Investigating how an authentic task can promote student engagement when learning about Australian history

Peter Edward Morrissey

University of Wollongong

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School of Education
Faculty of Social Sciences

Investigating how an Authentic Task can Promote Student Engagement when Learning about Australian History

Peter Edward Morrissey

"This thesis is presented as part of the requirements for the award of the Degree of Doctor of Education from the University of Wollongong"

May 2014
DECLARATION

I, Peter Edward Morrissey, declare that this thesis, submitted in fulfilment of the requirements for the award of Doctor of Education, in the School of Education, Faculty of Social Sciences, University of Wollongong, is wholly my own work unless otherwise referenced or acknowledged. The document has not been submitted for qualifications at any other academic institution.

Peter Edward Morrissey
24 May 2014
ABSTRACT

The importance of learning about National history has been well recognised and has led to public debate about the content and how it should be presented to students. A perceived lack of student engagement with history has led to suggestions that a change in classroom pedagogy from teacher to student-centred activities is warranted. This study investigated the research problem of defining design principles to assist teachers in motivating and engaging students in the study of Australian History through the use of technology to support authentic tasks.

The study employed a design-based research (DBR) approach to investigate how an authentic task that involved students utilising a web site resource to research the story of a WW1 soldier, could engage and motivate high school History students. The intervention was implemented with Year 9 students in an Australian regional high school. The investigation examined the design principles, student processes and the teacher’s role in the delivery and completion of a student-centred, technology-based, authentic task. The study involved three iterative cycles of investigation during a period of three consecutive years at the same school with different students and teachers being involved each year. The study was conducted using qualitative methods within a design-based research framework. The sources of data were classroom observations and post-activity structured interviews with teachers and representative samples of students. The data collected was analysed using a constant comparative method to determine themes and issues related to the implemented solution. Three questions guided the investigation. (1) What are the critical principles applicable to the design of a technology-based authentic task, which will interest motivate and engage students in the study of Australian History? (2) What processes do students engage in when completing an authentic historical task using a technology-based learning resource? (3) How do teachers facilitate the use of a complex and sustained technology-based task in their history classes and what is their perception of improved learning outcomes for students?

This study showed that authentic activities can motivate and engage students when learning about Australian History. The motivation and engagement of students was consistent across the three iterations despite the differing circumstances applying in
each classroom situation. Eleven Design Principles to guide educators in planning authentic activities were derived from this research and are listed as follows:

1. Authentic activities with real-world relevance, and/or involving personal aspects of real people, lead to student engagement.
2. Authentic activities are complex, ill-defined tasks requiring investigation over a significant period of time.
3. “Authentic activities provide the opportunity for students to examine the task from different perspectives, using a variety of resources” (Reeves, Herrington, & Oliver, 2002, p. 564).
4. Authentic activities provide the opportunity to collaborate with others, even when working on individual tasks.
5. “Authentic activities provide the opportunity to reflect” (Reeves et al., 2002, p. 564).
6. Authentic activities require students to employ a range of different skills.
7. Authentic activities create worthwhile, complete products.
8. “Authentic activities are seamlessly integrated with assessment” (Reeves et al., 2002, p. 564).
10. Authentic activities require structured and documented support.
11. Authentic activities require access to teacher support.

An overall limitation to this study is that it involved one school and one year group across multiple years, thus the draft design principles derived will need further examination in other school contexts. Furthermore, there was no detailed analysis of assessment artefacts produced by the students to make a judgement on the quality of the ‘learning’ that had occurred, thus future studies could consider this.

The significant practical benefit derived from this DBR study to the school and the wider educational community was in the form of a student-centred unit of work focusing on the personal experiences of individual soldiers in World War One (WW1) which is now an important component of the school’s History curriculum.
ACKNOWLEDGEMENTS

This has been a long learning journey and I would like to express my gratitude to the many people who have helped me along the way.

I wish to thank my supervisors, Dr Shirley Agostinho and Professor Barry Harper, for their patience, guidance, support and confidence that I would finish this. They had to work with the challenges of distance and were always available to encourage and assist me along the way. I would also like to thank my first supervisor Dr Jan Herrington who encouraged and inspired me with the possibilities of design-based research.

Thank you to the teachers that have helped with the study: Jo Wilkin, Linda Davis, Kellie Nash, David Partridge, Duncan Graham, Phil Draper and Allison Stringer. This work would not have been possible without your enthusiastic encouragement and assistance. I would also like to thank the students who very generously participated in this research and acknowledge the casual conversation with Brian Shand that started me on this journey.

I wish to dedicate this work to my family – wife Julianne and children Michael, Caitlyn, Naomi, Liam and Imogen. Perseverance will also carry each of you along your own learning journeys.
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Chapter 1: Introduction

1.1 Introduction

This study investigated the use of an authentic task to promote student engagement in the learning of Australian History. The study examined the implementation of an authentic task in an Australian high school over three iterations during a period of three consecutive years using a design-based research approach. The authentic task was initially designed according to the authentic learning principles identified and promoted by Herrington and associates (Herrington, 2006; Herrington & Oliver, 2005; Herrington, Oliver, & Reeves, 2003; Herrington, Reeves, Oliver, & Woo, 2004; Lombardi, 2007; Reeves et al., 2002). The task required Year 9 History students to utilise Internet resources to discover the history of an individual World War One soldier from their local area.

This chapter explains the rationale for this study by discussing the importance of learning about history and the challenge faced to engage students when teaching history. The research questions that focused this study are presented followed by an overview of how a design-based research methodology was employed. The chapter concludes by outlining the structure of this thesis.

1.2 Background

The information revolution in the last two decades has changed the ways in which people access and use information (Ministerial Council on Education Employment Training and Youth Affairs, 2008) and transformed the resources available to teachers and students in the classroom. There has been considerable investment by schools in computer technologies (Halverson & Smith, 2009). An example of this in Australia has been the “Digital Education Revolution” (DER) funding. In 2008 the Australian Federal Government committed 1.2 billion dollars over 5 years to support Australian state governments to provide every school with extra computer equipment and high speed broadband connections for students (Digital Education Revolution, 2008).
Teachers have been challenged by this rapid technology change both in utilising it effectively in their teaching and in realising its potential for pedagogical transformation in the classroom (Groundwater-Smith, 2010; Orlando, 2011; Scrimshaw, 2004). A five-year longitudinal study of primary and secondary teachers in NSW (Australia) and their use of Information and Communication Technology (ICT) in the classroom by Orlando (2011) reported that teachers preferred a teacher-centred approach. This traditional teacher-centred approach has the teacher as the main source of knowledge and in close control of each lesson. The teacher typically writes and talks or lectures using visual aids while the students listen, answer questions and/or take notes. They preferred this approach because: they felt that the knowledge components of subject syllabi required a teacher-centred pedagogy; this approach was consistent with their core beliefs about teaching methods; and they felt too stressed from their high workload to try new methods (Orlando, 2011).

Yet a student-centred approach has the potential to promote the learner’s motivation and interest. Student-centred learning has as its basis the constructivist theory of learning where students actively and independently construct their own meaning from their experiences (O’Neill & McMahon, 2005). This approach can make use of a student’s natural tendency to want to learn according to their interests and desires. This natural tendency can be utilised through the elements of challenge, fantasy and curiosity (Greeno, Collins, & Resnick, 1996). The student-centred approach can be used with real-world, relevant (authentic) activities. Researchers such as Duffy & Cunningham (1996) state that: “Knowledge is context dependent, so learning should occur in contexts to which it is relevant” (p. 179). Authentic constructivist tasks which have meaningful contexts can assist students to learn (Ertmer & Newby, 1993).

