paper when I’m not so busy’, Del says referencing a cultural understanding that teacher agency is morally contingent on the site-based context of the school, which is itself contingent on the macro structure of the Department.

Aida positions herself and others in the agentive space of working with the new technologies in the “umwelt” or life space of the ‘person’ of the librarian-teacher. In her broad rhetorical redescription of her authentic self she is fulfilling newly allocated duties and responsibility to facilitate her own and student and staff ‘self-improvement’ projects, through the internet. To her the use of the internet is an horizon of significance, defining her authentic self referenced to cultural values, norms and beliefs that she sees as emergent at Digital High.

**Reviewing the Chapter 6 Conversations in the Context of the Thesis Argument: Learning to Navigate an Analogue-digital Future**

Reconnecting to the key arguments in the thesis, management of curriculum change, taken to be teachers’ work, is described in Chapters 5 and 6 in the accounts of teacher agents in schools. In the literature of change management, Fullan was an emblematic contributor on schools as learning organizations in the nineteen nineties. In the educational management journals a key principle of change management has been that “learning and change cannot be enacted upon people but organizing practices empower people”, Caldwell (2012). Caldwell observed, “teacher agency is simply the distributed embodiment of systematic goals and group learning processes and this allows ‘leaders’ as carriers and creators of these goals and processes to exercise leadership in enacting new structures” (Caldwell 2012, p. 15). Weiss (1995) in similar vein argued ‘shared decision making is an unworkable school management model without good leadership on the four “I’s” - information, special interests, ideology and institutions.
In this chapter and in this research I seek to elaborate a more comprehensive description of teacher agency and institutional reorganization that does not assume a core distinction between management and the managed and involves understanding the significance of pedagogical objects as created in and through collaborative practices, and constitutive orders which are seen as prospective and institutional orders which are seen as retrospective. Both explications of mutual intelligibility are dependent on teacher accounts and justifications but in different ways. It is essential that constitutive orders of practice are collaborations and therefore collective moments rather than ideas, schemas or policies. Taking all of this into account requires a re-conception of the problem of shared meaning making as one of dialogue or interaction. Without a re-specification of the reflexivity, social thought and discursive behaviour of teachers to encompass an “I/we” constitutive order as well as a “they” institutional order, research will remain either mired in accounts of a teacher agency that are either voluntaristic and unsatisfyingly incomplete, or reliant on a consensus of beliefs that cannot explain the ongoing challenge of managing contextual contingencies in a teaching life.

Finally In this chapter a sense of time as a scarce resource ran through the storylines even in the committed grammars in these teachers’ accounts of their ethical authenticity. The sense that there was not enough time to do things they felt they needed to do, both generally and specifically, to acquire facility with the new technologies, was an issue frequently raised in the context of their own and others’ professional development. In their characterization of their ethical authenticity as teachers, thinking is an engagement with things which is both personal in its commitment and transporting through its openness to things themselves; thinking which involves true responsibility for self and student learning, towards things at hand, in which contingency and the many-sidedness of things is recognized and the non-human powers involved in the making things happen is sensed and responded to.
Chapter 7  Reimagining Teacher Agency and Reclaiming Change

Once we thought that material as a relation of “causality”, as “social structure” had efficacy and was able to change the world. Later we believed that material as a relation of “reflection”, as “symbolic objects”, as the “realm of ‘ideas’” would be more effective. We now think that material as a relation of “social constitution”, as “artefacts”, as “things” which are necessary components of social networks or “practices” is better suited for the task of transformation.

Andreas Reckwitz, 2002

7.1 Research that Attends to a Plurality of Values and Interests

The dilemma inherent in being a teacher-researcher is that I want my research to contribute to both scholarship and school practices. Through my writing, I want to satisfy the intellectual and scholarly values that I hold while simultaneously supporting and enhancing the improvements of practice, which Taylor (2001) argues is the essential validation of social science research. This dilemma of plurality of values has to be handled in the way the thesis is written, in a language and style serving the interests of both the scholar and practitioner. The choices that I as the researcher made in the construction and presentation of my findings and what content should be presented and how it should be presented to two distinct audiences, both of which have a vital interest in organizational learning, are my attempts at resolution.

Trying to write for practitioners, policymakers and researchers creates much tension. In scholarly writing on the history of teaching with technology, curriculum and administration, for example, I asked questions and used a style that many practitioners would find dense and removed from their daily concerns. The generic problem of scholarly writing is familiar to everyone. The protocols for such writing are familiar in university circles. Readers of scholarly journals understand the need for caution in the publication of findings, which require carefully circumscribed statements consistent with the data, and do not expect contributors to submit blueprints or prescriptions as solutions to current problems. Teacher practitioners, on the other hand, while they may
show a modicum of intellectual interest in the theory and analysis, their main focus is on the detailed particulars that speak to their situation. Practicing teachers want an action plan, advice on what will work and evidence that the plan will both solve their practical problems and serve their sense of self-improvement. Together these social orders of everyday discursive practice reference teachers’ horizons of significance, expressed as values, beliefs and norms.

7.2 Schools as Cultural Institutions Enacting a Palimpsestuous Curriculum

Palimpsest is a term coined in the seventeenth-century to denote material such as papyrus, parchment or vellum whose surface is rubbed smooth before being superimposed on with later work effacing earlier inscriptions. It serves here as an organizing metaphor for the socially enacted or planned analogue-digital curriculum, that as an iteration of the ‘curriculum’ is a multi-layered record which still bears visible traces of earlier forms or ways of life. A palimpsestuous reading of culture (Dillon, 2005) involves making sense of a tangle of patterns in motion by looking for and considering constituted and imposed social relations that are constitutive of the hidden fabric of the enacted curriculum that otherwise would remain beneath the surface of the cultural text.

Schools as educational settings and arrangements are cultural institutions in which historically available resources come to re-constitute the enacted curricula. In the enacted curricula, material objects as cultural signs are socialized and students are to be socialized as “retrofuture” citizens.

In the last decade of the twentieth-century an enacted “retrofuture” curricula blended facets of the past and present in creating an emergent future in which new technologies as historically available resources were first socialized in the discursive and non-discursive classroom practice of teachers. Rather than being objects of production or objects of knowledge in a concept dependant conception of society reified in the school curriculum, the new technology was seen by the actors, in their dramaturgical accounts presented here of their change agency, to be affording the possibility of an emergent rather than a determinant future. The enacted “retrofuture” curricula was perceived as a constitutive social order created by some teachers like themselves, and some others outside the field of teaching, consciously or unconsciously, imaginatively seeking to subvert historically accessed text-centred technology, norms and aesthetics of
pedagogical practice of the ‘present-past’ institutional social order of teaching. The participating teachers felt they were conducting compelling ‘proto-social’ cultural experiments in the interests of the school community and education generally. At the time networked and mobile computing were newly available resources, which in the broader societal rhetorics and institutional practices outside schools - in which the actors positioned themselves - had great potential social transformative power. At the beginning of the decade, however, there was no established institutional order governing the pedagogical use of the new technology in their schools.

The study gives an account of how the new information and communications technologies were introduced into schools but reasonably can be seen as a case study in technological change in schools. Their experiments, like this investigation is not a theoretical study. There is no hypothesis being investigated and seeks to offer instead a better description of teacher agency. Rather the study describes ‘proto-social’ experiments; in which teacher-agents seek to demonstrate (in the Wittgensteinean sense of an invitation to discussion) what they feel are possible uses of the new technologies in the practical intelligence (Schatzki, 2002; 2003) of teaching. In this case the context in which the cultural life of teachers is observed is one in which the teachers cannot be following rules but attend instead to their own agency in an emergent order. That is to say, the teacher technology-pioneers did not enact a rational ‘plan’ to achieve a specific change as they saw it rather they acted out of a sense of ‘necessity’, according to rules formed at the intersection of imperatives and purposes to understand and define their ‘in-order-to’ projects (Schutz, 1951; Heiskala, 2011) intelligible in the dual social orders of maintenance and honour.

The new technology had to serve a practical or maintenance function in schools but also an expressive function to do with honour and status - the former generates and is served by a material grammar in teacher conversation (e.g. computer enabled curriculum) and the latter by a personal grammar (e.g. teacher enacted curriculum). In assuming a hybrid ontology to interpret teacher agency, that attends to both sides of the objective/subjective Cartesion split (Shotter, 2012), a new approach to social phenomenological research is sought. One in which teachers show themselves challenging the established practice order. In the deployment of the new technologies, the everyday political life of teachers, the conditions of their agency and the processes of institutional and cultural change in schools are understood.

In cultural institutions like schools, the formal belief in the concept dependence of the curriculum in classroom teaching can be critiqued in terms, not simply of the interpersonal transfer of established knowledge (epistemological perspective) but also in
terms of the wider semiotic transactions of ideas, images, gestures and actions (ontological perspective) in teaching and learning. Social reproduction and transformation is a constantly ongoing ontological process, not simply of social representations of cultural products, whereby, the daily performance of institutional activities including those mundane practices associated with the various faculties or subject departments, results in the perpetuation or transformation of schooling. The knowledge necessary to repeat or create activities as well as the existing social structure and other structural possibilities. In the simultaneous unfolding of socialization and social reproduction individual teachers and their practice are shaped by society while society is unintentionally and intentionally shaped by individual teachers and their practice.

The challenge in conducting social research in teaching arises when moving from the theorized dialectical relationships of individual and society to suitable real world objects of study. In this study reality is framed at the intersection of individual teachers transacting with materials (both physical and symbolic) in their school as a site-based community of practice encompassing their discursive and non-discursive practices, including personal positioning, institutional activities and societal rhetoric. Reality takes the form of concrete interactions/transactions in social time and social space around things including their significations (meaning). The social researcher now has to deal with material continuity and the dialectics of practice and structure, structuration (or post-structuration), wherein the social structure of the school is expressed in the operation of everyday practices. Simultaneously in these everyday practices teachers and students seem to be positioning themselves and others to generate and reproduce the micro- and macro-level structural properties of the school.

For the social researcher: How might this reality be studied? How might the research question be framed? If framed ontologically: What properties do educational institutions and teachers possess that might make them possible objects of knowledge to a teacher-researcher? How might the reciprocal reproduction of concrete human communities and the liberatory dynamics of human agency, being the objects of knowledge of teacher-research, be understood?

The subjective social-psychological phenomenological accounts of site-based teacher technology-pioneers prior to and during a period of institutional disruption, describing day-to-day dialogic transactions between teacher-agents have been studied for the illumination of the hybrid grammar of teaching as a discursive form of life, in which the discursive and non-discursive are indissolubly related, a social form of life constitutive
of entities, relations, and processes. This presupposes some pattern of intentional action that can be illuminated in the discursive positioning and repositioning of teacher-agents co-constructing the possibility of teachers and students ‘handling’ new technology entailing an analogue-digital form of life. The study asks How do teacher-agents come to recognize new technology (networked computers, digital sensors, the World Wide Web), as things they know how to use? How does teacher ‘talk’ - symbolic interactions/transactions - reposition new objects as social objects - as artefacts of teacher practice? How is the enacted curriculum shaped by teacher self-cultivation? Broadly, how is the use of new technology intelligible in teachers’ everyday practice?

7.3 Practical Intelligibility: Making Sense of New Objects

Following Harré and Schatzki, in this study the social episode - rendered as a dramaturgical account of the cultural and agentive life of teachers - encompasses a time before and during the development, and site-based introduction of new material objects: a strange ensemble of computer hardware and software which became known as networked and mobile computing.

Institutional orders, Rawls (2012) argues pertain here to teaching as the preferred form of life, regulating/governing the use of particular objects. That is the institutional orders are constitutive of teaching as an analogue practice and associated relations between institutional members, staff and students. But up to the early 1990s in Victorian schools there were no institutional orders governing teacher practice as it would apply specifically to an analogue-digital practice. In the case of new or unfamiliar objects the existing orders may: (1) have had nothing to say about their usage, or (2) have considered the objects as if they belonged to an existing category of available resources. In each case teachers were not prohibited from using the new culturally available objects, nor were they guided in their use by the formal curriculum. Rawls (2012) and Davies (2010) refer to institutional orders as ‘retrospective’ - something established before and against what institutional members will be judged. Institutional orders are aligned with the practicalities of maintaining the status quo. That is in maintaining social order.

In this study of the day-to-day activities constitutive of being a teacher in a Western modern society, whose future trajectory is simultaneously unfolding and uncertain, the problem of teacher-agents pioneering the pedagogical use of new technology, in order to operate palimpsestuously on habits of beliefs and traditional institutional structures
pertaining to teaching as an analogue practice, it was necessary to address the problem of ‘mutual intelligibility’. That is to say, when I am talking to people about an analogue-digital future how do I know that they understand and are making mutual sense of what is being discussed?

7.4 Mutual Sense Making: Sequential and Reflexive Practices

Rawls (2012) in exploring sense making distinguishes between two types of meaning/order which involves the creation of social objects in use. Firstly, sense making involves a constitutive order of “use” practices that just exists as a social institution such as in Wittgenstein’s ‘language games’ or Searle’s (1969) Speech Acts, against which meanings can be measured and specified. Secondly, sense making involving constitutive orders of “use” as reflexive social orders, in which both rules and meanings change, requiring the active participation and commitment of more than one person at a time in order for any “meaning” to be achieved. From this perspective, meaning making or mutual intelligibility is a constitutive social process which occurs as people interact and can change with each next move. That is making sense is a social, reflexive and constitutive process which is not reliant on the static notion of social institutions.

Rawls after Wittgenstein and Garfinkel (1967), suggests that for Alex, Max and Leslie as change agents need to participate in collaborative sense making, in the sequential and reflexive practices of conversational turn taking that operate more or less independently from habits of belief, and are flexible enough and specific enough to meet the changing needs of situated practices. Rawls claims that a sequence of participant turn taking has the ability to change the meaning and relevancy of what went before. Interpretations, preferences and mutual accommodations constitute meaning. Rawls’ Collaborators in managing conversational turn taking have an obligation to orient others in responding in accord with the rules, rules which are made evident via participants back and forth collaboration and interactional processes. “The rules distribute rights and opportunities to speak across a given population of speakers and as such they are rules for how the process itself should be understood and managed - not for how particular words, phrases, acts, speech acts, are understood.” (Rawls 2012, p. 408)
Rawls, in addressing the notion of intelligibility, in proposing a collaborative constitutive practice, presupposes a ‘critical mass’ of collaborators to participants in her democratic scriptings. This is the point of difference between the actuality of the isolated teacher enthusiasts seeking to reposition others (Chapter 4) as collaborators and those positioned as collaborators by their Principal (Chapters 5 & 6), in the local moral order.

Collaborators may be seen by Rawls as those collaborators invited to a demonstration by the enthusiast who is seeking a mutual obligation to orient a rule, exhibit this to others and engage in the process of repair work in dangerous conversations about changing their and others’ teaching practices in the school. Rawls’ collaborators are the role-bearing gatekeepers in discursive circles charged with characterizing, or representing the new cultural palimpsest and the enforcement of conversational etiquette. There is a power differential between collaborators and participants in this conversational space. There is an ‘elite’ who know what is ‘right or wrong’, and know how things should or should not be interpreted - leading to a process in which mutual intelligibility is predicated on the basis that participants in confirming rules will exhibit them in orienting their discursive practice. However in the social episodes described for Max and Alex, participants out number collaborators, in everyday, small scale, face-to-face human social interactions and collaborators’ moral authority and moral capacity to orient rules, exhibit them to others and engage in the process of repair is resisted such that a set of meaningful social objects and actions do not exist for those who are not (considered) competent/ready/willing to participate in the collaborative constitutive practice. For instance, Max, in advocating the benefits of new technology was engaged in a form of sequential turn taking in discursive circles in which the ‘presuppositions’ or ‘preconditions’ and constitutive rules favoured or made intelligible an analogue teacher practice. In reflecting on the task of bringing about change at a formal level, in recognizing the need to have the support of ‘power base people’ (collaborators, gatekeepers, opinion leaders) Max, says that he is not very good at “playing politics”. That is how to reposition others in the language game of teaching that would achieve the ‘resetting’ of the collegial ‘rules’ for how the process of collaborative pedagogical change should proceed.

Rawls proposes that institutional change or the operation of institutions generally can be understood in terms of constitutive rules. In elaborating a comprehensive theory of use practices, in introducing a theory of the power of social objects created in and through
constitutive practices, Rawls distinguishes between constitutive orders of rule which are prospective and, institutional orders of rule which are retrospective. I would argue that constitutive rules do not capture the essence of institutional phenomena, and further, that all rules are constitutive, and that the difference between constitutive rules and regulative rules is merely linguistic rather than ontological. For the teachers in this study the distinction between institutional orders and constitutive orders is understood in the same way as the distinction between ‘dialectic’ and ‘dialogic’ and between ‘role’ and ‘position’: that is, intelligibility is conditional on the interplay between each process. Furthermore, the relationship between institutional orders and constitutive practices can be understood in terms of ‘role’ and ‘position’. In general terms understanding the ‘role’ of teacher as agent is to understand how teachers talk of their ‘position’ or location in that ‘role’ or institutional order. For example, how is the task of redesigning the curriculum understood within a community of practice? Is it considered the role of the coordinator or head of faculty? Is it considered the collective responsibility of faculty members: either led by the coordinator or in collaboration with each faculty member?

Alex thought the process of meaning making in the development of the new science curriculum began by descriptions of the ‘rules’ of how the process is to be understood and managed: This he took to be the nature of the curriculum, understood generally as the significant cultural work of teachers. We are going to share this time and space together to develop the curriculum. There will be certain things that need to be in it. I want your ideas. This invitation to staff for their feedback offers a veneer of collaboration as Alex maintains the primacy of his institutional role as a leader in the hierarchy. In imposing a regulatory framework, Alex is not able to engender a sense of mutual obligation which is necessary if faculty members are to be willing to respond in accord with the rules. ‘Resistance’ rather than ‘repair’ characterized the slide from the possibility of a collaborative constitutive practice to the actuality or committed grammar of a coercive constitutive practice. In Alex’s situation the constitutive practice, which pertains to the redesigning of the science curriculum, highlights the need to effectively manage tension, ambiguity and contingencies inherent in collaboration. Wittgenstein thought that learning to take part in social interaction was about learning a common language of meaning (language games). What does that mean for teachers pursuing intelligibility in communities of practice in which: (1) there may be one language game but multiple games in different discursive circles? And, (2) there are no language games
pertaining to an emergent future predicated on historically available new resources brought into the community by individual teachers pursuing personal projects constitutive of a proto-social experiment. The new interactive technologies are an example of how to Rawls a social object can have different institutional meanings but in this study teachers seen to be primarily concerned with either (1) preserving the essential privacy or teaching practice in a previously established personal professional identity and institutional order or (2) exploring the concurrent emergent transformation of organizational practices and personal identity occurring around them by either subjectivizing of the new technologies in their teaching or objectivising their teaching by using the new technologies. Intelligibility for both collaborators and participants in a proposed collaborative constitutive project is dependent on understanding the presuppositions or preconditions of cultural knowledge and social etiquette. However, the use of words such as ‘networked’ and ‘mobile’ in the dialogue of teachers describes the subjectification of the technologies in their practice, and the objectification of their practice in their material arrangements with the new technology, in introducing an entity lacking prescribed site-based institutional meaning. Rawls’ broad reliance on the efficacy of the democratic form of participant turn taking in the collaborative constitutive process of status ascription to material objects they constructed, struggles to characterize the operation of moral authority in the process ontologies of the teachers who saw themselves acting as individuals or in groups with the new historically available resource before, during and after status functions were ascribed to material objects and roles of responsibility for them distributed in their schools. The reflexive discursive practice involved in their constitutive process cannot be adequately described in terms of researching an agreement on the representation of the social status of the new technologies. The practical intelligibility of these new entities had to be explored within the local or site-based moral order of teaching, and as such imagining teacher agency and reclaiming change requires, as (Adams (2003) argues, a more intimate sequential and reflexive understanding of agency and community.
7.5 Agency and Community: A Sociological Transformational Model

The schematic representation below of the integration of curriculum restructuring and teacher agency, Figure 10, is my adaptation of Harvey’s (2002) sociological integration of Bhaskar’s critical realist transformational model of social activity (TMSA). Harvey prioritizes ontology over epistemology in synthesizing Bhaskar’s philosophical TMSA with Simmel’s (1968) dialectics of self-cultivation. Throughout this study I have taken the “curriculum” formal or informal, to refer to “the work of teachers” and “curriculum restructuring” to be the restructuring of teaching practice. Harvey argues the dialectics of social reproduction and the dialectics of self-cultivation are two impressions of the same social reality. In incorporating semantic constructs such as stratification, spatio-temporal rhythmics, the non-linear structure of everyday social processes, spirit, self-cultivation, in assuming supervenience of the abstract on the concrete, the macro on the micro and vice versa, Harvey seeks to allow social researchers to focus on any objects of knowledge entailing the possibility of society, social structure, and communal existence.

Framed in terms of complexity and described poetically as relevant to research, the model explicated below does not prescribe a methodology, but rather affords a hermeneutic grammar for considering the reciprocal reproduction of schools as concrete human communities and the liberatory dynamics of teacher agency as objects of knowledge in teacher-research.

Harvey (2002, p. 183) comments:

The community is now the “material nexus” in which men and women actually go about reproducing and transforming society, and through which society itself socializes and channels the transformative powers of human agency. Thus, the human community becomes the totality of practically available “positioned practices” with which human agency operates. The institutional ensemble of the community is the primary workshop in which personal identities, social structures, and reproductive mediations are materially and practically fabricated.
The triads occupying the extreme portions of Figure 10 - defining Bhaskar’s dual praxis of structure and agency, I have schematically recast these as ‘the organizational structures of teaching in schools and ‘Alex, Max, Leslie’ as agents of change to focus the study’s structural and agentive context. These are now endowed with both historical and biographical particularities as they evolve within the material confines of human communities. At the centre of Figure 10, Simmel’s form/content dialectic, has been descriptively recast such that the dialectics of individual self-cultivation and the role of historical and biographical mediations are dynamically joined and allowed to interact through a matrix of concrete communal relations. The form and content of individual existence are biographically linked by a conjoint dialectic of self-cultivation and cultural appropriation. This dualistic conception frames the person as being both a social product and a producer of the social and is best understood when the form and content of agency are treated as concrete moments of a socially located self in their discursive accounts.

Harvey (2002, 2003) suggests how the critical realist TMSA can afford a hermeneutic grammar in an analysis for instance, in social episodes in which actors privilege their struggle to achieve ever enhanced levels of self-realization, often treating community as a passive, wholly yielding, and the milieu of their personal striving. In some narrative accounts the reader may be left with the impression that teacher-agents like Alex, the
science coordinator in his school, believing the world to be a tabula rasa, seeks to restart the clock by rewriting the rules. He starts afresh. He attempts to obliterate the past. Alex anticipates and encounters resistance believing it to be the natural order of things. Likewise, Max could be seen as embarking on a process of creative destruction, but not in terms of the revolutionary, traumatic, and authoritarian kind, but rather that of a gentle and democratic nature. He undertook an individual crusade, in his role as professional development coordinator in his school, attempting to educate his colleagues’ appreciation of the new technologies and their broader educational possibilities. But being unable to engage his colleagues or gain acceptance from gatekeepers in his school, he abandoned his cause. These ‘hero/victim’ storylines have a certain persuasive and pervasive power regardless of the abundant evidence that life does not, and cannot, possibly occur in this manner. In Harvey’s (2002) view, Simmel’s neo-Kantian mapping of the “tragedy of culture” suggests the fate of change agents who cannot enter their promised land. Max’s account is a story of betrayal lodged in the ontology of a teacher’s life.

Within a school community, a teacher’s self-improvement cannot be separated from institutional change or vice versa, and a more meaningful understanding of individual’s struggle for self-improvement should be embedded in a comprehensive account of both socialization and social reproduction/transformation of communal existence. Harvey (2003, p. 1) explains that no social order can achieve changes that are not already latent within its existing condition and that it is impossible to create new social configurations without in some way superseding or even obliterating the old, necessitating some decisive moments of creative destruction. Alex was invited into a school community with a pre-existing change agenda. Max entered a school community interested in professional improvement but based in an existing paradigm not calibrated to an analogue-digital future. In pursuing self-improvement, Alex and Max each experienced resistance from their community, while Leslie was positioned as a change agent and her self-improvement was encouraged, supported and endorsed in the local moral order.

Each community, in allocating agency sponsors self-improvement projects does so as a condition of its own continued adaptation and survival. However, in denying agency such freedom the community risks social entropy and eventual catastrophe or social irrelevance. In this sociological interpretation of the critical realist TMSA the institutional order in which agency operates will break down when certain deviant
modes of self-cultivation transform the promise of orderly social renewal into a set of disrupting forces, affording conformist, reactionary, restorative, retreatist or revolutionary consequences for maintaining social order.

A community’s history can be written in terms of the rise and fall of broadly-stated worldviews or cultural motifs: those which are hegemonically dominant at the moment; those which were once dominant, but are currently in retreat; and those lying on the hegemonic edge, but which are beginning their social ascendancy. … It is from within these unevenly developed, contradictory cultural formations that individuals select and construct their vehicles of self-cultivation. (Harvey 2002, pp. 187-88)

This sociological TMSA, treats history and biography as mediations grounded in the rhythmics of material life in a community and its everyday reproduction. It is making intelligible the reproductive dynamics of communal relations as they organize themselves materially and culturally, in expressing the material context in which human agency and society reproductively unfold to each other latent possibilities. This affords the teacher-researcher an investigative paradigm or Wittgensteinian (1969/1975) hinge between concrete communal relations and those of abstract societies. Harvey (in the guise of the narrator) provides a plausible concluding sociological interpretation of the state of affairs pertaining, more universally, to the struggle between the forces of social control and social transformation.

Harvey’s sociological reconstruction of the critical realist TMSA renders an explanation of why teacher-agents of change like Alex, Max and Leslie are unlikely to enter their promised-future afforded by the historically available new objects:

Given this ‘duality of self-cultivation’ and the potential dangers of institutional disruption inherent within it, community gatekeepers have little choice but to closely monitor (and forcibly delimit, when need be) the paths personal self-cultivation takes. Depending on the path chosen, certain moral journeys and ethical careers will be officially endorsed and materially encouraged, while others will be discouraged, barely tolerated, or patronizingly shunted to an obscure social siding or cultural dead end. With such monitoring and control, the community attempts to hegemonically direct the energies of each new generation. It differentially
allots the material and moral resources at its disposal so as to direct persons into certain paths of preferred self-cultivation, while withholding resources from paths of self-realization that endanger orderly institutional reproduction. By channeling the creative powers of agency in this way, community leaders not only select out and reward certain careers of self-cultivation, they also reproduce the future means of their own hegemony as well. Just as war is too important in its social consequences to be left to the generals, so self-cultivation is ultimately too important to societal reproduction to be left to individuals alone. (Harvey 2002, p. 188)

In Harvey’s sociological TMSA, the dual praxis of the creative powers of agency: self-cultivation and cultural appropriation have profound consequences for community gatekeepers navigating the uncertain forces of social reproduction, and transformation. Generally speaking, accounts describing the global dynamics of institutional learning, societal reproduction or transformation, which inform the discourse of political leaders, policymakers and school administrators, are privileged over site-based accounts of the struggle between the forces of social control and social transformation in the personal production of social and cultural forms. (Miettinen, 2006) In times of radical or continuous change site-based discursive psychological accounts of the daily activities constitutive of the knowledge and everyday political life of teachers as they socialize historically available resources, can afford community gatekeepers an understanding of the nature of the social controls shaping self-improvement and a broadening of the discursive circle of the gatekeepers with the inclusion of the teacher voice. The dramaturgical accounts in this study of the time/site-based political life of teachers, point to the potential value afforded a school as a discourse community interested in institutional change, of understanding the dual process of socialization and social transformation unfolding in social timespaces as site-based teacher-agents pursue self-improvement projects mediated by the local moral order.

From this perspective, the teacher-researcher (in the guise of the narrator), can draw upon the hermeneutic power of Harvey’s sociological TMSA, and Harré’s discursive psychology to provide a site-based interpretation of how community gatekeepers, in engineering personal self-improvement projects, shape moral journeys and ethical careers implicit in institutional learning. Max experienced the moral authority of the gatekeepers when the professional development role was redefined as subordinate to the newly created role of learning technology coordinator. In this organizational change,
Max’s moral authority was diminished but his moral capacity or the generative powers of his agency, or committed grammar were directed away from the pursuit of his professional development project for colleagues, towards the pursuit of the school’s new systemically defined technological imperative. Max also saw that he was to be co-opted as an ‘assistant’ rather than ‘leader’ in an externally driven technologically-mediated future.

From the gatekeeper’s perspective, Max could be relocated as an advocate of the new objective order in the Cartesian objective/subjective cut. The gatekeeper asks how do we make the social rhetoric of the new technology the new content issue in the curriculum. How do we make people accountable to its use? In relocating Max’s role/identity as an ‘assistant’, in the new order, excluding his capacity to make professional development decisions which are now to be instrumentally defined by the executive, his new advocacy role as committed practitioner and ‘honest’ broker has a higher value in the new moral order. In this role Max is offered a ‘horizontal’/‘lateral’ career trajectory. His agency or self-improvement is understood in terms of his moral capacity as an early adopter or innovator (Rogers, 1962/1995) to aid diffusion of a technical innovation expected of the school. Many teachers would simply accept that role as the ‘proper’ objective order of affairs in mapping out their self-improvement project. The sociological TMSA itself affords a framework for investigating how site-based gatekeepers make use of institutional orders at different levels of moral authority to directly or indirectly ‘manage’ the status quo or transformation of an existing practice to meet corporate or systemic expectations. That is, it affords a description of how causal powers deployed in support of institutional imperatives socialize individual action and redefines it in community practice - how teacher agency is held accountable to institutional orders. Figure 10 alone however does not adequately describe Max’s umwelt dramatized in his account of his cultural agency as a teacher. Bhaskar’s and Harvey’s critical realist ontology without Harré’s positioning analysis is not fine-grained enough in attention paid to teachers’ discursive practices to offer a coherent analysis of the socialization and associated semioses of things in teaching. A broader TMSA framework as pursued here has to be developed that allows for the exploration of the site-based cultural significance of the signing of Max’s and others’, for the ontology of society and for a general picture of the dimensions of teaching practice.

Alex regarded his transfer to Digital High, the newly defined Science and Technology School and promotion to the role of Science Coordinator, as a measure of his improved status within the local moral order. Alex, confronted by the lack of role specification
constructed a rational interpretation of his duty: “It was an unstated understanding that I was there to work hard and to get everyone onside.” In exercising the ‘right’ of an ‘office-bearer’, in his role of coordinator, Alex negotiated with the Principal the funding of an off-campus residential science and technology staff development. “I quite enjoyed my new role as a change agent. … I arranged for a weekend away for the science staff. … We combined getting to know each other with two days of hands-on computer and data logging activities. This was the only formal PD that they had had up until then.”

At that time the central duty of all coordinators was to implement the school’s technology plan: to get teachers using new technology in their teaching. Alex intended to reshape the faculty’s “1960s” approach to science teaching by embedding the use of new technology in the *Science Faculty Handbook*. He perceived that being an ‘outsider’ as significant, affording him the freedom to define/establish the ‘rules’ of the curriculum review. “There was nothing which prevented me from saying, ‘No! This is what I expect’ (italics, my emphasis).” Faculty members in refusing to collaborate repositioned Alex and the project: ‘Oh, this is nice for you. Why don’t you keep working on it?’ In not participating the teachers repositioned Alex as the sole contributor/author: “I took it away and wrote the draft Science Technology Plan.” At the next meeting, Alex said: “Right! It will be locked in unless you say something.” The turn taking ‘game’ continued until: “Okay! This is it, the final draft. Last chance!” Instead of promoting a collaborative, constitutive practice, as he intended, Alex’s imposition of the ‘terms of reference’ positioned him as the project-leader and faculty members as project-followers. Rather than the collaborative project Alex intended of sequential turn taking in which faculty members moved towards a ‘fused horizon’, the curriculum review process deteriorated into a form of reluctant turn taking, in which the teachers private thinking ‘Oh, this is nice for you. Why don’t you keep working on it?’ manifested as ‘disinterest’ positioned themselves as ‘gatekeepers’ of the status quo and positioned Alex - the Coordinator - as a ‘threat’ to the social order. In resisting the ‘threat’ the gatekeepers tactically repositioned the curriculum review as the coordinator’s project and responsibility. On reflection, Alex reinterpreted ‘resistance’ as ‘apathy’: “Apathy is a very difficult thing to deal with!”

In these and other situations in which teachers rejected the imposition of change, for instance, situations in which the ‘use’ of new technology was considered “a waste of time. Nothing beats pen and paper graphing!” Alex, in lamenting, “Until that is addressed either by mandate or by the roll-over of teachers, it was very difficult to implement change”, reveals agentive limits of his individualistic ontology.
For Max, although he was an office-bearer he felt that in order to succeed in bringing about change he needed support from specific people, whom he referred to as ‘power base people’. He felt that unless the administrative culture was supportive of people who are willing to assist the school then there is nothing that one can do about it. Max sensed that he needed to be careful not to say or do things which may be seen as ‘stepping’ on others or doing the wrong things. “I’m not very good at playing politics. Therefore, I don’t feel I’m very successful in making things change at a formal level.” Max noticed that when he approached people individually to assist them in becoming computer literate, that he felt more successful, at this informal level. “I found this grassroots stuff works a lot better than the ‘organised’ PD sessions.”