The teaching and learning of history has been particularly challenged because whilst it is recognised that History is an important curriculum area (Clark, 2004), this importance of history study has not necessarily been reflected in student interest as there have been documented issues of student disengagement (Clark, 2008; O’Dwyer, 2007).
In Australia the importance of History study has been recognised at both State and Federal levels by a past State Premier of NSW’s intervention to strengthen the syllabus (Clark, 2004) and a past Australian Prime Minister’s attempt to influence the way Australian History is taught (Donnelly, 2007b; Howard, 2007a, 2007b).

History’s importance to the community has also been emphasised in the ongoing debate since 1970 in the way that History should be taught in schools and the type of content that should be included (Taylor, 2000, 2008). The debate has not only involved academics and associations but also sections of the public press (Donnelly, 2007a, 2007b, 2011a, 2011b; Topsfield, 2008). The History debate has culminated in Australia with the introduction of a National Curriculum for History K-12, to be phased into schools by the States from 2014.

Yet, students’ lack of engagement and their perception of history as being ‘boring’ and irrelevant is considered by some to be a direct result of the way history has typically been taught to students with an emphasis and reliance on text book focussed activities (Edwards & Flack, 2002; Paterson, 2000; Warren, 2001). The pedagogy of most high school history teachers places importance on “textbook reading combined with teacher’s rehearsal and regurgitation of factual material” (Warren, 2001, p. 171). According to Paterson (2000) current behaviour and learning issues in students are related to the way traditional classrooms are organised and used.

This study is particularly pertinent given the national importance given to the learning of history as there have been claims and concerns that students within Australia and other Western societies have a poor knowledge of the history of their own country (Clark, 2008; O'Dwyer, 2007). Commentators have made claims, based on surveys, that high proportions of senior or university students in the USA (Evitts, 2005; Mintz, 2007), Britain, Canada and Australia (Clark, 2004) have a poor knowledge of their history.

While history teaching has documented issues with student commitment and teaching pedagogy (Clark, 2008; O'Dwyer, 2007), there are vast arrays of learning resources available online to potentially engage and motivate students. The NSW
History Years 7-10 Syllabus (in use until 2014) specifies ICT learning outcomes for all students as an essential component of the course (Board of Studies, 2003). In the last 10 years, a vast increase in the amount of primary source historical material has become available online to Australian History students. This material includes the digitised records of all Australian soldiers of World War One (WW1). This was ‘A Gift to the Nation’ from the National Archives of Australia (NAA) in 2007 (Howard, 2007c). The Australian War Memorial (AWM) has also digitised many manuscripts from their stores and made them available through the Internet.

The requirement of the History syllabus for teachers to incorporate ICT skills in their teaching curriculum also provides prospects for improving student engagement as the use of ICT has a positive effect on learning (Department of Education and Training, 2009). The New South Wales Board of Studies History Years 7-10 Syllabus (Board of Studies, 2003) specifies ICT Outcomes for each Stage and Unit of Work. Each Unit also has suggested activities. For example, Stage 5 Topic 2 Australia and World War I says “ICT skills appropriate for this topic may include: identify, comprehend and use historical sources, including a database/website, as part of a historical inquiry” (Board of Studies, 2003, p. 32).

The syllabus requirements and the availability of online primary and secondary sources present a favourable opportunity to engage students with activities that use authentic historical inquiry. Actual digitised historical documents (primary sources) available from the Internet can generate interest and engage students in history (Warren, 2001). Students now have unlimited easy access to a global library through the power of the Internet and online search engines. The teacher, textbooks and school library have now been replaced as the main sources of information for students (Taylor, 2000). Students are also keen to access their information in this manner, as they tend to find the use of computers and the Internet engaging and motivating.

The use of Internet and communication technologies can provide History teachers with the opportunity to motivate students through rich authentic learning tasks. This could be a challenge for many teachers as the traditional pedagogy in history
teaching has been highly reliant on textbook-based teaching (Edwards & Flack, 2002; Paterson, 2000; Warren, 2001).

A study by Clark (2008) that compared the ways in which History was taught in Australia and Canada looked at the reasons for students becoming disengaged and bored with history study. She showed that students wanted a more active approach where they are more responsible for constructing their own learning. “Students and teachers want to learn history in a way that allows them to be critical, to reconcile different points of view, and to use their imagination—rather than recite ‘what happened’... they also want historical narratives, discussions and debates, and creativity in the classroom” (p. 11). In order to engage students in the classroom, she advocated a change in both content and method towards a more active student-centred approach.

Authentic learning activities have the potential to improve student learning and outcomes (Herrington, 2006). Students are motivated by solving real life problems, by doing rather than listening, and educators consider learning-by-doing the most effective way to learn (Lombardi, 2007). According to Lombardi (2007, p. 2) “Authentic learning typically focuses on real-world, complex problems and their solutions, using role-playing exercises, problem-based activities, case studies, and participation in virtual communities of practice”. She goes on to say that there is some resistance to the use of authentic activities by students as real life situations are often messy and traditional instruction gives clear black and white answers that can be memorised for exams.

This study is thus important as it addresses the challenge for classroom teachers of motivating students through utilising the opportunities of ICT and the online availability of resources. It deals with the importance and difficulty of engaging students in the study of their history through offering a more active student-centred approach to learning through the use of an authentic activity.

The aim of this study was to investigate whether the teaching and learning principles identified as important components of authentic tasks (Herrington, 2006; Herrington
& Oliver, 2005; Herrington et al., 2003; Herrington et al., 2004; Lombardi, 2007) could be applied in a classroom setting to design an authentic online learning task for students which utilised the vast array of technology resources currently available.

The intended outcome from this study is that design principles affirmed and derived will be able to be used to assist teachers to integrate technology into classroom practice through the design of authentic student based learning activities.

1.3 Purpose and significance

The purpose of this study is to investigate how the teaching of History can motivate and engage students. There are calls for more relevant educational research (Edelson, 2002; Miller, 1999; Reeves, 2006; Reeves, Herrington, & Oliver, 2005) such as classroom based studies to assist and guide teachers and designers in developing web based resources to support activities which will motivate and engage students, such as the rich constructivist learning experiences of authentic tasks. Thus the significance of this research is it will, at the practitioner level, add to our knowledge about the place of authentic learning in classrooms and the benefits and issues associated with their use by teachers (Herrington, 2006). Authentic tasks have been promoted as an effective way for teachers to go beyond simply delivering content and having students actively engaged in their own learning through student-centred activities (Barkley, 2011; Herrington, 2006; Herrington et al., 2003).

This study will apply and examine the design principles for authentic tasks (Herrington, 2006; Herrington et al., 2003; Reeves et al., 2002)) in a high school classroom setting to determine which principles apply and whether new principles emerge. It will also examine the practicalities and issues of utilising an authentic task (which requires students to undertake authentic activities) to engage and motivate students.

1.4 The authentic task for this study

The authentic task developed for this study was a student-centred task for Year 9 History students where they had to identify the name of a World War One (WWI) soldier from their local area and construct the story of the soldier’s individual
experience of WWI. The students used computers and the Internet to find and extract information from digitised primary and secondary source documents. The students and teacher were assisted in this task by a website resource developed by the researcher - [www.notjustanameonawall.com](http://www.notjustanameonawall.com). This website included a list of soldier’s names and links to other websites with relevant information.

The task associated with this research used the motivating strategy of authentic learning through linking local history with national and world events (Wilkinson, 2005) and enabled students to become ‘virtual historians’. The task used an inquiry or problem solving process where the students engaged with online digital historical resources (Lee, 2002). It included a scaffold in the form of a Word template with a list of headings that students could use to guide and sequence their research. The task was also designed to be used as a component of student assessment to promote student involvement and motivation.