Alex understood the source of his difficulty in effecting change was the lack of enforceable ‘rules’. Max felt that his difficulty in effecting change at a formal or public level stemmed from the lack of support from people who actually exercise power in the community. Alex had moral authority but lacked moral capacity. Max could exercise moral capacity informally, while believing that his right to exercise moral authority was not endorsed/supported.

Alex and Max were acting out of an organizational structure into an emerging proto-analogue-digital organization. Alex can be understood as a gatekeeper, albeit a ‘neo’-gatekeeper: an agent who is acting in and enforces the local moral order or in Alex’s situation the prosecution of his interpretation of the moral order constitutive of the possibility of a new ‘organizational structure. Another sense of gatekeeper emerges from teacher-agents acting in accord with the local moral order, albeit a ‘prospective’ gatekeeper - agents who maintain social/institutional reproduction/self-improvement - albeit of a prospective order afforded by the introduction of a new object. Max, the gatekeeper of a near-future social order, can be understood as acting into a proto-social order of a perceived analogue-digital practice constitutive of ‘organizational structure T2’, in which he is rehearsing being a prospective gatekeeper - resembling a Rawlsian ‘collaborator’ - of such an order.

Leslie’s appointment as an office-bearer followed a conversation with David, the Principal about word processing her work program. “He asked me if I would like to be the Computer Coordinator.” Leslie replied: “Oh! Alright, as long as you don’t mind that I’ll ask you questions.” Being responsible for managing the technology budget, Leslie after securing the support of the Principal submitted a joint funding proposal to the School Council: “This isn’t enough! I need more money!” “David and I went to the School Council and we got enough money so that we had a computer for every
classroom.” In becoming a Mag-Net Project Consultant, Leslie extended her self-improvement project beyond the classrooms and staffroom of her school community into other classrooms and staffrooms of school communities across the state. “At the time I thought that I didn’t know enough to be going around teaching people about the technology. But the Principal again supported me.” “He was fantastic. On the last day of school, the last thing he said to me was, ‘Make sure you put in for that job’.” Leslie in becoming a project consultant is aware of her ‘self-improvement’: “What I know now in comparison to what I knew when I started with Mag-Net is just streets apart.” On returning to her school Leslie understands that a ramification of being a project consultant is that she is part of a bigger change agenda. “What I try and do is really integrate the technology into classroom practice.”

The principal positioned Leslie as the coordinator responsible for managing the school’s technology plan: maintaining social reproduction. Leslie positioned the principal as co-collaborator in appropriating the technology plan as her self-improvement project. Leslie had moral authority and could exercise moral capacity as an office-bearer, as a coordinator in her school and as a project consultant in the Mag-Net schools. In each situation Leslie was engaged in conversational turn taking - as'collaborator’ acting in ‘organizational structure T2’.

The purpose of Harvey’s sociological TMSA is to locate agency - actions taken in pursuit of personal self-improvement - in the fabric of the human community. In arguing that self-improvement is agential, the school as the community is understood as having a duty to facilitate staff self-improvement and that community members are understood as having a reciprocal responsibility to the school in pursuing self-improvement projects. While, some community members may willingly accept that responsibility, others may willingly reject or resist self-improvement projects, exercising their ‘right’ to ‘do otherwise’. For instance, faculty members resisting the imposition of new technology in the curriculum. This action can be understood as a freedom of conscience argument. ‘I should be allowed to teach in a way which is important and significant to me.’

In my rendering of curriculum restructuring and agential self-improvement (Figure 10) the schematic shows the constructive process of the second order moment: agency - as something that just proceeds uncontested in the hands of the agent. There is no arrow that leads back into the community. The schematic depicts the community providing the historically accessible cultural forms in which the distribution of resources will come to the people who have been nominated to be the agents (though not necessarily the
gatekeepers) to use it. In Max’s situation he is denied the right to pursue his new technology project, as a prospective gatekeeper of an analogue-digital form of teaching. Instead community gatekeepers endorsed a different person - the learning technology coordinator - who they will support in the task of leading the transformation towards a new organizational structure T2. Harvey’s sociological TMSA tends to reify as substantive entities the social structures in schools as forms of causal processes, privileging community over agency. The system hermeneutic does not directly index specific narrative accounts of the actors in the institutional setting. For instance, the accounts of teacher-agents pioneering the introduction of new technology in schools during the last decade of the twentieth-century, such as those describing the self-improvement projects of Alex, Max and Leslie along with accounts of other agents when aggregated often become the background/scenery in the unfolding hegemonic story in the portrayal of the ascent, decline or dominance of communal power. In such constructions of social histories of institutions the biographies of ‘heroes’ are privileged over the homogenized biographical detail of common folk.

This study goes further than Harvey in asking what it is like to be immersed in a tradition, like life in a school with a “culture”. There are almost daily calls for a “cultural change” in education yet “business as usual” is felt to prevail. The educational deployment of the “new technologies” is an important case in point. Nothing changes, I argue because we misunderstand what acting from within a culture is like. We ignore the everyday activities in terms of which teachers come to an inter-subjectively legitimate expression of their inner sensings and feelings. Rather than using the social structures in schools as preconceived entities to which reality must correspond which leads teachers, gatekeepers, system managers and researchers to ‘try to live in the structures - what we need to learn is to live alongside them and use them as “objects of comparison”’. (Shotter, 2012)

This study as a form of inquiry began not in reflection, but from within teachers’ everyday involvements within the “culture” of schools and to study their occasioning of others’ involvement with them in the use of the new educational technologies in their teaching. It is a study of action in an “opportunite moment” for the teachers studied, and sensed as such by them, and brought to articulate expression by the use of appropriate discursive acts and actions. This exploration of the agentive spaces of these teachers required a new material realm of fine-grained inquiry seeking “knowledge” on the subjective side of the Cartesian cut.
What is important about this research is that the ‘picture’ emerging from the discourses and the possibilities afforded a framework’ in which to describe the scope of what a transformational model of social action might encompass. As a teacher-researcher studying teacher practice and their role in social transformation, it is clear to me that one is not going to make a change from ‘what is’ to ‘what ought’ purely by an appeal to the teacher’s sense of logic. For instance, in trying to get the teachers to be aware of how important the technology was, Max would appeal to their sense of the moral imperative, in the guise of their professional improvement and the specific learning benefits of students. The teachers countered with moral imperatives of their own, citing time constraints, students with conventional learning problems and the paucity of faculty finances. Max discovered that although there were new resources available for teachers, which he perceived as ‘a new and shared reality’, the teachers could not share his sense of urgency or the need to transact with the new technology as their perception of ‘reality’ had not changed.

7.6 A Broader Framework for the Analysis of Social Ontological and Phenomenological Domains of Teachers’ Social Activity

Bhaskar’s domains; structure, agency and the subjective, apply “across the board”; they tell us little about the specific ontology of social entities. Bhaskar offers a few suggestions: social structures (at the level of the real that is causal) are dependent on the agent’s activities, dependent on agent’s concepts, and only relatively enduring; neither structures nor agency can be reduced to the other. Out of this he develops the “transformational model of social activity” (TMSA). According to which agents act on the basis of given structural conditions, and their actions (or inactions) ultimately reproduce or transform those structures (1989, pp. 33-38; 1993, pp. 154-60). These are essential concepts; nevertheless they do not provide a fully workable ontology of society. In his analysis Bhaskar argues that society is concept dependent, but does not assign concepts a place in his TMSA at all. This is a concern since signs need not be purely social and social structures are not just systems of meaning. It is important to understand exactly how general ontology relates to social ontology.

Archer (1995, pp. 12-16) develops the TMSA further explicating change or morphogenesis in three realms: structure, agency and culture. She does not treat culture as being simply “inside people’s heads”. Large portions reside “in the library” or to take a less textualist stance, in cultural archives and repertories. Thus knowledge can exist
embodied in a document or artefact, without anyone who currently knows that knowledge. In each of the three areas (structures, agents, culture) Archer finds a similar cycle of conditioning, social interaction and eventual elaboration that sets the stage for a new round of morphogenesis. Each area possesses its own unique set of emergent properties, leading her to speak of structural emergent properties, people’s emergent properties, and cultural emergent properties (Archer 1995, pp. 172-94). This implicit social ontology corresponds to the three ontological domains as I find them, usefully reconceptualised in Table 2 below after Nellhaus (1998) and via Harré, Latour (1996) and Peirce (1931/1958): the real (possibilities given by underlying structures of teaching); the actual (events and entities - human and non-human agency), and the semiosis (meanings and sign-processes of discursive and non-discursive practices).

People generically produce the social conditions for their own existence. In this sense, social structures as possibilities depend on people as actualities. Discourse cannot occur without the use of some sort of physical material which are resources found in particular structural conditions. The effectiveness of a discourse, its authority for its audience, is conditioned by the speaker’s social position, which again depends in part on underlying social structures. The result of discursive practice is not only a cultural elaboration or articulation, but also frequently a realignment of agents and perhaps an adjustment or contribution to structural conditions. The sign - educational use of the new communication technologies - in this study can be described as simultaneously material, sociological and meaningful.

The reorganization of agents and agency, as shown in this study, involve structure and culture. In short, the division between discursive and non-discursive practices is not all clear cut. I do not recommend dismissing the distinction as do Laclau and Mouffe (1985, pp. 107-10) and Schatzki (2002, 2003) as each involves some element of the other. Social structures involve both material resources and embedded concepts, even if the former weigh more heavily than the latter in many analyses. Cultural activity, conversely primarily depends on systems of meaning, but also requires material resources, especially human ones. For Archer, cultural emergent properties are logical relations of consistency and inconsistency among propositions, and she relegates myths, symbolism and the like to the agents’ socio-cultural interactions and interpersonal influence (Archer 1995, pp. 179-81). This conception of culture is akin to the “subjective” populated with experiences and concepts. It is a cognitivist view of culture and neglects the role of imagery, embodiment and related matters within knowledge itself which are less acts of logical reasoning than acts of imagination. To suggest that
the image or practice belongs strictly to interpersonal relations and influences, evacuates their role within theory and culture. Cultural activity’s dependence on material resources involves human bodies, not just instrumentally, but for the imagery and the practices that organize meaning. Ontologically the emergence of structural and cultural transformations must pass through agents because only agents can change either. The agents in this study act on the basis of both their structural and cultural conditions and resources, and change in group configurations may have discursive and/or structural ramifications.

Such an analysis may serve for understanding the broad outline of emergence but is not adequate for examination of the ontology of specific practices such as teaching concerned with material practices and discursive activity. Teaching cannot occur without semiotic activity such as communication, or the process of imagining a practice and ways to produce it. Education as a product re-enters the structural domain in the sense of contributing to the material condition for the next cycle of production but also becomes part of the cultural sphere even when it is not explicitly semiotic in content, by being a status marker. This argument can be made for “non-discursive” practices in teaching with the new technologies.

For Bhaskar, Harré and Latour the emergent property of human agency is intentionality. While intentionality can only be attributed to people or actor-artefact networks and not to social structures or signs, it marks and orients people’s products, including structures and signs, so that these exert some form of goal orientation or pressure such as a sociological function, a set of interests or a discursive (illocutionary) force. This is the mark of the actor, of the entity’s social character. The social level is where cultural materials are coordinated, systematized, placed into discursive networks - a level of connections, generalities, regularities I call the “discursive level”, rather than the “cultural” (Archer) or the “subjective” (Bhaskar). But the discourses are conditioned by and hence incorporate icons and/or indexes, especially those that form at the structural and agential levels; thus a discourse need not be verbal, but must include icons and indexes within some set of symbolic or symbolizable relations. The incorporation of icons or indexes in the discourse about and through teaching is especially important not only for the production of knowledge but also for the cultural possibility of articulating discourse concerned with alternative futures derived from images and indicators produced by ordinary living.

In my schematic representation of teachers’ agency the three social ontological domains - discourses, actuality and possibility - are offered in place of the
general ontological domains - culture, agency, and structures – acknowledging a more nuanced understanding in the relations of discursive signing, social ontology and critical realism that only exist through human agency. Their forms of appearance - the material, sociological and meaningful aspects of practice - constitute the “phenomenological” dimensions of social activity. Since the phenomenological dimensions are related to the ontological domains they too have emergent properties and a degree of autonomy. These dimensions of practice also correlate with the three main modes of explaining social behaviour, delineating in what manner, to what end and with what understanding the teachers in this study act. Technical explanations focus on material realities to show how social structures, practices and forces operate, how they achieve their effects. Such explanations divulge structures’ and the technologies’ mechanical dispositions to act in certain ways and generate certain results. However it is possible for agents to monitor and act back upon those mechanisms, producing them or facilitating their operation, in order to achieve their effects. The technological disposition to cause some effect provides a reflexive motivation for producing the mechanism. Thus emerging from technical explanations are reflexive-motivational explanations or functional explanations which identify the goal or orientations, roles or positions, or consequences that direct agents’ actions or become embedded in social structures and discourses - the ways in which they feed back into
Table 2 The Ontological and Phenomenological Categories of Teacher Agency

<table>
<thead>
<tr>
<th>Phenomenological Dimensions of Teacher Practice</th>
<th>Material (Technical)</th>
<th>Sociological (Reflexive) motivational/Functional</th>
<th>Cultural/meaningful (Hermeneutic)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ontological Levels of Social Activity</strong> (Teacher Agency)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Everyday Discourses</strong> (Semiotics)</td>
<td>Teaching resources, utterances, illocutionary acts, material signs/representations</td>
<td>Illocutionary forces, intended meanings Psychological processes inner speech/conversations: curiosity, competency, community Power as ability to choose interpret, and express</td>
<td>Discursive articulations or formulations/reasons/reasoning Theories, ideologies, work of teachers Curricula as cultural production, teachers’ work as cultural production</td>
</tr>
<tr>
<td><strong>Agents</strong> (Actuality)</td>
<td>Schools as Institutions, educational organisations Private/public Communities of the school, staffroom, subject departments</td>
<td>Intentions Social networks, transactions, discursive circles Power as ability to act, Distribution of duties and responsibilities, Moral authority and capacity</td>
<td>Identities as self-images, other images; identifications Discursive positioning and performance strategies Indexes</td>
</tr>
<tr>
<td><strong>Structures</strong> (Possibility)</td>
<td>Dialectic – historical materialism Forces of production Communicational, familial Managing teacher agency Dialogic – ethics of authenticity</td>
<td>Social positions Social relations of production Power as domination, exploitation Self-cultivation</td>
<td>Image schemata, basic-level categories; meaning structures, Williams’ “structures of feeling” in a particular historical period Icons</td>
</tr>
</tbody>
</table>
agents’ own states or conditions. Functional explanations in this expanded sense concern the reflexive motivation of agents’ action upon causal mechanisms. Such explanations do not assume that all actions or operations are beneficial to the social system as a whole, nor even necessarily to a dominant group. Since the school like society at large is a system of positioned practices (Bhaskar 1989, pp. 40-41; Davies and Harré, 1990) agents position themselves and are positioned and are necessarily differentiated and therefore obtain differing reflexive motivations in the form of interests and differing capacities to realize such interests, as well as intentions to act on the basis of their given conditions, positions and resources. However, these various reflexive motivations (interests and intentions) can themselves become the object of reflexive motivation: by monitoring the monitoring of their actions agents generate an understanding and rationale for their actions (the current study can be understood to be principally of this type of “motivated reflection”): the meanings of their actions influence their intention to act. Thus hermeneutic explanations emerge from reflexive-motivational (functional) explanations to disclose how people and institutions act according to socially-created structures of meaning and transform those structures. Practices not only have methods and goals, but also significance: along with the pragmatic and interactive aspects of their activities, people act for symbolic ends or in symbolic ways, and produce meanings in the course of their activity. The structures of meaning themselves depend on positioned practices to motivate social distinction. Taken together, the social levels and their phenomenological dimensions can be represented as a grid, as shown above in Table 2.

Other models of narrative studies of teaching (such as described by Connelly and Clandinin, 1986) which privilege dialogical researcher-participant reconstructions of meaning in action over the researcher’s interpretation of data restructures the researcher and practitioner relationship in an attempt to better understand practice. By writing narrative accounts and discussing/querying practices observed with practitioners and constructing a coherent narrative of teacher’s ‘personal philosophy’ - constituting reflection-on-action – proponents of this narrative method claim that researchers and teachers see this classroom practice and classroom practice in general, in new ways. They claim the re-telling of the teacher’s story such that the narrative is recast in terms of unities of personal and professional experience alters the meaning of the story and ultimately, if successful, is of benefit to the practitioner, and to the classroom research process. In shifting attention from the conceptual to the experiential (phenomenological) the method seeks to afford researchers an interpretation of teacher practice as part of the ongoing narrative of life experience both for teachers and
students. However, in this study I argue that narrative accounts of teacher practice as a purely phenomenological rendering of personal experience favour ‘self-appraising’ research - albeit co-constructed - over research oriented towards understanding how teacher behaviour changes in their response to everyday cultural life and teachers as intentional agents engaged in constitutive institutional restructuring and self-improvement.

The framework proposed in Table 2 depicts a broad view of the social activities of teachers, which acknowledges three phenomenological dimensions in the common sense categories of the material, the social and the meaningful, but seeks also to a transformative model of social action which requires the mutual construction of structure and agency. The framework conceives time or context/place to be real. It matters when and where things happen and acknowledges Harré’s positioning triad which permits the psychological location of teacher’s agency in the discursive practice and semiotic interactions in their dramatized accounts of their acts and actions.

This phenomenological and ontological framework defines the scope of research into the umwelt or life space of teachers in a discourse community of practice. The ontological levels and the phenomenological dimensions cannot be collapsed into one another. They are not mutually exclusive. Nevertheless, there is a tendency for people to collapse the categories into one another: the material with discourses; the social with agency; and the cultural with structure.

In this study, I have interpreted the ontological levels and phenomenological dimensions from the perspective of teacher agency or from the perspective of teachers as intentional agents, affording the following understandings:

(i) Ontological Level of Practice

Discourse: The meaning of the discourse will be defined in terms of new theories of education based on the new technologies.

Agency: The agency relates to the intentions of the participating teachers as agents of change/transformation, individually and collectively, as expressed in their use of networks, their intentions, their power - their ability or moral capacity to act - and their positioning and repositioning within their discourse community.
Structures: From the perspective of intentional agents the structures are understood, not as determinate but rather as significant in terms of their ‘seeing’ what is or is not possible. This interpretation challenges the efficacy of structures as determinate.

Challenging the notion that if the Department wants to introduce a digital curriculum then they need only issue the relevant orders (policies) informing teachers and schools of their duty in effecting the change.

For example, Max’s agency is dominated by the existing power structure - the social relations of production. Max encountered resistance to his classroom use of computers and in particular CAD software from those ‘controlling’ the resource: unable to reconcile Max’s ‘need’ as a manual arts teacher and his ‘intention’ to use CAD computing in the classroom. Furthermore, Max found that he needed to be ever vigilant regarding new structures in ensuring equitable access, such as those needed to manage the Laptop program for teachers and principals. Max argued for rules ensuring an equitable distribution of the new resource (Laptop) among staff based on need and merit: Opposing the assistant principal’s plan to distribute the resource through a lottery process.

This study, in attempting to understand the cultural life of teachers in schools from a practice theory perspective, and, in emphasising teacher agency, does not adopt a theory of mind approach to secret thinking of teachers, but rather focuses on social activities manifested in the political lives, in the sense of Aristotelian ethics, of teachers, interpreted in terms of the social context in which they are working and making claims about their perspective as having some unique value that could be appraised via the ontological and phenomenological framework of social activity. As teacher agency is the central focus of this study. I have emphasised the Agency level of social action.

(ii) Phenomenological Dimensions of Practice

Material: The material in this study is the new media: the computer and communications technology; the networked and mobile technologies.

Sociological: What the material means socially in terms of redefining the motivations and functions of people in a school context.
Cultural: The cultural hermeneutic is the positioning signs - how are they positioned: self positioning or forced positioning - as it relates to the pedagogical use of networked and mobile computing.

Researching transformative social action of the everyday cultural life of teachers joins the researcher in a continuous state of flux. It is prospective in outlook as it looks at the projects, after Schutz (1951) and Garfinkel (1967), that these teachers set for themselves and their colleagues, beyond existing practice towards transformations, rather than recyclings or restructurings, while also attending retrospectively to the pre-existing institutional order after Levi-Strauss (1978), Barthes (1957) and Greimas (1970/1987). The technological discourse bridges the macro-micro divide that has characterized social research. This study is empirical in that it shows the reader how the teachers were involved as co-contributors, how the teachers’ accounts were interpreted while illustrating how research may be framed in an affective and meaningful space. It has sought to provide a transformational model of social action, which accounts for continuous transformation of possibilities and mechanisms in the discursive behaviour of human agents which understands transformational social action as the interrelation between these two categories: ontological and phenomenological. We are now asking as a way of studying the transformational action of teachers: how does the action of the teacher fit within the semiosis of the everyday enactment of the curriculum?

The framework depicting the widened scope of a transformational model of social action now affords an analysis of both the individual and the institution. For instance, the analysis of the agency of the teacher which is central to intentionality is expressed via the agency/actuality dimension and not from either of the discourse or possibility/structure dimensions. In this way the framework defines the scope of transformational research and nothing-less is meaningful as teacher agency or reflective intentional action within that framework.

At the three levels of social action, Discourses, represents teacher agency at the level of ordinary conversation between intentional agents; Agency, represents the level of engagement or actuality; and, Structures, represents the level of rules that enable or constrain possibilities. A description of teacher agency at any one of these ontological levels, in which teacher agency is described in each of the three phenomenological dimensions, explains their agency in relation to the new technology, in terms of their reflexive, motivational activities, and in their self-positioning or forced-positioning which is constitutive of their pedagogical use of networked and mobile computing. Furthermore, being a teacher is different for each
individual teacher in each of these phenomenological dimensions, that is, the way a teacher uses materials, transacts socially, and makes intuitive judgements, does not exhaust the possibilities afforded to another teacher, in the use of materials, in social transactions, and, in meaning making.

The dramaturgical account while being the mode of presentation of teacher perspectival accounts does not exhaust their descriptions of their interactions with the technology, or their transactions between others and the technology. The dramaturgical form is characteristic of both action theory and practice theory. However, in this study the drama is not expressed via descriptions of teachers or machines in action, but rather with how they work in practice. The dramaturgical account is concerned with the work teachers do with computers and communications technology, colleagues and students: in making meaning of identity formation, institutional change and social transformation.

The actors - ‘Alex, Max and Leslie’ are each acting out of an existing institutional order which I call the analogue order of teaching (defined earlier) and into another which I consider to be an emerging analogue-digital form of teaching. For Alex and Max is beginning to emerge, for Leslie the analogue-digital order of teaching, either pre-exists or has been privately endorsed. While influenced by different organizational structures the teachers pioneering the new technology are not individually or collectively inventing a new reality. They are attending to a project involving new technology loosely defined, that afforded research expression of the dialectic of self-cultivation and communal powers, between autobiography and biography.

Teacher-to-teacher relationships in a community of practice is shown developing within a social-cultural context in which the local moral order shapes social identities, influences membership of discursive circles, and enables/constrains self-improvement. The teacher-to-teacher relationship (and the teacher-to-student relationship) experienced as doings and sayings, observed as action and talk, described as non-discursive and discursive practices was shown as constitutive of teacher practice. The school as a social and cultural institution is shown in Chapter 5 and 6 teacher accounts refiguring the expressive order to honour those people working there by creating roles or redefining position descriptions for those people engaged in reimagining their agency and claiming responsibility for renegotiating change in their day-to-day activities and those of the community at large. The maintenance/expressive orders are seen not to operate independently where community gatekeepers mindful of
institutional imperatives of educational improvement exercised control through repositioning the project in the service of institutional reproduction and institutionalization. On the other-side, teachers, in claiming self-improvement as a ‘right’ or at least assumed as an unstated expectation in which people are allowed to seek out projects of particular interest to themselves in the belief that they are being treated with respect and valued as a member of the school community.

7.7 Teacher Conversations as Causal

Harré (2009) in his critique of social representation theory observes that people have a tendency to misplace causality by consistently ignoring the need to identify the agency that brings about change. The public social representation of the work of teachers often claiming research support reifies the forms of processes, such as a teacher’s use of a data logger or a ticker timer to teach velocity and acceleration in a Physics class, into a substantive entity, like “good Physics teaching”. The socialization of the new technologies described in the current study required the study of the construction of practices around the use or resistance to the use of these ‘cultural objects’. These processes came to be ascribed or attributed to a private or shared meaning in the “moral life” of teachers. In the teachers accounts of their own and others agential practices in the current study that are experienced as attributes of individuals are derived from social forms, in their historically grown communities of discursive practice. Social orders of practical maintenance and expression or honour were enhanced. Charles Taylor’s (1992) in his philosophical study or the ethics of authenticity, arguing in a parallel vein that the self develops dialogically and the “horizons of significance” which our culture provides are essential references for our sense of ourselves. To explore teachers’ “horizons of significance” involves exploring the local moral order in their school, the authoritative principles, rules, values and norms that are expressive of the socially prevalent conception of good teaching and teaching as a moral craft as well as a practical epistemology.

In Harré’s analysis of social representations his criticism is directed towards the tendency to divert attention from fine-grained social analysis. For instance, social representations depicted in Harvey’s sociological TMSA illuminate the tension between sociological constructs of community and agency which have a problem identifying the agent-being. In this respect Harré’s criticism implies an argument about Simmel’s process of self-cultivation, especially
since, in this study teachers are seen as being involved in social negotiations. In Harvey’s analysis community structures are privileged over agentive structures as causal. Moreover, what is clearly weak in Simmel’s dual praxis process of self-cultivation and cultural appropriation is the lack of detail at the level of the social.

How does one understand human behaviour and transformative teacher practice in schools which appear outwardly to be very conservative, never changing institutions yet, inwardly beneath the surface ‘everything is in flux’, such that during the period of the study and beyond everything has changed.

After Wittgenstein (1953/1958) and Vygotsky (1962/1986) I have argued along with Harré that the content of the daily activities of teachers, can be seen as the meanings of the orderly activities of human beings, carried by social processes that are either literally conversations or have the form of conversations. The everyday conversations of teachers in schools I see as agentive: reproducing in one sense and transforming in another. Teacher conversations reproduce teacher behaviour in that they confirm or challenge that this is the right thing to do: going on in the same way as others. Conversations also can transform teacher behaviour in crossing sociocultural boundaries of others via discursive and non-discursive practices and illuminating what others are doing and saying. The teacher technology-pioneers, in attempting to understand their own self-contradictory existence looked to the perspectival accounts of others, in other communities of practice, where in finding that things do not appear or behave in this space like they do in their own setting reposition themselves in their own storyline that inform their perspective on an emerging future in which memory and invention are intertwined. Harvey, after Bhaskar, Marx and Habermas, in understanding forms of life as wider symbolic interactions, in terms of argument between ideological positions, between capital and labour; between gatekeepers and workers; between teacher as management and teacher as practitioner and not just as conversation, would be critical of Harré’s conversational model of social action. To them it is dialectic arguments rather than everyday dialogue that is shaping the teacher’s identity formation.
7.8 Researching Site-based Proto-social Experiments

The doings and sayings reported in this study of a number of social episodes in different schools, I argue can be studied as part of a larger proto-social experiment that is located in the private/public psychological spaces of the teacher technology-pioneers. It is not as if they were ever in a position of thinking that they could take technologically naive or disinterested teachers and engage them in a conversation about the ‘new order’ that They experienced the outside world to be embracing. In the discursive circles of their respective schools Alex and Max are not in that position in which they have the moral capacity needed to influence the attitudes and behaviours of others. The established moral order in their schools sanctions, embodies and embeds their colleagues’ palimpsestuous analogue practices as interpretative enactment of the “rules” and “roles” thereby embracing their authentic selves, rather than any radically divergent behaviour constitutive of an emergent analogue-digital curriculum.

The teacher technology-pioneers in this study are describing a possible analogue-digital future afforded by the introduction of historically available resources in site-based educational settings. They are not claiming to be inventing a new reality. In this research ‘reality’ is taken to be co-constructed in the reflexive experiences of the teacher participants. These reflexive experiential claims from teachers of their pedagogical use of new technology points to knowledge of or skill in the use of the technology gained via personal interaction with the technology or in transactions with students, staff and the technology. I think they would all have agreed with Wittgenstein in the characterization of their originality as agents of change:

I believe my originality (if that is the right word) is an originality belonging to the soil rather than to the seed. … Sow a seed in my soil and it will grow differently than it would in any other soil. (Wittgenstein 1980, p. 36)

In their perspectival accounts the teachers are aware intentionally that ‘it’s me’. There is subjectivity in their biography. However, this is not to eschew the notion of them as ‘social beings’ as in Heidegger’s (1927/1962) ontology as a tool or equipment.

This study is not arguing for teacher agency as free will but rather attempts to illuminate the partial and incomplete nature of many social representations of teacher agency. Positioning analysis of dramaturgical accounts represent how teachers saw their moral position. How they
responded to the moral context. Teachers pioneering the pedagogical use of new technology do not make themselves agents of change. That is something that is granted to them or withdrawn from them or redefined by others. In becoming technologically literate, in becoming agents of technological change, Alex, Max and Leslie held beliefs, acquired knowledge and gained skills considered by other teachers as ‘unfamiliar’, ‘strange’, or ‘esoteric’ with little perceived relevance to their contemporary pedagogical practice. In referring to this study as a site-based proto-social experiment I am implying that Alex, Max and Leslie were ‘loners’, in the sense that they were ‘technologically literate’ at a stage before any sort of analogue-digital discursive community had been established. In what sense then is the project to be understood as social? This research attempts to shine a light on the early socialization of the new technologies.

In the proto-social experiment, in seeking to define the undefinable, their project, the teacher technology-pioneers probably had a sense of being licensed in their community to ‘explore’ and then ‘demonstrate’ (via informal talk) pedagogical use and distribution of the new resource, partly because these new resources were available in a broad sense in the school and raised questions of access and equity. Who has permission for their use? How should permissions be determined? What rules apply in regulating the use of these historically available resources? This teacher-talk, the informal exchange between colleagues intermingling possible futures with stories of actual day-to-day activities, the use of collaborative constitutive practices constitute individuals co-constructing a mutually intelligible world.

In general, funded research into teaching and professional development has served policy interventions with the purpose of replacing faulty remedies with effective treatments. The social models applied have been determinist and the psychological models applied have either assumed teachers were deficient, lacking knowledge or skill, in need of rehabilitation or assumed teachers were all knowing individual actors, with no unanalysed habits or motives but in need of social direction. This study, in adopting an action theoretical frame embedded in the discursive practices of teachers as intentional agents, at the intersection of their purposes and social necessities, is better placed to describe and make sense of their positioning and role-bearing participation in the process of educational transformation. If educational change is a change of complexes of social practices, then it presupposes not only the feasibility of a transformation of social and cultural codes or norms, and of bodies, minds
and of human subjects, but also a transformation of artefacts. The presence of new technologies in schools, in affording a study of challenges to existing pedagogical practice warranted a transformational model of social action of teachers in a cultural setting. With the advent of new communications media the division between micro- and macro-social change is seen as dissolving. The dramaturgical accounts of the pioneering teachers show them positioning themselves and being positioned often in different discourse circles as agents of change. They are giving their account. As the researcher, I have not attempted to speak on their behalf. The study shows individuals, in the process of interacting with materials, transforming themselves and the institutional organization, bringing about reciprocal change and more often seeing themselves as failing as change agents.

Not all action or practice theories recognize teacher intentionality. When Alex says that he “didn’t have the structures”, I take this to be a reference to community relations. One in which, if interpreted within Bourdieu’s or Giddens’ practice theories does not shed light on teacher’s intentions. In the practice theories of Bourdieu and Giddens the concept of action is replaced by the concept of structures, and structures determine the teachers’ role. These practice theories, identified at a distance with the ‘top-down’ model of management or institutional learning are not sufficiently refined to describe the fine-grained moral context of teaching or the distribution of duties and responsibilities in institutions.