### 1.5 The research questions

The research aimed to distil design principles to assist teachers in motivating and engaging students in the study of Australian History through the integration of technology in authentic tasks. As such the study was guided by the following three questions:

1. *What are the critical principles applicable to the design of a technology-based authentic task, which will interest, motivate and engage students in the study of Australian History?* This question is concerned with the design of the whole task, including not only the resource available on the web, but also how the task is facilitated in the classroom. The answer to this question will lead both to improvement in the design of the prototype and inform how it can be utilised in classroom practice.

2. *What processes do students engage in when completing an authentic historical task using a technology-based learning resource?* This question is concerned with what students do when completing this task, what their perception of learning is and how they demonstrate these perceptions through their behaviour, attitudes and what they produce from this task?
3. How do teachers facilitate the use of a complex and sustained technology-based task in their history classes and what is their perception of improved learning outcomes for students? This question is concerned with how the teacher manages this type of class, whether they perceive it to be useful as part of student learning and whether they are enthusiastic to use it again?

1.6 Methodology

A design-based research (DBR) approach was employed to investigate the process of motivating and engaging students in the study of Australian History through a rich and extended web-based activity. Design-based research was considered the most appropriate method to use in a school and classroom situation as it has both practical and scientific outcomes and the school and teachers could see the direct benefit to them of the research. Van den Akker (1999), one of the pioneers in conducting and promoting design-based research (DBR) argued that design-based research has the practical aim of improving a product as well as the production of generalised knowledge that can contribute to design principles. Design-based research is sometimes referred to as developmental research, formative research, or action research (van den Akker, 1999).

The design-based research approach as described by Reeves (2006) is characterised by:

- Addressing of complex problems in real contexts in collaboration with practitioners,
- Integration of known and hypothetical design principles with technological affordances to render plausible solutions to these complex problems, and the
- Conduct of rigorous and reflective inquiry to test and refine innovative learning environments as well as to define new design principles. (Reeves, 2000; Reeves, 2006)

Design-based research was appropriate for this study as it aims to produce design principles that can assist educators to create motivating student-centred authentic tasks that make full use of the opportunities engendered by ICT and the ‘information revolution’. It is well suited to this study because design-based research aims to
produce new theories, products and practices which have the potential to change learning and teaching in classroom settings (Barab & Squire, 2004).

The web-based resource and associated student-centred authentic task were designed utilising characteristics of authentic activities developed by authorities in authentic task design: (Herrington, 2006; Herrington & Oliver, 2005; Herrington et al., 2003; Herrington et al., 2004; Reeves et al., 2002). These characteristics have been derived from research focused on the design and delivery of online University subjects. The study investigated how applicable these principles were to a high school context in a classroom setting using a technology-based task.

The authentic task for this study was refined through successive iterations over three years in a natural setting with a succession of different class cohorts and teachers. It followed the continuous cycle of design-reflection-design described by Amiel & Reeves (2008). Data was collected, and informed by principles, reflected upon and used to redesign the solution with each successive iteration.

The outcomes of design-based research are a set of design principles or guidelines derived empirically and richly described, which can be implemented by others interested in studying similar settings and concerns (Amiel & Reeves, 2008). This process was of direct benefit to the practitioners as the solution (the student activity or task designed and tested through the DBR process) became accepted as an exemplary learning activity and an important component of the teaching curriculum.

Reeves (2006) uses the following diagram (Figure 1.1) to illustrate the iterative nature of the processes involved in design-based research:
Figure 1.1 Design-Based Research (Reeves, 2006)

A detailed description of each of the stages is given in Chapter 3 Methodology. The stages are outlined as follows:

**Stage 1:** The investigation of the problem in depth through a comprehensive literature review; a review of past work by the researcher at the school that had used a similar teaching approach; and consultation with history teachers.

**Stage 2:** The development of a solution informed by the results of stage 1 and technology affordances. This took the form of a: task or activity set by the teacher, a website resource where students could follow a logical sequence of hyperlinks to sources and a scaffold to assist with organising information. The solution used an inquiry or problem solving process where the students engaged with online digital historical resources to create histories of Anzacs from World War 1.

**Stage 3:** The solution was used by students and the teacher in the classroom. The learning environment was implemented three times, firstly with a class of Year 9 history students in late 2008, secondly with new class of Year 9 students in late 2009; and thirdly with another two classes of Year 9 History students in early 2010, just prior to Anzac Day. Data was collected during and after each classroom implementation. The solution was reviewed after each iteration and the refined solution was retested at the next iteration.

**Stage 4:** The data collected was analysed using a constant comparative method to determine themes and issues related to the implemented solution. This resulted in the
development of design principles to enable other teachers to address similar significant educational problems.

The various stages have been described in this document in a linear fashion, whereas the distinctions between stages in practice sometimes become blurred, as the process can also be cyclical. This can be seen in Figure 1.1 where the arrows, as well as moving to the next stage also return to previous stages; showing that stages can be revisited to continually improve the prototype. This is a distinctive feature of design-based research and it replicates the naturalistic process that may often occur when teachers (or practitioners) are developing a new method or resource to use in the classroom.

1.7 Limitations of the study

This research has a number of limitations that should be taken into consideration when applying the outcomes of this research to other situations. According to Collins, Joseph & Bielaczyc (2004), a fundamental problem with all educational research is “the effectiveness of a design in one setting is not guarantee of its effectiveness in other settings” (p. 18). They say that design experiments (or design-based research) are difficult to carry out and the conclusions uncertain due to some fundamental limitations. The following possible limitations apply to this research:

- The school used for the research. The size and culture of the school, the mix of students and the attitudes to study and schoolwork may limit the applicability of the outcomes in different school settings.
- The academic potential of the classes. The class used for the research in each year was from the top academic class.
- The objectiveness of the researcher. Every attempt was made by the researcher to be objective; however his observations may have been influenced by him being at the time a teacher at the school and a participant in the research activity (as an assistant to the teacher for the first two iterations).
- The selection of students interviewed may not necessarily represent the full range of students in Year 9.
- The presence of the researcher (as a participant) may have influenced the classroom dynamics (in the first and second iteration), as the researcher was also
known by the students to be a teacher at the school. Design-based research can be set in complex social situations such as a classroom where the researcher may be a participant (Collins et al., 2004).

- The responses of students during the interviews. There may have been some whose responses were influenced by a desire to either please or displease the researcher.
- The ‘messiness’ of classroom research. There are many things occurring at once in the complex social situation of the classroom. These uncontrolled variables are considered to be part and parcel of design-based research (Barab & Squire, 2004; Collins et al., 2004).

DBR is considered an appropriate methodology for research at a local school level with all its limitations and the complexity inherent in classroom research, as these characteristics are understood to be part of the process (Barab & Squire, 2004).

1.8 Structure of the Thesis

The structure of the thesis is as follows:
This chapter (Chapter 1: Introduction) introduces the study and the research questions. It describes the problem, the issues with history teaching and the lack of student interest and engagement, and the important contribution this study has the potential to make towards changes in pedagogy and more effective teaching and learning utilising technology resources.

Chapter 2: Literature Review is an important component of Stage 1 of the DBR process. The literature was examined to see whether previous research would inform the design of the solution.

Chapter 3: Methodology, discusses the methodology of the study: how it was conducted; the iterative cycles of testing; the analysis of data after each iteration and the consequential changes to the solution resulting from the analysis.
Chapter 4: Design of the Intervention, describes the development of the initial solution and intervention to the problem of poor student engagement in learning Australian History described in Chapter 1.

Chapter 5: Iteration 1 describes the first time the solution (student authentic task which is at this stage a prototype) was used in the classroom. It gives details of the intervention, the themes and draft design principles that emerged and the improvements that were informed for the prototype resource and task before the second intervention.

Chapter 6: Iteration 2 describes the second use of the solution in the classroom, conducted 12 months after the first with completely different participants. Like the first iteration this chapter describes the conduct of the iteration, and themes and draft design principles that emerged.

Chapter 7: Iteration 3 describes the adoption of the solution by the school. This chapter describes the changes made by teachers to use the authentic task as an actual part of their curriculum, the conduct of the iteration and themes and draft design principles that emerged.

Chapter 8: Discussion and Conclusion reflects on and discusses the findings from the three iterations. The validation of guiding principles is discussed and new principles evident from the study are added. This results in the production of a new set of Design Principles. The research questions are explicitly answered and conclusions and recommendations related to them are drawn.
Chapter 2: Literature Review

2.1 Introduction

Chapter 1 set the context for the focus of this study, that is, there is a need to investigate how the teaching of History can motivate and engage students. This chapter presents a critique of the literature to inform the design of a teaching approach that both inspires students to want to study History and integrates ICT into learning.

The chapter begins with a discussion about the ongoing debate between history educators on how history should be presented to students and the challenges of redressing the lack of engagement by students. It takes a general look at the requirements for student motivation, the need for a change in pedagogy, and explores the role of constructivist and authentic learning in actively engaging students in effective learning. The review looks at inquiry and project based learning as constructivist activities applicable to history study, leading to the use and characteristics of authentic activities and tasks.

The chapter also takes a brief look at the use of ICT in history education and some of the issues associated with its use in schools along with examples of resources. It explores the opportunity for a web-based authentic activity linking local history to the events of World War One through the experiences of a local soldier; and the context and particular features of the authentic task chosen for this research.

2.2 The “History Teaching” debate: Content driven versus problem-based

In Australia the concern that students should have a good knowledge of Australian history has been expressed at both Federal and State political levels, and has focussed attention on the importance and significance of the study of Australian history for all students. The perceived importance of students being well versed in Australian history has in the past led to political intervention in an attempt to influence the way history has been taught. In NSW (Australia) a past Premier has intervened to strengthen the mandatory Australian History syllabus (Clark, 2004),
and former Australian Prime Minister John Howard proposed direct Federal intervention in the way Australian History is taught to students in Years 9 and 10 in all States of Australia. Howard’s *Guide to the Teaching of Australian History in Years 9 and 10* (Howard, 2007a) stipulated in detail a series of topics, milestones and essential content that all students need to learn (Donnelly, 2007b). This failed intervention emphasised the importance given by authorities to the study of Australian History.

In 1999 the Australian Commonwealth Department of Education, Training and Youth Affairs commissioned a team of academics from Monash University under the leadership of Associate Professor Tony Taylor to conduct an extensive qualitative study of the status and nature of school history within Australia, comparing it with that in Canada, the USA and United Kingdom. Taylor (2000) in his report said that in Australia since 1970 there has been an ongoing debate about the teaching methods and content in history termed the “phony war”. This dispute has been between curriculum “traditionalists” and curriculum “progressives”. Traditionalists consider that history should be content driven and that students should learn linear lists of unchanging facts and narratives about the past. Progressives believe that history teaching should be process driven and students should engage in activities, which may result in a more open-ended view of the past. The following quotation illustrates this divide:

> Traditionalists … believe that understanding certain historical topics (usually involving great people and great events) is the key to historical study and that all students should be capable of memorising salient facts which are considered to be “objective”. … Progressives … believe that school history should be less content-based and more problem-based, using a variety of classroom activities including emphasis on the critical examination of primary and secondary sources (Taylor, 2000, pp. 24-25).

The intervention by the then Australian Prime Minister, John Howard in October 2007, with his *Guide to the Teaching of Australian History in Years 9 and 10* (Howard, 2007a) can be seen as a part of that ongoing debate. It was perceived as an attempt by traditionalists to influence the way Australian History was taught to students in Years 9 and 10 in all states of Australia. This document released in October, 2007 was discarded with the change of government in November 2007.
(Topsfield, 2008). Associate Professor Tony Taylor in a later address to a National History Forum, stated that whilst the Guide had seriously weakened attempts to take politics out of history teaching it then itself became part of history (Taylor, 2008). However this did not mean that the history debate had ended.

Taylor (2008), also in that later address, noted that the political aspects of the history debate had continued on, with on one side the conservatives wanting the teaching of historical truths and on the opposite side, the progressive leftists wanting history to right past wrongs. He stated that the popular media complicated this mix by assuming that history was about how Australia became great; and famous dead people, which he called the Edmund Barton Syndrome. He deplored the negative influence that some journalism was having in the history debate: “This kind of poor journalism thrives on clichés, stereotyping and conflict, leading to a shallow and ignorantly reductive moral panic approach which has been a consistent modus operandi in the history wars in the US, in the UK, in Canada, in New Zealand in Australia, and now even in pragmatic and sensible Sweden” (Taylor, 2008, p. 2).

An aspect of the debate has been the disquiet in some countries about the effectiveness of history teaching and the perceived poor knowledge by the community of their own history (Clark, 2004; Evitts, 2005; O'Dwyer, 2007). There has been concern expressed that students within Australia and other Western societies have a poor knowledge of the history of their own country (Clark, 2008; O'Dwyer, 2007). Surveys have shown that high proportions of students in the USA, Britain and Canada have a poor knowledge of history (Clark, 2004, 2008; Evitts, 2005; Mintz, 2007). This poor knowledge of history has been attributed to the way that the subject has been regarded by students. Mintz (2007) states that students in the USA consider history to be boring and irrelevant: “Too many students spell history b*o*r*i*n*g. They regard history as a jumble of disconnected facts. The word used to describe history was ‘irrelevant’” (p. 1). This is also the case with Australian History as it seems to be generally unpopular with students (Edwards & Flack, 2002; Taylor, 2000). According to Clark (2004, 2008) students typically consider Australian History to be boring as it is repetitive and uninteresting. This
lack of student interest may be attributed to the traditional pedagogy used by teachers in the classroom.

In this technological age history lessons in many secondary classrooms are still very much teacher-centred and teacher-directed. The teacher is the main focus and source of knowledge; and closely controls all classroom activities. Scrimshaw (2004) in a UK study notes that the majority of teachers prefer to use a teacher-centred teaching method. Teaching methods in US history classrooms also often rely on a teacher controlled text-based approach driven by what is in the textbook (Center for Implementing Technology in Education, 2007).

According to J. Wilkin (personal communication, September 9, 2007), a former Head Teacher of English/History with many years of teaching experience, classroom activities in History lessons in Australia are also often reliant on activities from a textbook (reading, summarising and answering questions), and passive activities (such as watching videos). She says this approach has advantages for the teacher and perceived advantages for the students as the textbook is readily available, covers many aspects of the syllabus, has good resource materials and activities, and allows quick lesson preparation. The students move through the course at the same rate and the teacher can be satisfied that the content has been ‘covered’.

The study by Taylor (2000) noted a whole range of reasons for the poor performance of history in schools including inexperienced teachers, inadequate professional development, political interference, timetabling in schools, lack of continuity between primary and secondary schools, and poor subject syllabi and curriculum. A later study by Clark (2008) also noted such reasons as: topic repetition, inadequate resources and teaching approaches that rely on rote learning. Many teachers are too reliant on a dry textbook approach that fails to engage students (Center for Implementing Technology in Education, 2007; Scrimshaw, 2004).