Moreover as Pred (1983) observed,

Nobody identifiable with the structuration perspective really has succeeded in conceptualizing the means by which the everyday shaping and reproduction of self and society, of individual and institution, come to be expressed as specific structure-influenced and structure-influencing practices occurring at determinate locations in time and space, or as time-space detailed situations that at one and the same time are rooted in past time-space detailed situations and serve as the potential roots of future time-space detailed situations. They all fail to inform us precisely how the everyday functioning and reproduction of particular cultural, economic, and political institutions in time and space are continuously bound up with the temporally and spatially specific actions, knowledge build - up, and biographies of particular individuals. (Pred 1983, p. 46)
The more recent site-based societist practice theories of Schatzki and Latour, afford a better frame for a social phenomenological study in which teachers who are not all knowing but act intentionally in an ethogenic framework of people and materials and in which structures have influence but do not determine agency. Teachers’ working habits, habits of interpretation, habits of belief and true belief were not and probably are still not yet established in relation to the proper use of analogue-digital technologies. These habits had not at the time of my interviews remodelled the “global education industry”; they did not yet represent a social network of new practices, including professional learning or teaching practices. The meaning of new technology within the institutional order of the school community is shown in the accounts of these pioneers to be emergent from how the technical artefacts were handled and interpreted as constitutive of effective elements of teaching practices. The school, as the only social institution charged with prime moral responsibility to act in the interests of the young, becomes the setting where teachers of each discipline and students transact a curriculum that enacts an analogue-digital curriculum as a constitutive element of their social practices: their transactional doings and sayings. The intimate style of research illustrated here endeavours to demonstrate not so much the truth about teachers’ agency as the "idea" of natural speech along with its alogical structures in related episodes of social change. This is a study of teacher behaviour; a study of teacher action, of teacher transactional doings and sayings; a study of the everyday cultural activity of teachers. As Adams (2003) argues “It is in interaction or dialogue (including conflict) where both self and culture reside, where it is brought to life, constantly reinforced and redefined” (p. 234).
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Appendix 1

Extract from Transcript

LEX

September 23, 1998
Lex (Science Coordinator)
September 23, 1998
Extract from Transcript

Enthusiast
(E H S)

Q: What I'm doing I'm looking at the types of components of my research one component deals with a private school one component deals with a navigator school one component deals with a group of teachers that I call enthusiasts another is what I call willing participants and the fifth component is volunteers who've self subscribed to an email discussion list. So I'm looking at the ideas that are generated in those five sample sources and in particular I'm looking at what effect this digital technology learning technology whatever words people use is having on the work of teachers and their learning. There's a lot of interest in outputs for students and there's a lot of research being done on the value of all of this for kids but what I'm interested is specifically how this particular piece of educational technology how it's actually been taken up by the teachers. What are the effects, concerns. What are the issues associated with learning? That's the professional development aspect. I've designated you as an enthusiast. Now I don't have if you like a particular definition but my definition comes down to that with any idea any change anything that's happening there's always a group of people who are out there doing something and they don't necessarily need inducements. They're there and when they look back they look over their shoulder they don't see themselves necessarily as an expert but there's a whole group of people standing behind them saying ‘there's the expert’. And quite often this person is just been interested enthusiastically interested.
So what I'm interested in is how did you get involved?

A: Well I see myself as a bit of a change agent when I've approached any situation. So in my previous activities I was looking to focus on school systems in terms of structures and organisation - that was with my previous experience with the teachers union - and structures and resourcing and that sort of thing. When that opportunity was removed I moved into science co-ordination at a suburban high school. Enrolment at that stage was 1100 and I immediately recognised that could easily be mid 60s or mid 70s in terms of the style of teaching taking place. in that it was very much … activity based. It hadn’t changed from that
time. They'd adopted PSSC, ASEP with a passion at that stage. They didn't change in the 80s didn't change in the 90s. The equipment they were using was straight out of the 70s. Still nothing that plugged in. Nothing that used batteries which is probably a good thing in that it was more reliable more predictable. The students related to the processes and constructions that they were doing quite well but the level of achievement or performance level of the students was still fairly ah well under developed, if you like. It was very limited in what the expectations were. So the expectations were quite low of these students in terms of 'here's an activity, I want you to do this - build or construct or plan or whatever design - and they'd work on it for several hours. So it could be a week or two weeks work which was really good. They were all involved. They had to write up what they were doing. Ok. The end product. What is it …and you think well that's good but it's quite limited and my motivation was ok with this level of concrete activity because it was hands on which is really good which we all recognise as still the way for children students adolescence to relate to the content - the academic content of what we're trying to tell them they have to actually experience it for themselves if they're going to adopt it. How we can accelerate that a bit more to get a higher level of performance really in terms of getting further down the track.

The history at EHS is that there is an elective middle school so that students opt into particular units of work which is a bit of a farce of choice but because the students have had a say in choosing say water which is the name of one unit which is all to do with environment and the chemistry of water in the Creek down 200 metres away and they go down and fall in the creek and throw things and all that sort of thing but they actually take water samples and they take observations and they've now got a weekly record for six years of the condition of that creek which is a pretty good achievement. I'm not sure that anyone else around the place has got continuous record to that degree and they've plotted the different types of organisms that they find under microscope or just in some sort of observation like get several litres of water and they just basically sift through it and find out what sort of plant material what sort of dissolved solids what sort of sediments that type of thing. So it's really quite a good activity and the kids enjoy it because they think that they've had a say in being able to choose it. But again they weren't using any technologies it was all if you like home-made materials. Now with the adoption of the portable data gathering equipment we've now been able to give them as advanced tools as exist and they can go to the creek and the activity is exactly the same as what they were doing- the observations are exactly the same but now they're actually able to take quantitative reliable quantitative measurements and so they're actually take a huge leap -
so now they've got conductivity measurements and salinity measurements and ph measurements which just add a bit more science to it all. rather than if you like the garden variety nature study it's actually taken it into the realms of what people would recognise as serious science we can actually have numbers and have graphs and have analysis. It's not just one person's observation which would be at odds with a second person's observations. So it brings in that science repeatable observable more rigorous study which the teachers could see the benefit. There's two teachers particularly involved in this one project, could see the benefits of that immediately. The biology teachers they hadn't touched computers they're not interested in using keyboard computers at all. Their assessment is it takes a certain amount of time for them to learn what to do. It takes a certain amount of time for the students to understand what the expectation is and come to terms with the technology then when they look at the end result they say well really if it's just a graph we could plot it on paper and it would be done in a tenth of the time. So pursuing technology for its own sake just to say look we've got a laser print out of a graph - not interested. Because the number of data points they're collecting is do able by students. However, when we've gone to having a carbon dioxide probe for the biology teachers. They've said we can't do this currently with any technologies that exist. The students have no understanding of what carbon dioxide concentrations are and now we've got this little box that basically you can wave in the air and it measures carbon dioxide in about three seconds. Or you can put worms in a jar and measure the carbon dioxide output or germinating seeds in a jar and these biology teachers are saying you can't do this any other way. You can set the timing of the readings every one minute, three minutes, five minutes take your pick and they've just embraced it wholeheartedly without a moments hesitation. And again its back to that ideal of rigorous qualitative data that can't be gathered any other way and they've really moved on in that regard. So now instead of being described as luddites or … they've moved into the wholehearted adoption of this technologies and while they're still sceptics they'll look at things and say why would I want to do that? I've really encouraged that as a science coordinator and say well you have to ask that question why would you do that if it's not somehow better than what you're currently doing or easier or some clear improvement then why would you do it? My response is well you wouldn’t.

From a science faculty department … Point of view we're not interested in keyboard computers and large numbers of them. We want appropriate tools at the appropriate. time. It would be nice to have a few keyboards but we're not going to get them in a hurry because it
costs money and our priorities are in other places. With regards to the other areas the approach I took as science coordinator was to say well look there are some benefits to these technologies. I've discovered that internet provides me with information I couldn't otherwise get access to. You might want to explore that. The ultrasonic motion detectors are just brilliant for physics which is the area that I was interested in. I can't do that activity with the previous technology, you might be interested and so the offer was if you want to explore some of this we'll give you time and we'll give you money for the hardware. Go away and explore it. You come up with your own assessment and if you think it's good enough then get on with it and use it in class. But the pressure was not - here's the boxes I've just bought as science coordinator you must use them and here's the unit to use them in. So it was very much the lateral approach because certainly with my staff there's 22 teachers of science there's probably only 12 that call themselves science teachers and they're all fiercely independent. And even though we do have a course outline they don't all do the same thing. In fact there's a bit of a competition not to do the same thing as in sure I did this topic but this is the way I did it. So the conversations are all around about the variations on the normal way of doing it. So here's the normal way of doing it and this is the way I did it. And this is the way I did it. And it's quite exciting really all these variations.

Q: What I'm interested in - you made a comment at one stage that you had discovered things now I'm interested in pursuing that aspect. I've got a sense of how it's emerging in your school and how you've been able to provide if you like opportunities for individual members of staff to make judgements. But I'm now would like to focus a little bit on you. What were the things that interested you about the technology? .... How would you describe how you became involved with computers? Like you may have been involved in computers long before the internet and digital technologies. So what is it about this stuff that captured your imagination?

A: Well I had an Apple II in 1980 so basically one of the first Apple II’s the first batch of Apple II to arrive. It was the first IIE that came out. So it was a big advance in computer technology.

Q: Can you recollect when you actually got it and what it was about this Apple II I mean like....
A: Ah bigger better faster. it was just so much greatly improved on what was previously available. I’d always been interested in interfacing data gathering right from day one.

Q: Was this the physics side of you?

A: Yeah pretty much physics yeah. Fred was my first year physics lecturer too which might have had a little bit of influence. Having Robyn, Rex you can’t help but have that sort of influence going on through science education as my undergraduate course. So straight away it was how can you have relevant hands on concrete experiences to improve learning. So that’s been sort of the track I’ve taken all the way through. So that’s training 74 or so. So I was working with John at Melbourne University about connecting these things. He’s now at Melbourne University connecting these things to computers to try and record temperature. Make our own probes and that sort of stuff which was impossible the electronics involved was quite ridiculous and quite complicated. But it still happened and just to be able to do that and get 20 temperature readings taken and logged and then put into a graph on a screen was a huge achievement at the time.

Q: So was this at Uni or when you left?

A: That was as a student.

Q: As a student, so that was part of your project work that you were interested in?

A: No that was outside of it.

Q: So it was just an interest? And you keyed up with like minded people?

A: Well the only computers available at the University at that stage were main frame operations so it was quite refreshing to be able to have something that was transportable. It was highly portable.

Q: And was this your initiative or what’s driving…. I’m trying to understand ….
A: It was a bit spontaneous really. It’s just the nature of the enthusiasm that was around at the time where like minded students - the people are still around.

Q: Apart from John and Fred - are there any people who were around there at the time that you still have contact with now?

A: John G was the laboratory manager, he’s the John now at Monash with the interfacing and he was available to help. Here, try this. Here try that. Peter who’s still around I think he’s at … most days and there’s probably about 6 or 8 people who are still in the physics area who are still presenting at physics conferences. They’re still in the system and were all students at the same time although some people like rob … and Trevor… who are up at Rochester - they were a couple of years ahead but the point was - hey try this out. Can we turn this into something that we can use in classes - because you can’t do this in school now - and if you could do it in school I’m sure that the students would have more interest. If you’ve got more interest then you get greater understanding, greater understanding so called improved learning. So it’s that cycle of attempting to encourage interest and basically to follow our own interests. I am assuming that we were typical students which we may or may not have been but early identification was that all of us there could listen and read books and take it from a - if you like - a flat technology - that is it’s a photo of it or a poor line diagram in a book - and abstract it and relate it to something real. Now the attempt was to turn that flat technology into 3D real stuff where you could actually get your hands on it and do it and that was really the motivation.

Q: So describe your journey from the 80s when you had your Apple IIE to now what have you got?

A: A variety whatever’s available. I don’t actually have a computer myself these days.

Q: So what’s the journey like what’s the significant bits along the way that you would see as important?

A: It’s basically opportunism as in whatever is available make use of and don’t get too wedded to this particular piece of technology cause it’s only a tool and something better will turn up in a little while but we’ll use this for the moment to try and well see what it will do.
So it’s a classic experiment. It’s a crutch in terms of here’s some equipment let’s see what we can find out about it.

Q: What school were you at in 1980?

A: That would have been probably Warrandyte.

Q: Ok so at Warrandyte you’ve got an Apple IIE, you’ve got kids who you are teaching Science?

A: We also had a new school. No resources at all and so we had to basically invent all the materials.

Q: When you say no resources did you have a curriculum?

A: We were inventing it as we go along.

Q: What was the faculty’s view in terms of risk taking and….

A: Basically try anything. We also had a fundamental fitness approach at the school where classes were stopped at 9.30 each day and everyone had to undertake about 40 minutes of physical activity of some sort. Some people went on a run, some people took aerobics whatever. All staff, office staff the entire show. So in terms of involvement it’s pretty strong involvement, pretty extreme involvement really….

Q: By the time you finished at Warrandyte, how long were you there for?

A: 6 years.

Q: What was the change? Like in terms of I’m specifically talking about the use of the computers in your classrooms and things like that. From when you first came in to when you left how would you sum up that change? What was happening?
A: Well basically people who had an interest were supported as in my third year there Tom … came into the place. So I was maths coordinator he came in as science coordinator and so we got along pretty well and just tried things out and said hey here’s a better way to integrate the maths and science let’s give it a go. Other teachers involved said this has to be a better way to do things. It doesn’t take us long for a start, kids are more interested, more relevant because they can choose their own topics, areas of interest….

Q: How was the computer being used?

A: As a tool. Just as a labour saving collation device.

Q: It wasn’t the word processing side of it?

A: Oh to some degree but there weren’t enough of them to go around so it was used mostly as data gathering. I think for collating data, graphing and that type of thing.

Q: So in that period of six years of development and use and implementation describe the learning pathway for you. How did you go? How did you progress?

A: Well basically self taught with an interest in the technology - the computers at that stage were relatively simple, no more difficult than the computer studies that I’d done at University. I’d done… so a lot simpler than that basically.

Q: So this is the programming side?

A: The programming side of it was straight forward. People wanted to do things they couldn’t do it. I had the mathematics and programming so I got involved with it from that point of view. And so again it’s a … well it’s a technician basically. So I was quite often involved in things as a technician to get a result as in these people identified what they wanted to achieve they could identify where they were but they couldn’t see how they could get to where they wanted to be. And so it was a matter of arranging things and just challenging - well why do you want to go there? What’s the best way of getting there? What’s the cheapest way of getting there? What’s the simplest way of getting there and just sort of weighing that up and then basically getting on with it in terms of attempting to get a satisfactory process.
Q: In your self teaching pathway did you find it was … in isolation or did you find that you could reach out to a network?

A: Oh no there’s a few like minded people around the place.
Appendix 2

Extract of Transcript

ALEX

Wednesday 20 January 1999

MAX

Thursday 21 January 1999

LESLIE

18 March 1999
Alex (Science Coordinator)
Wednesday 20 January 1999
Extract of Transcript
Enthusiast
(N H S)

Q: Ok so tell me, when did you first come across computers?

A: I first came across microcomputers at the University. Second year chemistry, third year chemistry. In physical chem we did a little bit of computer programming in basic when I did my honours.

Q: What system were you using?

A: It would have been close to DOS 1.

Q: Right so it was still DOS base so apples…..

A: Oh yeah no no no it was DOS IBM.

Q: IBM?

A: It was IBM based. I looked on it as a challenge. I actually wrote a couple of computer programs using Basic in my honours year for …and they were basic programs…for magnetic susceptibility. Showed these programs to my supervisor who thought I was the biggest load of rubbish … for wasting my time on this sort of nonsense. But I enjoyed it. I then didn’t do anything more. …. I left computers but as I say I kept copies of those programs…. left computers until I got to K P High School in 1985.

Q: First appointment?

A: First appointment. One of the things I can say about K P High even though it was a rather notorious school for many other reasons they did have one of the most expensive computer labs you could imagine and I was very good friends with the computer teacher.
Q: Now they had computer labs, so they didn’t have computers distributed through the school in classrooms?

A: Oh yes. It was the old fashioned notion of computers.

Q: Were they IBM or MAC?

A: IBM.

Q: What year was this?

A: 85. They were not IBM clones they were actually full IBMs.

Q: They must have had some funding then?

A: Absolutely. Money was spent and the school had a policy of allowing teachers to borrow the computers over the holidays. So I’d take them home work on various things. It was there that I actually learnt to word process. We didn’t do word processing in Uni. Computers were very serious things you used them for programming, to run programs to ….

Q: Where did you pick up the programming skills at the University?

A: Oh just playing around with games.

Q: So you didn’t do a formal course?

A: No. It was a basic and I’m talking basic 1.0.

Q: But did you learn like did you have a manual did you self teach yourself?

A: I didn’t get… I taught myself. It was a case of sort of an intellectual community you’d share ideas amongst the people there.
Q: Ok but you didn’t have a manual or anything and there were no help menus?

A: No.

Q: So word of mouth and collaboration…

…

Q: The shareware was kind of like on diskettes was it?

A: Yep.

Q: So it wasn’t on a bulletin board or anything? Had you got into that technology at that stage? When you were looking at the shareware what types of things were you interested in?

A: Partly games, partly science and technology programs, teaching programs. It was very early using computers for teaching chemistry for teaching maths.

Q: When was this?

A: It would have been about 91, 92. And in 91 Rayleen also shifted up to Mount Beauty for three terms, she was a teacher at the time and I shifted in with a computer programmer, and ok he was a UNIX computer programmer but he also had a micro computer….

Q: This is … out at Keilor.

A: No, no he was a computer programmer for the State Bank as it was at the time. And so we’d be … he taught me how to write dos batch files and that sort of thing which I hadn’t done until then. He showed me how to programme in basic.

Q: Do you use that still? Visual Basic? Or did you just go back to simple Basic?

A: I tend to use simple Basic more if I need to write anything though these days I haven’t really got the time to write because again it’s the puzzle solving sort of thing the thing you do when you get a few hours and you like a challenge.
Q: So 91, 92 you started to use shareware programs, now how did you use them with your kids?

A: I’d actually play with them at home enjoy playing with them then I’d take them in to the classroom and show kids things like desktop planetariums. I got one of those in 92. Excellent still use it. The updated version of course. Some of the other ones like WTChem … was sort of a flash card style….

Q: So your approach to the shareware, how did you learn them?

A: It was a very much a suck and see approach. With the shareware most of the time it doesn’t come with the instructions, you simply play with it.

Q: Why didn’t you give up when it didn’t work or you couldn’t work it out?

A: I like the challenge.

Q: Were there any that beat you?

A: Yes, one funnily a few weeks ago.

Q: What’s your reason why it beat you?

A: I just get to a level of frustration and say ok that’s it there’s more interesting things to do. What was the thing that beat me a few weeks ago – it was… Tomb Raider II … I can’t be bothered.

Q: So you mix games with serious usage of these programs?

A: Oh absolutely.

Q: Is there any serious software that’s beaten you? Like is there any shareware products that you’ve kind of purchased or now have other access to that you don’t know how to use?
A: One that probably I can use a little bit but I can’t be bothered to learn anything more about Access simply because of time reasons. Access is a very serious database. You have to have a drivers licence for it.

Q: So what’s your approach to something like Access how do you go about trying to understand how to use it? Have you done any courses?

A: No.

Q: Do you do any courses?

A: No.

Q: You’ve never done a course?

A: I have done courses in HTML coding, surfing and design layout for work sites but that’s it.

Q: So all of the other tools, applications that you use you’ve just learnt yourself?

A: Yes.

Q: Do you learn just by trial and error or do you actually read the help notes or do you read step by step manuals?

A: I have always found the step by step manuals to be somewhat discouraging because they are written for people who know how to use it. Trial and error is really very much the case.

Q: Ok so 91-92 at the school what support for teachers who wanted to get involved in computers?

A: None.
Q: So how were computers used? who had the domain of the computers? Still the info tech people?

A: It was info tech people yes and then we had a …I think was the end of 92 a rather interesting gentleman walked through the door and by the way just to round it off I had already started playing with databases and spreadsheets. I came across a marvellous program called Works II. IBM Works II which had it all, word processing, database, it had everything.

Q: When you say you came across how do you come across programs?

A: In that case it was something given to me at school – ‘cause I was doing things - up til the start of 92 I was doing an awful lot with WordStar but no one else could read it and my father gave me a copy of Works I. It wasn’t a copy he actually gave to me the program Works I. Because I had Works I, they gave me an upgrade to Works II with no pain and Works II had already been started to be adopted as the program of choice at school. So I started to use that.

Q: Why was that?

A: I’m not sure.

…

…

Q: Alright so you were saying how it has effected your teaching. Like using the internet. What effect has that had on your professional outlook? Has it changed your professional outlook on things? Like access to PD?

A: Access to PD but also science teaching in many ways is a lot like LOTE. You are a chemistry teacher, you are a biology teacher, you are a physics teacher …. In many ways, particularly at the senior end it is as if you are one of say two chemistry teachers in the school. It really cuts down your professional network, so using this sort of thing list serves, email groups you get into a much wider network of expertise and backgrounds when it comes to teaching in that particular area.
Q: Ok now you’re a member of about 4 email groups now or some smaller number?

A: Yes.

Q: Now do you actually contribute to them?

A: Oh yeah. Well that’s the expectation, not only do you pose the questions, somebody poses the question or starts a chat, a discussion thread then you contribute to it as the case may be.

Q: And would you say on one of these discussion groups would you be like a name that people would know i.e. you’re a high frequency user or are you a more circumspect user?

A: I used to be, I used to be but (side one ends here)

SIDE TWO

Q: … since 94 so four years ago if you hadn’t had the internet what effect do you think it would have had on your professional development?

A: I think it would be a little more sort of meat and potatoes type teaching. You’d be sitting there sort of going… very homogeneous in approach.

Q: So have you got examples of how the actual surfing on the internet or using the chat discussions of how you’ve been able to make significant changes to what you actually provide to your students?

A: Oh yeah, for example the Ooblauk mystery.

Q: Spell it.

A: Ooblauk

Q: Ok what’s that?
A: It’s corn flour and water and food dye and the students basically perform a series of investigations onto a material that is a non fluid or is it? You hit it and it’s a solid. You move slowly through it it’s a liquid and you can sip it, drip it down, drip it slowly down string. Do all sorts of weird things. You can beat it slowly with an egg beater but you beat it fast and you break the egg beater.

Q: And you found that on the internet?

A: Yeah.

Q: What other projects have you had your kids involved with?

A: Murder Under the Microscope.

Q: Run by who, what’s that about?

A: Run by the New South Wales Department of Conservation. It’s a six week unit whereby they will sell you the course. Six weeks with software online software support, fax, email, video stream support. And that’s fabulous.

Q: Do you do it every year?

A: Yes.

Q: What level?

A: Year 7 and as of next year it’s now going to be a formal part of the year 7 course. All year 7 students will do it at the one time. In addition to that there is Key Pals whereby the students basically form an email friend with somebody overseas, usually Canada.

Q: Why Canada? Easy access?

A: Easy access but they tend to be a little bit more Australian in outlook than the US folks.
Q: How did you find them?

A: Route 66. Various internet sites that I do use such as the Online Path, The Online Frog Dissection those sorts of things and they’re very good to use.

Q: Now when you say professional development, what’s this professional development mean when you talk about the internet? Give me an example of how you’ve been professionally developed? Is it just an increase of your knowledge?

A: Knowledge and skills and attitudes.

Q: But there’s no specific courses it’s just because you’re exposed to more information?

A: No there are courses on the internet these days.

Q: Have you done any of these courses?

A: Yes I’ve used a couple of the internet courses.

Q: Like for example, give me an example?

A: I can’t remember their names.

Q: Oh no but what were they dealing with?

A: Using the internet, using email.

Q: Are these like software ones, like learning with the internet?

A: No, no these are internic.

Q: Oh ok so tell me about that.
A: It was basically an online email course.

Q: How do you get to it?

A: You sent an email to a web address and each day they’d send you some exercises and homework to work through some various sites on the internet.

Q: And how did you discover this?

A: It was through one of the email lists.

Q: So information about the internet which you got on an email list you then acted on it and then you learnt something?

A: Picked up some ideas yes.

Q: Alright ok so we’ll go back now to your school where you’ve now transferred to the Navigator School

A: Navigator High, yes.

Q: And you transferred as?

A: Science coordinator.

Q: Now this transfer is this promotion?

A: Very much a promotion, yes.

Q: So you’re now designated leading teacher?

A: 3

Q: 3. And before at your other school you were?
A: Just ordinary teacher.

Q: So you jumped?

A: Two levels.

Q: Ok now it was a science and technology position?

A: Yes the school’s a science and technology school and I was brought in from outside as somebody who would effect change. Somebody who would get the other teachers to use the internet and to use the learning technologies in school.

Q: So the focus was it on the internet learning technologies not on the science and technology?

A: Half and half.

Q: So what would you see your brief was? What did you understand your brief to be when you were given the appointment?

A: To get them out of the 1960s for starters.

Q: Who gave you the brief?

A: It was an unstated understanding that I was there to work hard and to get everyone onside. And to get people using the technology.

Q: Ok now given that there had been no formal professional development at the schools you had been at before in relation to learning technologies, and you hadn’t undertaken any formal PD except for the online email and related HTML courses run by Sunrise Labs, how did you feel you were going to fit into this new role of being a change agent?
A: Oh I quite enjoyed it. For the simple reason I had actually run night courses in using computers.

Q: With whom and where?

A: Oh with parents at the school.

Q: And how did that come about?

A: I had encouraged the CAE to form a collaboration with the school. I was the night school sort of coordinator there and we were running introduction to computers.

Q: Did you run the course classes?
Max (Professional Development Coordinator)
Thursday 21 Jan 1999
Extract from Transcript
Enthusiast
(B S C)
Q: I am interested in how you got involved with computers?

A: What stage, I think I got involved in 1987 when the school that I was at was an alternative school setting.

Q: Which school was that?

A: It was C alternative school.

Q: Oh were you there?

A: Yeah, we were dealing with you know those kind of kids. Ones who didn’t get along in school. We got some extra funds and we bought some Apple 2es because that’s all we could afford at the time. I thought they were a good idea and what happened because I thought it was a good idea I was immediately announced as the expert on the computers. I was delegated the expert on the Apple 2es. We only had two of them at the time. And I had also gone back to Uni. I’d finished my DipEd and I’d gone back and started my BEd to upgrade it because I was interested in learning. I came across Bank Street Writer on the Apple 2es and I found it the most easiest way of writing. Of typing up essays. Because if you’d done it in the old style where you had to redraft your essays handwriting was the most laborious way of doing it. And Bank Street Writer allowed me to redraft - but you had to go into edit mode and redraft mode to do that thing. And you could cut and copy, cut and paste and all that kind of things. And I realised it had a lot of advantages. I’d bought some software packages such as Where in the World is Carmen Santiago? - Which was on a floppy and the kids really enjoyed it. Especially for early literacy problems which the kids at Alternative High had. And I became aware of the advantages in the simple things that kids could do much more easier. It wasn’t that it solved the problem of thinking or solve the problem of kids doing it - but it
made it easier for kids to do. For an example, it made it easier for me to do my things. So it became a tool which I found very useful.

Q: Yeah, yeah. So in 87 was the first time you came across computers? You hadn’t used them before?

A: I’d used them before, the PCs but I had always found them very unfriendly and so I’d never gone out of my way to do anything with them. It was the first time that I found a computer which was user friendly and without any need to know a lot of knowledge about computers.

Q: Right, so you used it at the school and at the same time you were doing your BEd part-time?

A: Yes.

Q: Where were you doing your BEd?

A: I was doing it at Melbourne State the old Melbourne Uni.

Q: So it was Melbourne State College? Ok. Was computers part of your work you were studying or did you just use it as a tool to assist?

A: It was just a tool to assist. No one at Uni was using it. I can’t even remember any computer labs at all in Melbourne State; I can’t remember anywhere where there was a computer, what I can remember of them. And so yeah I used it as a tool for my benefit because I realised that it had a lot of advantages.

Q: So this was 87?

A: Yeah.

Q: Now, so at the school level you used it with students so it was portable was it?
A: Yeah. I had to make it portable so that we could move it into the classrooms.

Q: Where you the only one that used the computer?

A: I was the one who initiated it and then I showed one or two staff members how they could incorporate it into their classrooms, just using it and one of the teachers found it really useful for her English and she started incorporating it into her English. Basically word processing so that the kids could just type in information, the idea was that the kids had to keep journals and she immediately got the kids to type in their journals rather than actually writing. She was impressed that they could then do spell check and all those kinds of things.

Q: Did you have a printer?

…

…

Q: And it was open to all levels of students like across the KLAs?

A: Yeah. There was no specific focus on KLAs at the time.

Q: Did that class evolve into something else or did you maintain that type of focus as it was for two or three years?

A: That class evolved and the final year I was running we were running like PhotoShop we were running like classes. I was running a PhotoShop class. I was running a word class. And I think PhotoShop and word were the two I was using at the time …. Oh PageMaker sorry as well. And we were running - I was running classes for fourth year students on those things because they were the programs that had been really popular in schools and I could see it because I was visiting schools and kids were really engaged. And again the focus wasn’t to learn the program it was what to do with it.

Q: So although at the time you came to the university in 93 your school which may or may not be typical - your school wasn’t specifically using the computer in the general KLA sense.
It was specific groups that were using it. But while you were at the university for a couple of years – at least in other schools there seemed to be a greater acceptance of the computer across KLAs?

A: I wouldn’t say a greater acceptance. I think what happened was … by the time I left B Secondary College (by that stage it had changed its name) - the guy who had set up the little room with the six computers - he had moved into a whole classroom and so there was a whole classroom of PCs but they were all secondhand, whatever he could get his hands on. And there was a conscious awareness of computers and their use but it was very much focused on specific people who were willing to take it on. What I noticed as I went through my three years at Uni and visiting other schools there was an interest in computers. And what happened was the computers got cheaper. There was more access to better computers. And so that whole thing of the speed in which things were changing increased. So, yeah, I think it was a combination - the speed, the cheaper pricing.

Q: You were able to keep up with this change in the sense that more people now were accepting computers in schools, even the Teachers. You were now actually taking classes and demonstrating the curriculum aspect of the technology. So although you didn’t have professional development yourself - you were now at the leading edge of their use in education?

A: I didn’t see myself as being at the leading edge but I would say yeah, I mean I was helping those kids the student teachers because I felt that it was important to be aware of these computers.

Q: Alright, now in terms of your Masters work were you still using it as a tool?

A: Yeah. I was using the internet by this stage for research and to access information …

Q: So tell me about how you were doing that?

A: Well I was using ERIC. You can access ERIC on the internet. You can access databases which search for journals and articles and all that kind of stuff. And I was using that to access journals and articles which then I could find - of course you still have to go and get them from...
the library - but I could find articles and all that kind of stuff. I started using packages which allowed me to store the information. I was using CD databases to access journals. I was still using it to write up my thesis at the time. I was just using anything I could do to access information as quickly as I could and as easily as I could without having to spend more time in the library. I found going to the library not very conducive to doing things.

Q: Did you use the computers in the library?

A: Yeah I used the computers in the library.

Q: Or did you also make use of the function where in your office you could look up the Melbourne University library?

A: Yeah you could do that. I accessed the normal library books from my office but you couldn’t actually use a database at that stage from outside you still had to go into the library. So I still went to the library to use the database. If my wife Tanya wanted a book she’d ring me up and I’d say wait a second and I’d call up the library and look it up and say yeah I’ve got it here I can get it for you so it was really easy for me with those kinds of things.

Q: Alright so 93, 94, 95, you were still at the University?

A: Yeah.

Q: So you’d upgraded your skills and you now had more knowledge about a whole lot of packages. You were involved with curriculum and technology. You’ve used it as a research tool, the internet as a research tool and also you used PowerPoint as a tool and aid in the presentation of your thesis.

A: Yeah.

Q: Ok now you’ve returned to the same school in 96 and you’re still there now in 99?

A: Yeah.
Q: Alright so what did you notice had changed when you arrived back in relation to learning technologies?

A: What I noticed was that there was more awareness of computers. Staff were much more aware of the computers even though they might not have used them there were a lot more computers around. Two computers actually had been installed into the staffroom because one of the teachers was interested in using it and he had set it up.

Q: What type of computer?

A: Again they were Macs ‘cause he was Mac orientated. So he set up a Mac. The trouble with our school is that we’ve got a Mac group of people. We’ve got a PC group of people. It’s almost an advantage ‘because now we have a Mac lab and a PC lab. They were both running at the same time. We also had the computer upstairs which was internet connected. And the staff were becoming aware of its usefulness. But again it was for particular staff. Again there was a bent. There was only internet upstairs. There was no internet on the 2 PCs or the Macs. And again by the time the computer teachers used the computer rooms and by the time particular teachers used the staffroom computers there wasn’t much access for other teachers and their classes.

Q: Right so that’s 96?

A: Yeah 96.

Q: Ok now had you returned with a position of responsibility?

A: No I came back as a normal teacher.

Q: In the same area?

A: Yeah woodwork.

Q: Ok so that was 96?
A: Yeah.

Q: Did anything happen in 96 did you move somewhere?

A: Yeah I was put into excess and I was transferred to E High School for a term and I was also asked to at the same time to assist Anglican Girls Grammar School in Ringwood – to oversee their technology program.

Q: Their technology program. Was that the information technology program?

A: No just the general technology program.

Q: Ok. Now in terms of when you went to E High what was their culture like in relation to learning technology?

A: It was very amusing because they had two labs both Macs I think. I can’t remember now. And there was a Mac in the staffroom where I was assigned. It was very amusing watching this teacher say look what this computer can do. I’m not putting him down but I just found it amusing that he was focusing on how you can change a colour on a picture because he was using PhotoShop. Or how you could use a particular software program to paint like an impressionist or paint like a realist. I found that amusing. At that stage the digital camera hadn’t been seen. There was a science teacher who was interested in the digital camera. You may know him, I can’t remember his name from the top of my head but you know him.

Q: Lex.