Clark (2008) advocated a different and more active approach to teaching. She stated “students and teachers want a subject that allows them to be critical, to reconcile different points of view, and to use their imagination, rather than recite ‘what
happened’ “ (p. 9). Students develop varying levels of historical consciousness if taught in a way that is simultaneously skills-based and content-based, within a framework that allows studies in depth (Taylor, 2000).

Taylor’s review (2000) titled *The Future of the Past*, “notes that there has been very little substantial Australian research in recent times on the teaching and learning of history. Nor is there any current text on the teaching and learning of history in Australia” (Taylor, 2000, p. 161). As a result of this review a resource titled *Making History A Guide for the Teaching and Learning of History in Australian Schools* was produced to be available online to support teachers of history at all levels of schooling (Taylor & Young, 2003). It promoted: inquiry around sources; the use of interpretation and narrative; and developing empathy for the lives of past peoples. This document also devoted a section to the importance of ICT resources in history study and in particular the use of what is referred to as the virtual archive, the many historical sources available on the Internet (Taylor & Young, 2003). This resource has been promoted and made available online by the Australia Government through the *National Centre for History Education* website (*http://www.hyperhistory.org/*). History teachers are encouraged to use the resource for professional development in conjunction with the ‘Making History’ downloadable units of work. Both of these resources promote a more active approach to history teaching across Australia through enquiry-based learning. The new National Curriculum (Ferrari, 2010; The History Teachers' Association of Australia, 2011) to be introduced across Australia not only provides standardisation of learning content in history across the states, but also an opportunity to implement change in the ways that history is presented to students.

The Australian Ministers of Education endorsed the Australian Curriculum courses for English, Maths, Science and History in the primary and junior secondary years on 8 December 2010 (The History Teachers' Association of Australia, 2011). Each state has its own timetable for introduction of the National Curriculum. The individual Australian state syllabi developed from the National Curriculum for History determine the content, sequence and outcomes for the history presented to students at each learning stage.
The National Curriculum for History (Australian Curriculum Assessment and Reporting Authority, 2010) has a strong emphasis on sequencing, skills, inquiry, empathy, in depth studies and the use of ICT. It emphasises the active learning approach promoted by previous documents: The Future of the Past (Taylor, 2000) and Making History A Guide for the Teaching and Learning of History in Australian Schools (Taylor & Young, 2003) as enquiry-based learning is an important facet of the Curriculum. For example, the Year 9 Achievement Standard states: “When researching, students develop different kinds of questions to frame an historical inquiry. They interpret, process, analyse and organise information from a range of primary and secondary sources and use it as evidence to answer inquiry questions” (Australian Curriculum Assessment and Reporting Authority, 2010, p. 13).

The NSW History K-10 Draft Syllabus (developed from the National Curriculum) promotes the use of inquiry-based research activities for assessment. It states: “Inquiry-based research provides students with opportunities to investigate historical personalities, events and issues and develop the key competencies of collecting, analysing and organising information and communicating ideas and information, incorporating cross-curriculum Information and Communication Technologies (ICT) skills” (Board of Studies, 2011, p. 114).

Individual teachers use the guidelines within their syllabus to frame the way that they present history to students within their classroom. In order to enable students to learn successfully, the individual teacher has to use strategies and methods that can motivate and engage students in the history topic being studied. The syllabi developed from the Australian National Curriculum for History will give teachers an opportunity to use a more active student-centred approach to engage students in the classroom as advocated by Clark (2008).

2.3 The challenge of change to a student-centred approach

A change in teaching approach from one that is teacher-centred to one that is student-centred has challenges and consequences for the teacher’s role in the classroom. According to Newhouse, Trinidad, and Clarkson (2002) to enable students to play a more active role in their own learning the teacher must change from being the source
of all knowledge to being a guide or facilitator in the students’ learning. The teacher needs to assist and guide the student in their learning as a mentor or coach (Duffy & Cunningham, 1996; Taylor, 2000). This can be quite threatening for both students and teachers, as it changes the balance of power in the classroom. The teacher becomes a facilitator and resource person instead of being the learned authority on that topic in the classroom (O’Neill & McMahon, 2005).

It can be difficult for History teachers to change their teaching approach due to such impediments as inadequate training and a lack of appropriate resources. “Many teachers continue to teach the same material simply because there aren’t the resources or the possibilities for professional development to do any different” (Clark, 2008, p. 7). ICT and online resources may provide a mechanism to assist those teachers to provide innovative and engaging activities for their students.

The challenge for teachers of history is that of incorporating activities into their classroom teaching that are student-centred and engage students in ways that develop a genuine interest and passion for discovering the past. They need to bring history to life, to make it real and show how past world events have had an impact on their family and community. The activities should go beyond the learning of ‘facts’ and allow students to use various sources along with thinking and analytical skills to explore the past and take on the role of genuine historians in constructing history (J. Wilkin, personal communication, September 9, 2007). Constructivist and authentic learning can provide a guide to the means of engaging students through a student-centred approach.

2.4 Constructivist and authentic learning as a way to engage history students

The use of constructivist and authentic learning activities by History teachers may provide an effective way of using a student-directed approach to engage students in History study. The following provides a brief summary of the theory and research relating to constructivism and authentic learning showing the appropriateness of this pedagogy for use in the history classroom.
Student-centred learning has as its basis the constructivist theory of learning (O’Neill & McMahon, 2005). Constructivist learning was listed by Ertmer & Newby (1993) as one of three different perspectives on the learning process. These perspectives were: behavioural learning where there is an observable response to a stimulus; cognitive learning involving complex processes of thinking and reasoning; and constructivist learning where meaning is created from experience. According to Jonassen, Mayes & McAleese (1993) material is better remembered if it is actually generated by the learner rather than being merely presented to the learner. Reigeluth (1999, p. 19) states that in order to help everyone reach their potential in education and training, there needs to be “a shift from passive to active learning and from teacher-directed to student-directed (or jointly-directed) learning”

Constructivism “equates learning with creating meaning from experience” (Ertmer & Newby, 1993, p. 62). Learners construct knowledge individually or together as they learn (Hein, 1991). Constructivism has a long history in education and that there are a great diversity of views on the method. However there is general agreement that learning involves the active process of constructing rather than acquiring knowledge, and instruction supports the construction of knowledge (Duffy & Cunningham, 1996).

In constructivist learning, the individual internally generates their own meaning from his/her own experiences rather than being received from any external source (Jonassen et al., 1993). According to many educational researchers the use of constructivism provides a valuable basis for effective learning. According to Ertmer & Newby (1993) humans create their own meaning through the interpretation of their own experiences. Jonassen, et al (1999) states that learners need to have ownership of the learning goal and this is achieved through providing them with interesting, relevant, and engaging problems to solve. The process of learning occurs when the user constructs their own meanings from their experiences (Hedberg, 1993).

Authentic learning involves students creating meaning through activities based in actual or simulated real-world situations or environments. Authentic activities are influenced by the constructivist philosophy of student-centred learning (Reeves et al.,
means that learners should engage in activities which represent the same type of
cognitive challenges as those in the real world” while Brown, Collins & Duguid
(1989) define authentic activities as the ordinary practices of the culture. The
resource *Making History A Guide for the Teaching and Learning of History in
Australian Schools* describes authentic learning in history as “a disciplinary-based
approach to understanding the past which challenges students to ‘do’ and ‘make’
history in a manner that resembles the historian’s craft” (Taylor & Young, 2003, p.
8). The constructivist approach to learning where students derive their own meaning
from authentic experiences leads to students having ownership of the outcome of
their learning.