A: That’s right, Lex. AT E high school there were two labs – they were very much computer labs, but they weren’t used very much. Except for one teacher who was interested in PhotoShop. … He was a computer science teacher and he was showing the kids how to use the digital camera at that time. Again it was still very specialised. There were computers at the back of some English rooms for word processing. They weren’t networked or anything particular but they were networked for printing and all that kind of stuff. And there was a lab which one of the teachers was setting up because he was a photographic teacher and he wanted to use PhotoShop and he was incorporating PhotoShop into his teaching. The use of
technology was based on personal choice, very patchwork. There wasn’t from what I noticed … any particular way to do it. Once someone did something in PhotoShop, for instance, it was always done that way from then on.

Q: And where did the package come from?

A: They bought it off a company who set it up for them. It was either PC or Mac. You could either get a PC from Lex or you got the Mac version. So it didn’t worry me but you could get any version.

Q: So apart from the report writing exercise were you using computers at all while you were at E High?

A: No, I was locked out again. … I think … I was locked out not intentionally but I was locked out because of what I taught. That is what I was given to teach and I wasn’t given access.

Q: So what were you teaching then?

A: I was teaching photography. Well I was virtually teaching all photography.

Q: And so did you use a digital or optical camera?

A: No! No! There was no digital camera. I wasn’t allowed to use a digital camera and I couldn’t use the PhotoShop stuff at all. So it was just the old traditional way of taking snaps and developing and all that kind of stuff.

Q: Ok so how long were you there?

A: I was only there a term.

Q: Ok so you then returned to B High?

A: Yeah.
Q: And nothing much had changed?

A: No nothing changes.

Q: You returned to the same area?

A: Yeah. Back to Arts and Technology - not information technology. It wasn’t because I didn’t try or maybe I didn’t try hard enough. I was never actually given access to computer rooms and I think the only time I did anything was when I forced the teacher who was teaching photography - … to give me one of his computers so I could take it into the art room for my year 10s and get those kids to do something outside the classroom. And do something with computers but it was very difficult to use the computer rooms because I was at the end of the barrel. ‘Why would a woodwork teacher be wanting to use or an art teacher wanting to use the computers?’

Q: Ok so 97. 96 closed 97. You’ve finished your Masters by now?

A: Yeah.

Q: So what’s happening in 97? Are you still in the same teaching areas?

A: Yeah, I became the PD coordinator.

Q: Now how did that happen? Vacancy?

A: A vacancy occurred as the person doing it left. The first thing I did is I offered every teacher in the school - What I did was an audit of all the computers, all the software and everything that was in the school in computer terminals.

Q: Why did you do that?
A: I did that because I felt that the first thing - I felt that the only way you’re going to get teachers to use computers or information is firstly to know what’s in the school. If you don’t know what’s in the school you won’t know whether or not you can actually use it.

Q: Why are you focussing on computers when it seemed that prior to this point in time that computers wasn’t a high priority in the school?

A: Well I saw the need because I saw that things were changing very quickly and I saw the DOE moving towards that kind of stuff. And I also knew that the Navigator schools had started.

Q: So you were being influenced … or the school was being influenced by things happening outside?

A: I think I was, because I felt that there was a real need to become technologically literate. The staff needed to be technologically literate and the only way that you could do that was to make staff conscious of things. Those staff weren’t aware of anything.
Leslie (Learning Technology Coordinator, Mag-Net Project Officer)

Extract of Transcript
18 March 1999

Q: when did you first start using a computer?

A: I probably first started using a computer maybe about 8 years ago at a school that I was at. I taught there for about five years and the principal who’d been there, he was very innovative I think in a lot of ways. He had a computer lab and we had computers and we were allowed to take the computers home to use. I think that was really good. I didn’t know much about computers. I did like one subject when I did my fourth year at Uni. Up until then I hadn’t really had much to do with computers and then towards the end of that year when I knew I was going to be leaving that school we’d just been overseas and we made the decision that we should buy a computer for home. So we bought a computer, we bought a Macintosh and we had that at home. I used to you know do work on it for school or whatever. It wasn’t major, certainly not the way I use it now. Then I changed schools. And when I arrived I was busy telling the Principal, David, one day about how I was going to do my work program on the computer and he said to me how would you like to be the computer coordinator and I said oh alright as long as you don’t mind that I’ll ask you questions. Cause he’d been doing the job previously and then it just sort of went on from there. I became the computer coordinator of the school. Then I was responsible for getting the computers into the school and I suppose at the time I was always trying to stay one step ahead of everyone else. So probably at that time I had that little bit more knowledge than a lot of the people at the school cause a lot of the people - I mean this is six years ago when I started at the school - they were a bit nervous a bit scared about computers. When I started at the school we only had 2es and I think there were about four Mac SEs and my budget that I’d been given enabled me to buy two computers. So then I went back and said to David, this isn’t enough I need more money and he gave me more money. I had to go to school council but we got enough to buy another two computers. So we eventually had one what I would call at that stage a decent computer per grade level. It used to rotate round and then the next year we bought another four and so there were two or whatever. By then people were starting you know they’re wanting to use them more and more. So we ended up we went to school council and we got enough money so that we had a computer for every classroom. I think for me that was another steep learning curve because
the computers we had before were Macs which was what I was familiar with suddenly we bought all these IBM compatibles so I had to learn how to deal with them as well.

Q: I’ll just take you back to about 1991 this would have been round about 8 years ago when you started teaching?

A: About 92 would be when I mean the computers were at the school and I started to use them.

Q: Which was your first school before you went to Learning primary?

A: B primary, it’s in Widefields, Coolaroo.

Q: So you were in B Primary School and that’s about 92?

A: Yeah I went there in 89 and I was there until the end of 93.

Q: Ok so it was in that last year or the second last year that you got interested in computers because you’re principal was interested in computers?

A: And also too because I was doing my Bachelor of Education. The first year I was there I was doing my Bachelor of Education at Melbourne and so I used to present my assignments on computer so we were allowed to take the computer home to type up our assignments.

Q: So you took a notebook or something like that?

A: No they weren’t notebooks they were just like a regular computer.

Q: Oh they’re the Macs in a big bag?

A: Yeah you had to take them in the big bag.

Q: And who were you working with there? Cause I was there at the time….
A: Oh I did a subject with I think it was a subject with David R

Q: Yeah.

A: That was the only thing you know, the subject I ever did like while I was at Uni. So that was 89 that I did that my BEd and I did the computer subject and we had a computer teacher at the school at B primary and she was really you know she helped me a bit. And as I said like the principal James I think he was actually quite visionary at that stage because there was … a lab of fifteen computers or whatever and the kids would go in once a week for their lessons. And also then there were other computers in the classrooms not every classroom like you’d share it between four classrooms or whatever. When I think back to like when I started at that school ten years ago that was pretty visionary I think. The sad thing is that they haven’t actually gone any further. In the time that I’ve left the school cause I’ve still got a friend there and like they haven’t really gone any further which I think is pretty sad. Whereas I look at Learning primary when I started there six years ago we had nothing but because David I think is you know he’s visionary in his own way and because he is very supportive of the technology. I think in comparison to a lot of primary schools we’re pretty well off because he’s prepared to support it.

…

…

A: … they think that it’s a lot better for people to be using the technology that’s in their school, that they’re familiar with, because the trouble is you go off you do a course you’re using a particular computer you get back to your school, your computer looks different or it acts differently and then people just go I can’t do this and that’s the end of that. So we don’t …I mean if people want to go to them, I mean a few people have, they’ve gone to Monash and a few things like that but the majority of the people are fairly happy with the training that they get at the school. One thing I did this year … I gave them a single sheet where they had to do - to complete - rather than spend time doing that whole big survey -Professional Development- did you see the department survey?

Q: Yeah, the teaching capabilities.
A: Yeah which I mean for some of them is a nightmare and like I mean I couldn’t do some of the stuff. And I said that to them - look don’t feel bad about it cause I can’t do some of these things. But what I did this year was just on a one page sheet they had to write something they achieved last year. Like it might have been that they learned how to use the scanner or they might have learnt how to organise their files. So something positive, then they had to write what their personal goal was for the year. Then they had to write what their goal for the grade was. So trying to get them to focus on what they want to achieve with their grade and then the last part of it was what assistance they’re going to need in terms of you know - we want you to show us how to do this. Or we want you to come in and work with us. That type of thing. I actually think that that’s probably a little bit more useful for me in my role than say giving them the capability survey again. I mean we might do that next year maybe just to see how we’re going but I just didn’t think that it served any real purpose and I also wanted people to be a little bit positive about what they have achieved because as we were saying before people tend to put themselves down and they do need to feel good about themselves even if it is a little thing. Now they know how to do this one thing that’s still a positive step and I think that that should be emphasised a lot and I try to always encourage people no matter how small the step is I try to really be positive about that step. You know say well before you couldn’t do that and now you can do this and cause that’s really really important to teachers. Teachers are just like kids, they need positive reinforcement and unfortunately we don’t always get that. I guess I’m lucky as well at my school I’ve got a really good computer committee. I’ve been lucky I’ve had them for about the last three years and they’re a really good support backup for me. They’re part of the committee and they’re really committed to it. What they’ve achieved, their growth. Like last year I had them running sessions on the curriculum day. Sort of trying to get them to build up their professional skills in terms of presenting because you know what people are like. You know, Do you want to be a presenter? Oh, no. I couldn’t possibly do that. And it is just - I think if you’re just thrown into it where you don’t have a choice. I try to build up their confidence that they can do these things. So the same with the Curriculum Day on Monday. A couple of them are going to be the helpers who go around and advise other people about what to do and everything.

Q: And the membership of the committee? Where do they come from?

Q: We try to have a grade level representative. One from each grade level, so a prep, a one/two, a three/four, a five/six and a specialist teacher. The structure is slightly altered
because we’ve just had a timetable change and now what we’re doing we’re actually going to run our committee meetings every second Monday after school. We will have a very short staff meeting and then run our curriculum meetings cause we’ve just reduced lunch time and so that’s created a lot of possible meeting times.

Q: This committee … does it have decision making powers?

A: In terms of how to spend the money and things like that?

Q: Well spending the money, but what about, alright spending the money and say like if you want to do something in the school which relates to PD or what’s the process for implementing an idea?
Appendix 3

Cyber Grammar School

Extract from Transcript

KIM & JESSIE

May 6 1996

SANDY

Tuesday 21 October, 1997
Kim (Director of Computing) and Jessie (Chair of the Curriculum Technologies Forum)

Extract from Transcript
May 6th 1996

Private school

Jessie: Chair of the Technical Sub-committee, Responsible for developing the Technology Plan, provides multimedia training for staff and parents.

The particular bit of the document I wrote I could speak about with authority. …. it has basically happened [been implemented] to the letter. And is continually happening [being implemented] to the letter. Because we developed along a certain path and we are heading in certain directions (strategic planning). And basically we have got the thing [technology plan] to that point [where] … We went ‘shopping’, (This is not the best word) for the platform and then the re-seller. The whole partnership sort of thing.

Even before we got the notebooks for the staff, I was someone two years ago, who said: ‘We should put responsibility for the computer program [professional development] onto the faculty’.

Paul is the Network Manager (non-teaching staff) “This is actually the first time that I have been allowed to put it down [the network [ for more than five minutes”. KIM: Paul was originally from Choice Connections, and at the moment he is classified as an independent contractor.

Kim: Actually he is contracted by NEC as part of our contract with NEC. We have a long term business contract with NEC. Which I can give you

Q: To Paul: How long have you been in the technical side?
Paul: It depends, generally in computers six to eight years. It just depends on the level of work I have been working on. A lot of it has been part-time. In networks probably about two years now. In general six to eight.
Jessie: I think there is probably ourselves, Wesley now, and some other schools will give a half, two-thirds. That has changed. The school I came from – I was from Bradley. You know well resourced. Three years ago I had a Notebook as a key person. But I was only one of a dozen or so. I hear that from next year everyone will have one. But they still have no PD programs. It was a faculty based very informal – but there was no clear plan like we have developed here. I think Bradley is suffering as a result. They have heaps of resources, good people but no real idea about how to bring it all about in the classroom. So that is something we have avoided to a large extent. There is always things that slip through the cracks. Problems that come up. Still the PD. Making sure that things translate from having the equipment and the

Kim
Director of Computing
Cyber Grammar School
Extract of Transcript
May 6 1996 TAPE 22

(Discussion took place while on a guided tour of the school computing facilities)

Q: You were saying about the staff.

A: At Cyber Grammar there is a great deal of expertise and interest amongst the staff. I think in some schools the IT interest is held by two or three people.
This is the Hub or nerve centre That is the Systems Manager, everything happens from here.
The walls of one side of this room were made of glass which enabled members of staff to observe the students working in the next room.

Q: What class would this be?

A: This would probably be a group 3 (pause). I don’t know. This is, this is, interesting. It could be a subject based class.

Q: Right.
A: Or it could be a test class. It would be interesting to ask them. I don’t know exactly what the situation is. Excuse me.

Q (field note): I am in the nerve centre where they have the Novell network where there have seven workspaces.
The room is quite small and cluttered)

A: This year the Information Technology classes are in these resource centres and they all have notebooks. So the teachers and the students are connected to the network via the notebooks. All IT students need notebooks.

Q: Their own notebooks?

A: Yes their own notebooks. The school provides the connections with NEC which I will talk about later.
So this means that our Computer Resource Centres are available to anyone who gets in and books.
This may be a CAT class or a subject based class.

Q: So how many of these rooms do you have?

A: In the whole school three. Two in the senior school. This one will not be upgraded any more.

Q: Right.

A: We will probably use it for another one and half years because in 1998 the year nine students will have to purchase their own notebooks.

…

…
A: Some subjects have research, word processing. Maths use calculators. Maths is tricky in the school because at the moment Maths is in blocks. If you get six at one time organising is very difficult. We have a class set of twenty notebooks which will come into play this term (term2, 1997). Which will allow a little more flexibility? You can see that these are starting to be used. You can see the pattern there. Home Economics is becoming quite full. You will get to the stage when you can’t book the room.

These are the CAT classes which we have one period a week. These are both curriculum based and skill based.

And you have 225 which is the other lab. It is not used as much as it is not quite as good. At the start of the year we had a few problems with that room.

H80 the LOTE lab uses the projector. People book it. It is a good way to use the projector.

Q9 you can’t really book because it has classes. It can be booked after school.

Q: Alright, I see.

A: So that answers your question. Anyone who wants to. I want it to be so full that people have to negotiate between each other.

A: This will have to be revamped. Here are the network connections.

Q (field note): We have now entered a large room with comfortable chairs – the staff lounge

A: This is for staff, for coffee and things. We can have a coffee in a minute and you can ask some more questions. At the moment the staff are doing all their report writing. They have access to the network. In someways this forces the staff to use the technology. There are still some staff who are reluctant to use the computer.

People come and ask for help. It is not an easy thing. (The reporting task) has started the ball rolling. Greg B uses the computers as a normal thing. If you have a problem you can ask three or four people for help.
A: We will go to the Junior School.

Q: You refer to the junior school as P – 6.

A: That’s right. The lunch times are staggered.

Q: Do you have responsibility in the Junior School as well as the Senior School?

A: More now, it used to be a little more separate. The junior was left to its own devices. They have a computer coordinator and they work together. All the PD is now all joined. When you have twenty senior staff and six Junior staff in sessions they are just booked by anybody and everybody.

Q: How many people are involved in contributing to the Computer Professional Development?

KIM: As many as we can get.
Computer Reference meets every Tuesday morning. Which is a faculty based decision making committee discussing the nitty gritty. It is where it is all happening.
Last year (1996) the Computer Reference was more an ad hoc developmental committee. We had this committee because what we found happening was that different people knew things, but not everyone knew. All those things.
I knew technical things as the Systems Manager. We needed to get together as things were moving along. You should talk to Tony K and Jessie about their roles, because my views are probably different to theirs about how things were.
Today the Computer Reference committee is faculty balanced and meets every week. It reports on what the faculties are doing and the state of the network. What the problems are and what we need to do for report writing. What is happening in the Junior school? They do very good things in the Junior school. We tend to forget about what they are doing. They have more flexibility sometimes.
We are also starting a Technology Forum, which is a small group interested in development. For example working with the Prahran Market in developing an Information Kiosk using Scala.
Q: Right.

A: What about Video Conferencing? We want to work with other organisations. We have a lot of business links. We are doing good stuff with them so why not work with us. New Magic. We will be a training centre for Scala because we are using it a lot.

Q (field note): Another staff member walks by.

A: Libby! This is Robert.

Q: Hello, how are you?

Libby: Well thanks.

A: The question was what responsibility do I have for the Junior School I have an overall responsibility. I am more logistical, but Libby is probably more hands-on, working with staff, in the computing area.

So I might do the PD but really I don’t tell them (Junior school) what to do. If Libby tells me that they want to buy software, well it’s their money. I don’t try and control what they do. I am interested.