Many educational researchers advocate relevant and realistic world tasks, such as
those in authentic activities, as the key for providing motivation for students.
According to Duffy & Cunningham (1996, p. 179) learning should occur in relevant
contexts and Ertmer & Newby (1993, p. 64) state that transfer of learning through
constructivism achieved through the use of authentic tasks that are based on
meaningful situations. Merrill (2002, p. 5) affirms “Much of the current work in
cognitive psychology has shown that students learn better when engaged in solving
problems. Problems should be authentic, real world, and, if possible, personal”.
Jonassen, Mayes & McAleese (1993, p. 235) assert that the best learning contexts are
problem based where the learners are required to immerse themselves in the situation
and have to acquire skills or knowledge in order to solve the problem Relevant
materials which match the learners’ expectations also help with student engagement
(Fenrich, 1997)

The idea of authentic learning is not new as it was (and still is) the primary mode of
instruction for apprentices (Lombardi, 2007). It can still also be seen in the
internships or practical placements of those aspiring to be teachers. The challenge for
the history teacher is to create a need for the authentic learning activity, to relate it to
a situation that the learner perceives as being useful in a real life situation, in
classrooms removed from most real-life situations. This possibility has now been
made easier in schools with the use of ICT resources and the Internet in the
classroom. History students can now have access to resources, such as historical
documents that were once only available to the experts (Lombardi, 2007). According to Levesque (2006), the digitisation of sources and their availability through the Internet means that “teachers are no longer expected to deliver a self-evident nationalist story that needs to be memorized and regurgitated. Instead, the goal is now to assist or "coach" students in their learning and practice of history” (p. 3). History is problem based and provides fertile ground for authentic learning (Hillis, 2010).

One way to utilise authentic activities in history is through inquiry-based learning as “Whereas text-based approaches often emphasize learning about history, inquiry-based instruction emphasizes learning how to be a historian. Students instructed with this approach learn to evaluate, corroborate, and synthesize multiple conflicting sources” (Center for Implementing Technology in Education, 2007, p. 1).

2.5 Authentic activities through inquiry-based learning or project-based learning

Inquiry-based learning or project-based learning approaches are useful tools to build authentic learning activities to improve student motivation and interest in history. Teachers need to be familiar with and able to use these student-centred learning approaches as they are important components of the teaching guidelines aspect of the new National Curriculum for History (Australian Curriculum Assessment and Reporting Authority, 2010; Board of Studies, 2011).

The inquiry-based learning approach involves gathering and discussing information to answer a question; and in the process reflecting on the new knowledge created. The teacher facilitates the process while providing significant support to the learner (Savery, 2006). “Inquiry-based learning is a student-centred, active learning approach focused on questioning, critical thinking, and problem solving.” (p. 16).

An example of the generic processes and skills promoted for use by history students in the inquiry process after a question or problem has been set has been given in a table in Working the Web: Investigating Australia's wartime history Teachers' Guide
This table has been reproduced below as Table 2.1

<table>
<thead>
<tr>
<th>Inquiry process</th>
<th>Skills</th>
</tr>
</thead>
<tbody>
<tr>
<td>Working the web</td>
<td>Finding relevant resources including images, maps, letters, reports, databases and video and audio clips. Using browser bookmarks and written notes to maintain records of sources.</td>
</tr>
<tr>
<td>Identifying and analysing</td>
<td>Sorting information into categories and selecting what to keep and what to discard. Highlighting key issues for reflection, discussion or expression of opinion.</td>
</tr>
<tr>
<td>Presenting the findings</td>
<td>Bringing the findings together. Deciding on audience and appropriate forms of presentation. Presenting to others formally or informally.</td>
</tr>
</tbody>
</table>

Project-based Learning (PBL) is a type of inquiry-based learning (IBL) where the teachers have a more hands off role and expect the learners to provide all the information to solve the problem (Savery, 2006). The project method involves students working on a task, (either singly or in groups) and in the process, constructing and acquiring the necessary knowledge for the completion of the task. The Buck Institute for Education states that Project Based Learning involves students responding to a complex question, problem or challenge where they can learn the academic content while practicing skills such as collaboration, communication and critical thinking (Buck Institute for Education, 2011).
The user has a choice as to the use of material and does not have the imposition of structured learning strategies (Schwier & Misanchuk, 1993). PBL has the potential to motivate students who usually find school boring (Buck Institute for Education, 2011).

The use of these approaches in history teaching has been facilitated by the availability of technology resources and Internet access in schools enabling digital research, organisation and presentation.

### 2.6 Integrating ICT in history teaching

The information revolution brought about through advances in information technology and the Internet has created tremendous opportunities for teachers to progress away from solely textbook instruction and benefit students with a plethora of new sources of information. Many of the opportunities brought about by this have only recently become readily available to students. “ICT and history education have often been regarded as well matched bed-fellows with the new technologies supporting access to and interpretation of primary sources” (Hillis, 2010, p. 21).

History teachers around the world, and particularly in Australia are in a unique position to utilise the opportunities created by ICT as it enables inquiry-based learning. “Recent research in history instruction emphasizes inquiry-based learning that facilitates student acquisition of domain-specific skills such as evaluating, corroborating, and synthesizing multiple and conflicting historical evidence“ (Center for Implementing Technology in Education, 2007, p. 1). Students can incorporate a vast array of information sources and media such as print, images, sound and video in their learning. The sources available from the Internet include a large number of digitised primary documents that can be searched using online databases. These digitised primary and secondary sources available to all students through the Internet support the successful management of learning in school history through giving students the opportunity to study topics in depth and in an evidence-based and concept-led fashion (Taylor, 2000).
In the Australian State of New South Wales (NSW) the government has funded technology resources for schools and mandated that they must be utilised in each subject area through requirements in each subject syllabus, issued in NSW by The Board of Studies. The NSW History Years 7-10 Syllabus has mandatory requirements for the use of ICT, which could create opportunities for student-centred authentic activities utilising ICT resources. For example the Syllabus states:

History is uniquely placed for students to discover, evaluate and apply ICT, such as a relevant CD-ROM and the Internet, to their investigations of the past. (Board of Studies, 2003, p. 16).... In Stage 5, students will: continue to develop skills in the collection and interpretation of electronic information for the purpose of historical inquiry (Board of Studies, 2003, p. 17).

In spite of the recognised improvement in student motivation through ICT use (Cox et al., 2003; Freebody, 2006) and the provision of ICT resources and mandated syllabus requirements; teachers of many subjects still find it difficult to incorporate technology effectively in their teaching (Groundwater-Smith, 2010; Orlando, 2011; Scrimshaw, 2004). According to White (2005) schools (in the USA) tend to apply technology to existing ways of teaching and learning with marginal results. The potential and use of ICT is not effectively understood by educators. He states that “research into the effective uses of ICT in education and learning has been disappointing” (p. 8). White advocates the use of ‘development and research’ as traditional research methods have been inappropriate to influence effective use of ICT.

An example of a recent technical innovation has been the introduction of interactive white boards (IWBs) into school classrooms in NSW. A major study of the use of interactive whiteboards (IWBs) in K-12 pedagogy for the NSW DET (Schuck & Kearney, 2007) concluded that IWBs were popular as they fitted well with “most teachers’, administrators’ and students’ views of classroom learning as whole-class, teacher directed and resource-filled” (p. 5). However, the study was concerned that IWBs were not being used effectively and were not contributing to pedagogy change as “typical use of IWBs merely replicates old practices in technicolour” as they are “easily used as ‘jet-powered stagecoaches’” (p. 6). Tanner, Jones, Kennewell, &
Beauchamp (2005) also noted that (at least in the early stages) IWB use tended to reinforce traditional pedagogies as the use of the technology is controlled and mediated by the teacher.

Reviews of the research literature (BECTA ICT Research, 2004; Newhouse et al., 2002) give many reasons why teachers may not be incorporating ICT effectively in their teaching. These include: resistance to change (teachers are comfortable in doing what they have always done); a lack of confidence in their own skills in using technology; a lack of confidence in the technology being able to work for a whole class; difficulty in accessing technology in the school when they need it; and the lack of time and skills to fully prepare and research resources for a unit of work. Orlando (2011) added that teachers tended to retain a traditional teacher-centred practice even when using ICT as: they felt constrained by the demands of the subject syllabus content and the need to prepare students for exams; their experience and core beliefs about teaching mandated against a change in pedagogy; and their heavy workload and lack of preparation time prevented the trial of new ideas.

Research should not be looking at whether or not to use ICT, but rather at ways to most effectively use the available resources and technology to better educate students. The use of ICT should be being promoted in schools to increase teaching effectiveness and improve learning outcomes for students (Higgins, 2003). In order to use ICT most effectively there needs to be a rethink of pedagogy in an ICT enabled world (White, 2005). This is particularly the case with history teaching as technology can enable active authentic learning experiences for students.

Educators and organisations have provided support to teachers via the Internet through the provision of learning resources and the suggestion of strategies to use ICT in the classroom. These have the potential to make it easier for teachers to utilise ICT in teaching and reduce the time impositions in changing teaching strategies, but only if the teachers have the time and skills to be able to find and use these resources.

There are numerous multimedia resources specifically made for school use that can be accessed through the Internet for a richer learning experience for students when
studying history. Some examples of these are Flash learning objects, WebQuests, laptop wraps and ordered lists of web links.

Learning objects are typically small self contained (less than 15 minute) reusable learning activities (Bannister, 2010). A survey by Freebody (2006) of the use of learning objects produced by the Learning Federation revealed that teachers were not necessarily using them in the most effective way for students. He noted “There is evidence of potentially new learning environments being put to ‘old’ pedagogical work” (p 4). The activities were closely controlled by the teacher to fit with the classroom setting rather than being used by students to work independently and learn at their own pace.

WebQuests were at one stage promoted by NSW Department of Education and Training (Centre for Learning Innovation, 2002) through their training and teacher support intranet. WebQuests are one way of designing and presenting an Internet-based task to students. According to Perkins and McKnight (2003), WebQuests were first developed by Dodge and March in 1995. Dodge (1997) says that a WebQuest should contain at least the following:

- Introduction
- Task
- Links to information sources
- Description of the process to complete the task
- Guidance on organising information
- Conclusion

Laptop wraps are webpages requiring students to complete a short task over one to four lessons using technology and collaborative learning. Laptop wraps are designed for students to use with the small screen student netbooks provided for each Year 9 student and funded by the “Digital Education Revolution” (DER) (Digital Education Revolution, 2008, p. 3). The content is chosen to be relevant to the subject syllabus to give the students experience in using technology. The tasks have some similarity in structure to WebQuests as can be seen from the example ‘Gallipoli – baptism of fire’ laptop wrap from https://portalsrvs.det.nsw.edu.au/LRRView/8896/ (see Figure 2.1).
Figure 2.1 Screen Clip of Gallipoli Laptop Wrap

Levesque (2006) takes a critical view of the use of WebQuests for studying history. He says that often students look for quick and easy solutions to complete the task. “Instead of reading critically the sources, they intuitively scan the materials for quick and easy solutions or, more problematically, simply ask colleagues for the "right" answers” (p 4).

Examples of ordered lists of web links collated for history teaching are those by educators such as John Larkin History (http://www.larkin.net.au/history) and Mr Searls History Channel (http://www.youtube.com/user/MrSearlsHistory#p/p). These lists and the sites they link to are likely to be displayed by teachers using an IWB. Schuck and Kearney (2007) in their study of IWB use noted that teachers commented on the authenticity of their lessons. They meant that they used resources from current and real-world applications. None of the lessons they observed contained the elements deemed to be part of authentic learning tasks by Reeves et al. (2002) and “Observed lessons were generally highly structured and contained explicit instruction from the teacher” (p 5). They expressed a hope that the future research would work towards pedagogical change in the classroom towards new ways of teaching and learning. Perhaps the answer to this lies in supporting the use of genuine authentic activities in web-based learning.

2.7 Authentic activities in web-based learning

Section 2.4 in this chapter discussed the value of authentic activities in learning and the relationship between constructivist learning and authentic activities. Authentic
activities in web-based learning have the potential to stimulate and engage students in very effective ways. According to Herrington, Reeves, Oliver & Woo, (2004) the use of authentic tasks in web-based learning can provide rich opportunities to engage students as complex and sustained activities can motivate students to learn.

There is a large body of work which has examined the use of authentic tasks such as: Authentic Activities and Online Learning (Reeves et al., 2002); Patterns of Engagement in Authentic Online Learning Environments (Herrington et al., 2003); “Designing Authentic Activities in Web-Based Courses” (Herrington et al., 2003); Authentic e-Learning in Higher Education: Design Principles for Authentic Learning Environments and Tasks (Herrington, 2006); and “Design Methodology for the Implementation and Evaluation of a Scenario-based Online Learning Environment” (Agostinho, Meek, & Herrington, 2005)

Reeves, Herrington & Oliver (2002) proposed ten characteristics for authentic activities to assist teachers to design authentic activities for online learning activities. These characteristics were derived from an extensive review of research associated with authentic tasks. The ten characteristics have featured significantly in papers associated with the promotion or use of authentic activities in online courses (Herrington, 2006; Herrington & Oliver, 2005; Herrington et al., 2003; Herrington et al., 2004; Lombardi, 2007) and have become a standard checklist that can be used with any subject matter domain (Lombardi, 2007). The ten design characteristics of authentic activities identified from literature by Reeves, Herrington & Oliver (2002, p. 3) are reproduced below:

1. **Authentic activities have real-world relevance** Activities match as nearly as possible the real-world tasks of professionals in practice rather than decontextualised or classroom-based tasks.
2. **Authentic activities are ill-defined, requiring students to define the tasks and sub-tasks needed to complete the activity** Problems inherent in the activities are ill-defined and open to multiple interpretations rather than easily solved by the application of existing algorithms. Learners must identify their own unique tasks and sub-tasks in order to complete the major task.
3. **Authentic activities comprise complex tasks to be investigated by students over a sustained period of time** Activities are completed in days, weeks and months rather than minutes or hours. They require significant investment of time and intellectual resources.
4. **Authentic activities provide the opportunity for students to examine the task from different perspectives, using a variety of resources**. The task affords learners the opportunity to examine the problem from a variety of theoretical and practical perspectives, rather than allowing a single perspective that learners must imitate to be successful. The use of a variety of resources rather than a limited number of preselected references requires students to detect relevant from irrelevant information.

5. **Authentic activities provide the opportunity to collaborate**. Collaboration is integral to the task, both within the course and the real world, rather than achievable by an individual learner.

6. **Authentic activities provide the opportunity to reflect**. Activities need to enable learners to make choices and reflect on their learning both individually and socially.

7. **Authentic activities can be integrated and applied across different subject areas and lead beyond domain-specific outcomes**. Activities encourage interdisciplinary perspectives and enable diverse roles and expertise rather than a single well-defined field or domain.