This has developed during the last couple of years, where the Senior school has begun to work better with the Junior school.

A: To Libby: Robert is actually from Melbourne University and he is doing research on what the school is doing, with staff, students, notebooks and PD.

Q: I am interested in seeing how this technology impacts on teachers work and their learning. What are the pathways used by teachers: Whether they have accepted it or not accepted it. What are the barriers? What are the issues for teachers. And at the same time examining how the students respond to this technology. Also what improvements and efficiencies and benefits are available for the teaching and learning process.
A: I think we are doing good things. And it is good to have someone from outside to come in and have a look.

Libby: That’s right. To come in and have a look at what we are doing and see where we can improve.

Q: Does this have any effect on the network being down?

A: No. What they are trying to do is solve this problem once and for all.

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Sandy (Director of Curriculum)

Extract from Transcript
Discussion with: Director of Curriculum
Tuesday 21 October, 1997. TAPE: 53

SANDY: is the Director of Curriculum, Chair of the Computer Reference Committee, who monitors teacher Professional Development activities – ‘Keeper of the Hours’.

A: the Computer Reference Committee.

Q: Right. I was wondering if I could actually sit in on one of their meetings.

A: You certainly can, but there will not be one until the Tuesday after Cup Day. You could have come this morning, if I had known that.

If you want to (looking through a folder) - that’s what we did last week. That was the Agenda for today. I will write up that and email. I have you on the distribution list.

Have I got any other examples? They’re really not…

I think it might be best if you just look at that document.

Q: Right.

A: These are the types of issues: (referring to the Agenda/Minutes)

A: History Years 7 and 8, Primary, Science, Geography, Information Technology, English, LOTE, and the Library. So there is a cross section of people represented on this committee. It is not a decision-making body. It is a forum for the sharing of ideas, or raising issues to pass on to those who do make decisions.

The printer in H80 is an on-going irritation. It is now fixed, although it has been on the agenda every week. So it is the kind of place where people could bring that up. The Junior school scanner is now working, some computers not working. This was the first time that we found out about that. So it was the chance for the Junior school person to say that. The on-going issue of the practicalities of the borrowing and returning of the Notebook computers from the Library.
Q: Right.

A: So there is a class-set which the teachers can borrow. But the hassle for the librarian’s is checking them out at the beginning of a period and then checking them at the end of the period. And charging them up. They have all of these chords. They call that spaghetti junction. We are looking at simplifying that without paying for a huge transformer.

We looked at the Current Practices Document which is - current practices is student policy on student behaviour with computers. We went through and made changes. Then that went through to the School’s Policy Committee for approval. The essence of it was that we wanted to know whether teachers had the right to check what students were doing with their email on their Notebook computers. Was this email private? The conclusion was that it wasn’t private but we shouldn’t be looking at it without the student there.

Q: Right.

A: We used the analogy of the English Journal, where so long as it is at school it is a school document. Teachers had a right to see it. It is not a private thing. So email that they are doing at school is not private is the conclusion we came up with.

The System Manager would have the authority to look at students accounts. He has the level of computer authority. In other words he can go into the system and see what everyone else is doing. He does not do that without the kid being there. So that we dealt with.

How to book the computer labs was a practical issue. Why some teachers have now got themselves non-computer classes permanently booked into computer labs. A sweet-heart deal between them and the time-tabler. That was something we found out about, and realised that that was wrong. So it was a forum to discuss that.

And report on people doing the Wyntom homepage which was the Tim Wyntom thing with Year 10 English. The Prahran Market project we were doing with touch screen thing.

And then the Technical Sub-committee which is working through classroom practices with Notebook Computers. How do you actually change the classroom environment, when you have a notebook computer? What are the discipline measures when students don’t bring their Notebook Computers? All that sort of thing. So they reported. I reported on the VSAM trial. So we could keep everybody up to date on what was going on.
We did all that in half an hour. So we obviously go into it in profound detail. But I think it has been a strength of our computer policy formulation and monitoring of practices that we actually have that group that meets regularly. You are most welcome to come. That is an example of what they do.

Q: I can take this? (Referring to the agenda/minutes)

A: Certainly.

Q: How important do you think this particular committee has been even though it doesn’t have decision-making powers, in terms of making the adjustments for the school to resolve issues as they arise?

A: I think it has been tremendously important. Crucial. The ground changes under your feet daily.

We are going through the issues of home access for next year. If the parents buy a Modem card, they can get access to the school’s main-frame, but can they or can they not get access to the CD-ROM data. Will that be too slow to download? Can we allow them access to the Internet via the school? Is the school going to set itself up as an Internet Service Provider? Therefore does the school have legal liability for what kids do rightly or wrongly on the Internet?

That is an issue that came up in the last week. Now it’s not a place where decisions are made. The decision will be made by the Headmaster, the computer people and the Deputies. But it is a place to raise it. And it is also a place for people who don’t see themselves high in the pecking order to have an input. Now the fact that the Computer Reference Committee has minutes goes to officially the People who are on it, but then I have the distribution list of another twenty who like to know what is going on.

I think it has been tremendously valuable in letting the junior school think that they are really part of the system. It’s a tangible way of saying ‘Hey you are part of the whole thing’. And we are all in this together. I think it has been very crucial. I have fought for it and I haven’t
always won, but I fought to retain this forum, this weekly forum. The fact that it is weekly is part of its strength. People know that there is a place where they can have their say.

Q: Yes, that is one of the things when I heard about this committee; it struck me as being a very valuable part of the overall scheme of things, in this implementation process. Because there will be problems as it is all new. There are no traditional ways of resolving them and you do need this kind of committee.

A: No it has attracted criticism in that there is no Maths person on it because the Head of Maths doesn’t want to be involved. And the woman who comes representing Maths is not one of the leaders in the field. And so basically the people who come along are movers and shakers. That’s the crucial issue. And so you have got committed people who really are thinking through issues rather than people who are there for their status or position.

I have had a lot of flak from that, because ‘Why is it not representative?’ Where is the official body? I said that we have plenty of official bodies. We have Heads of Faculties, we have Policy, and we have got Heads of Houses. We have got all those forums. But this is just for the “movers and shakers” which is to really move and shake each other. I guess if I can put it that way.

Q: The other body the technical.

A: Yes, the Technical Sub-committee.

Q: How does that work? That’s looking at pedagogy and curriculum implementation.

A: It is a committee which I think is phasing itself out of business now.

(Referring to documents from another folder) This is my folder for my planning for the Notebook Implementation for next year. So that is how the English syllabus will look next year, which has incorporated computer use. What will we have on the ‘S’ drive. Where will we get Texts from? How will we use email? We will incorporate computers into how we will examine them. The projects that have to be done. And so forth.
History is the same. The issue of how we are going to teach them, how to select and cut and paste from the Internet. How we are going to use the Unit on Racism. How are they going to find information on racism in Australia. This is our planning for next year. The orientation is that in the first weeks we have to take seriously the fact that every kid has a notebook. And that they have to go home and say to their parents ‘We have had to use it’ Therefore we have to use or start with Graphmatica.

An exercise in maths, or a template for developing practical reports to do an Excel task for recording of data. And we have to do this straight away at the start of the year. As part of that planning, that is what we did last year. It looks a bit funny how it led to the committee.

Q: Right.

A: This is the research that we have done on other people who had problems with Notebook Computers and what they did. Glen Waverly, Wesley. This is what we worked out from MLC, Scotch.

Q: How did you collect that data?

A: We went there.
Appendix 4

Navigator School

Extract from Transcript

ANDY

9 May 1998

RONNIE

18 November 1998
Andy (Learning Technologies Coordinator)

Extract of Transcript: TAPE 2

9 May 1998
Navigator School

Q: How did you get involved?

A: In the project, I was appointed as a learning technologies or basically computer type person just before the school was awarded the Navigator school status. Or actually science and technology status.

Q: Ok so you came here...

A: Well within the school they recognised they had deficiencies in terms of well of obviously there was a level 3 position, a level 4 as it was at that point, before they changed the scales and so I was doing some interesting things in a small way in a school in Melton. And I basically looked at it and said I’ll have a fling at that. It was … really a school based position and it was more a faculty coordination position. Then with the onset of the science and technology centre which quickly burgeoned into the Navigator schools project, it was a very much an add on. You know, on the basis of, um, Don Hayward going to America and seeing ACOT and saying we should do some of that, and looking at how much money was available, setting up the Primary schools but piggy backing it onto the science and technology centres. So from that point it became a science and technology centre and a navigator school. It’s been very good and very exciting and broader horizons have given it a lot of structure. You know, to say here are the things that we should be doing. There is um I think at Sunrise Labs at RMIT hands-on PD for teachers – doing basic level HTML coding which is still rare in early 96 and that was a working group and basically it’s been going since then. In terms of infrastructure - the science and technology upgrade - it took about a year to get authorisation to actually spend things and then another sort of six months before Nate came in so we’ve had a fairly long lead-in time.

We’re trying to encourage things with people in terms of PD and other outcomes which was difficult and sort of on the never- never.
Q: So you were doing PD before the infrastructure upgrade started?

A: Oh certainly. With the grant money one of the things that was set up was the laptop program and that sort of bought say 20 computers.

Q: That’s for teachers?

A: That was for a class of kids actually because … when I got here there was basically no network infrastructure. There is some coaxial cable hooking in the senior lab room. There were no network printers. There was MacPlus thing running dickie card networks so it was really in the dark ages in terms of technology infrastructure. So what the funding basically did was for class infrastructure and then access to people which becomes something … a playground for some people. People if they really want to use it can have access to it. Other people that want to avoid it can still do so. And it becomes a school based issue about resourcing that and the ongoing issues of PD and getting meaningful activities in the classroom.

Q: In terms of say technology based PD activity was it in a lab or was it in the classroom?

A: It was held in the school hall the infrastructure was that bad.

Q: No once the infrastructure upgrade was complete.

A: It’s basically school wide LAN with points into every permanent classroom. The only thing neglected would have been old portables and such …. basically $200,000. So a substantial amount and that included servers. So a substantial amount - probably a quarter of the total grant went into basically cabling up the place.

Q: When did that start? Was it when you became a Navigator school in 96 is that right?

A: Yes.

Q: And by what time was the infrastructure complete?
A: it would have been 97 but I think term one 97.

Q: Term one 97, so it took a fair while?

A: Oh the process with the DOE was horrendous. … We had to guess what they wanted. In terms of the silent process to say here’s what we’re going to spend the money on, here’s the justification. Instead it was like this - we present stuff. You weren’t really told here’s what you have to have. The process then had to go to Spring St. we had to write our own tender which was a you know….who in the school writes a tender that’s basically fifty pages and talks about very specific terminology. In terms of patching and patching by perception and a whole range of terms that we ripped off - what we generated from um primary navigator schools. But still it’s very specific types of paraphernalia and laying that out for them, you just get caught in the bureaucratic process.

Q: Who was involved in writing that tender? How did that come about? I mean how did the school find out about the projects?

A: It went through the Deputy Principal. Ronnie basically took charge of that ‘cause I still had at least ¾ of a teaching load. And we tended to work shop it … Peter from Gateway Park was conscripted on a fee paying basis to basically go over it um and then in the end we basically sort of work shopped it and I took it in to the Department. In the end I basically did the formatting crap. You know the crappy side of the writing process. So that it was finished off. So Ronnie probably did the rump of it but she’d get others to look at it. She’s not a technical person so it went between Jamie, Nate and myself.
Ronnie (Deputy Principal)
Extract of Transcript
18 November 1998
Navigator School

Q: I found that you were one of the main people involved in the writing of the submission. Is that something that’s landed on your desk? You ran with it from the beginning or was it something you inherited?

A: From the beginning.

Q: So you saw potential?

A: Well we saw it in the School News, I had a talk to the Principal and said oh well we’ll give it a go. We went for the first round and didn’t get it and then there was the announcement of the last and subsequent two science and technology centres to be announced and one was in the northern corridor and we said right let’s go for it. I thought we’d do it properly or not do it at all, so we did and we were very lucky.

Q: When you were going through that process of putting the tender or submission together what strategy did you use like you’d have to involve the school, wouldn’t you?

A: To some extent I did I ran around and asked people their views and thoughts quickly but I had two weeks to write it.

Q: Oh I understand deadlines.

A: Yeah so it was get things together quickly. So just brainstorm with people take their ideas and form it up into a coherent whole I have to say the submission looks in our heads looks nothing like what ends up on paper. But it sounded as if we knew what we were talking about- some of which we did and some of which we didn’t. So what they did was they had a double process to short list the applicants. And then the short list of applicants fronted a panel which came out to the school for an hour and a half. You made a presentation. And in preparation for that presentation one of our staff members whose husband was used to this
process … came along and helped us and so forth. So we presented along the lines of value adding, you know, what extra value you’re going to get out of this, that and the other. How we’re going to link into the local community. How education fits in with the project. So we came up with environmental sciences because we’re at the confluence of a range of different waterways and air pollution and all that sort of business in the city. So, I thought communications technology would be a good one as well. So it was a science and technology centre that was our special focus area and after we got it we started to go through the hoops and so forth. You know, designing what we were going to have in the school. But they said, oh we’re going into the Navigator we’ve got a new idea now and so the focus you know changed slightly to technology across the curriculum. Not to the absolute exclusion of technology in science but it sort of got muddied and greyed and blurred. So that’s how it happened.

Q: That was ’95 ’96?

A: ’95

Q: ’95

A: Yeah ’95 we won the submission in the September and in ’96 the Navigator was started up. Then we had to write a tender for the infrastructure of the school and I didn’t know a damn thing so just had to start talking madly to people again to write that. Gee that was a learning curve.

Q: A steep learning curve?

A: Shit yeah.

Q: So how do you feel three years on?

A: I never want to go through it again although it’s been terribly exciting and very very interesting. It’s always interesting when you’re learning new stuff it’s invigorating you know I can see possibilities you’re not stuck in the drudgery of it all although at the time the work
load is enormous it can be exciting and invigorating doing it when you know that you’re doing it for something real. So from that point of view I think I’ve really enjoyed it.

Q: And what changes would you say you’ve seen within the school culture?

A: I think it’s just opened up everything basically. This is me talking I’m sure lots of staff wouldn’t see it the way I see it. But I see it as it’s almost a revolution in a lot of the things that we do and to some extent it will change the school quite markedly in its culture its approach to what its doing. I think that that’s a lot of the important thing because it’s just gadgetry that you’re talking about but the effect of the gadgetry is just I think that it makes for a much more cooperative approach by everybody in the school. It’s like the classrooms have been completely opened up totally. And they have in a sense, people walk in and out of classrooms now a lot more, naturally because we’ve got a lot of visitors in the school too. We’ve had to open up our practices to each other help each other and work as teams. Obviously your connection with the outside world through online stuff is opening things up too so it is physically opening things as well as philosophically too I think. We’ve had to open up and talk rethinks our teaching practices. I know I’m using jargon here I don’t want to do that but you know that way of thinking some people are doing that and they’re doing it with great interest and fascination and other people are saying leave me alone. But I think ultimately it will turn our thinking, you know, rethinking about what education is. And I always think that’s a fascinating thing to do when you’re in education. But you don’t do it very often. You know you have someone out to the school on a morning as a key note speaker for something and for a couple of hours you think oh shit that’s interesting you know and then next day you go back in and teach them as if nothing has changed.

Q: In terms of the staff obviously many of them were involved in practicum’s now and so they teach either staff in your school or staff in neighbouring schools or other schools. Would you say that you could actually see some changes in even the way in which some of the staff feel - are they more confident?

A: It has a number of effects, it does make them examine what they’re doing it does put on them an onus to be innovative and think and really take up what this means in their classroom. I’m talking about a minority in the school alright because it really is landed on a number of people who are prepared to take this up in a real sense and there are a lot of people who are
flapping at the edges or pretending to or not really understanding what’s going on or refusing. So we’ll talk about this focus group who are a minority. So they have had to come to grips with it in a very real sense in terms of teaching but the other interesting thing is because many of them try to talk to the practicums so people come into it see what they’re doing in their classroom – so there’s that aspect of it - feeling confident about than- and feeling in control of it. But also having to articulate what it is that they’re doing and that actually is a great change thing for people when they speak to other people about what they’re doing and talk about it. From two points of view they have to have confidence about it themselves the other thing is that they get this sense of pride about what they’re doing. I think you know when we’ve always taught children. You know when you think ‘Oh shit I’m in a portable out here. Nobody knows what I’m doing. They couldn’t give a root anyway.’ So who cares except about what happens to the kids you know. But now it’s almost as if people are watching and caring about you. And you can show off your wares and that’s a great thing it’s a bit of affirmation really isn’t it? For people. So I think it’s been terrific from that point of view and as well it puts a bit of pep and liveliness into people. I’m very much in favour of it.
Author/s:
Roe, Robert Malcolm

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