8. **Authentic activities are seamlessly integrated with assessment**. Assessment of activities is seamlessly integrated with the major task in a manner that reflects real world assessment, rather than separate artificial assessment removed from the nature of the task.

9. **Authentic activities create polished products valuable in their own right rather than as preparation for something else**. Activities culminate in the creation of a whole product rather than an exercise or sub-step in preparation for something else.

10. **Authentic activities allow competing solutions and diversity of outcome**. Activities allow a range and diversity of outcomes open to multiple solutions of an original nature, rather than a single correct response obtained by the application of rules and procedures.

Advances in technology and in particular those that have improved the speed of access to the Internet have provided new opportunities for genuine authentic activities for students in the study of history. One example of this comes from Canada where the University of Ontario has created a virtual online environment to enable students to conduct authentic historical investigations of key events and issues in Canadian history using selected digitised primary and secondary sources ("The Virtual Historian," 2011). It uses an inquiry-based approach and provides students with multiple, authentic historical sources (print, audio, video and artifactual) to enable them to look critically at important events in Canadian history (Levesque, 2006). A study of students using *The Virtual Historian* by Levesque (2007) showed that it promoted student interest, engagement and independent learning. He conducted a controlled experiment with two Year 10 Canadian history classes over three lessons to compare their understanding of The October Crisis (a component of
Canadian history). One class used the student-directed virtual online environment of *The Virtual Historian* while the other was taught with the same teacher using a teacher-directed approach with similar content and materials. According to Levesque, the group using *The Virtual Historian* not only engaged more with the content, but also gained a more sophisticated understanding of the topic. He goes on to state that a change in pedagogy is not easy for teachers. “Teaching for historical thinking and inquiry using technology is a long, complex and arduous process likely to put teachers at odds with curriculum objectives, pressing content coverage, classroom material and even with their own assumptions about history and learning” (p 21).

There are obvious opportunities for authentic activities using technology to be used with students studying history.

### 2.8 An opportunity for an authentic activity

One opportunity for an authentic activity lies in the study of the individual experiences of local soldiers from World War 1. This activity has the potential to link local history with the events of world history. Taylor (2000) notes the importance of local history in interesting and motivating students. All Australian communities are linked to the events of World War One through the involvement of locals who served as soldiers in that war.

Roberts (2011), when discussing the pedagogy of history teaching states that the skills of inquiry and analysis as expressed in historical literacy are unique to history study. He asserts that the skilled history teacher can utilise local connections through the experiences of a local community member with historical inquiry to promote relevance and motivation for students. He suggests:

> The unique potential of history education to use local context as a basis for student learning reinforces its value in connecting students with their local community and building learning that is significant to the lived experiences of students (p. 7).

Wilkinson (2005) in the UK used the names on his local war memorial and the Internet to introduce his students to the events of WW1 and encourage interest in
history and research skills. He says “I have used the power of the web to bring immediacy to the research; to link the local with the war; and to open out to most campaigns of the war. That, to me, gives an indication of the power of the web to encourage research skills, to investigate history, and to link the local to the national to the international” (p. 6).

Other educators have also used the idea of finding information on individual soldiers to stimulate interest and promote the relevance of WW1 study. They include a NZ WebQuest on Gallipoli (Farr, n.d.), and a US WebQuest on roles of individuals in WW1 (Sovel, 2005).

The ANZAC Day Commemoration Committee of Queensland (http://www.anzacday.org.au/) have produced learning resources for schools which use sources to investigate the story of particular soldiers including Alex Campbell (ANZAC Day Commemoration Committee of Queensland, 2003); Roland Henry Simpson (Byers, 2001); and Barney Hines (Hosken, 2002a). The case study of Barney Hines is an extract from the book Digging for Diggers by Graeme Hosken (Hosken, 2002b) which is regarded as the definitive guide to finding, interpreting and appreciating the stories of those Australians who served in World War I and an extensive guide to researching an Australian soldier from WW1. These resources are designed as print handouts and do not require students to do their own investigation using technology. In addition they do not have the motivating and empathetic value of the stories of local soldiers with personal significance to the students.

This study utilises the motivating aspects of local context and personal stories in an authentic online learning task applied in a classroom setting, which exploits the vast array of technology resources currently available.

2.9 Context of this study

This study uses a design-based research (DBR) approach to follow the use in the classroom over three years of an authentic task (which required students to engage in authentic activities) utilising technology and online resources. This authentic task (the solution as it was a result of the DBR process) was designed using the 10
principles for authentic activities established by Herrington and associates (Herrington, 2006; Herrington & Oliver, 2005; Herrington et al., 2003; Herrington et al., 2004; Lombardi, 2007; Reeves et al., 2002). The task required Year 9 History students to identify the name of a World War One soldier from their local area and construct the story of their individual experience of that War. They used technology and the Internet to locate and extract information from online digitised primary and secondary source documents. The students and teacher were assisted in this task by the website resource (www.notjustanameonawall.com) with its instructions, ordered links to useful web sites, and scaffold to organise the information that was found.

The authentic task used the motivating strategy of linking local history with national and world events (Roberts, 2011; Wilkinson, 2005) and enabled students to become historians. It demonstrated relevance by linking the familiar with wider events and showing their impact on the local community. This encouraged empathy with the individuals who experienced past events and led to a deeper and richer understanding of history. The task used an inquiry or problem solving process where the students engaged with online digital historical resources (Lee, 2002). It included a scaffold to assist students and formed part of student assessment to promote student involvement and motivation.

The Topic chosen as the focus of this research was Stage 5 Topic 2 Australia and World War 1 from the New South Wales History 7-10 Syllabus (Board of Studies, 2003, pp. 32-33). This decision was strongly influenced by the ready availability of the digitised records of all Australian soldiers of World War One (WW1) through the Internet (Howard, 2007c). The topic and concept of the task were decided upon by the researcher. However, both were discussed at length with participants (classroom teachers), as the task chosen had to be acceptable to the teachers and school administration and be workable in their classrooms.

The theoretical framework of this intervention and study was based on a constructivist epistemology (learning by ‘doing’) where students use information technology and digital historical sources to complete an online problem-solving authentic task. The students acted as historians and gained an understanding of how
historical knowledge is constructed using evidence-based interpretations and disseminated through publication. “As students will begin to put together discrete parcels of historical data they are constructing history’ (Lee, 2002, p. 7).

The use of information technology and in particular the Internet gives students access to digital historical sources, online databases and digitised primary documents. In this situation, pedagogy was democratised as the teacher had limited control over the student interaction with the range of materials (Lee, 2002; Newhouse et al., 2002). The presence of the teacher in the classroom was important to assist, facilitate and keep students on task. The intervention did not require the teacher to have extensive information technology knowledge and the students were mostly able to work autonomously. This eliminated one of the primary impediments to teacher use of technology and student-centred tasks in history classes.

The intervention (the use of the authentic task in the classroom by students) took a “progressive” approach as outlined by Taylor (2000) and in accordance with the History syllabus, where the students spend a significant number of lessons on a problem-based activity. They each used their online research skills to locate and interpret original sources to construct the life story of an individual local soldier from World War One. As the task was student-centred, used Internet resources, and utilised a step-by-step scaffold, the teacher took on a supporting and guiding role.

All facets of motivation were used to engage the student in the task. The intervention used extrinsic motivation as the task was set as an important part of the student’s assessment. Many want to do their best to gain the best possible assessment mark. The task appealed to their interests, challenge their curiosity as it was relevant (concerned a local soldier and was set around Anzac Day), required some effort to discover information, and students delved into the soldier’s personal information. This was all part of intrinsic motivation. Engaged participation came from all the class looking at a different soldier and sharing information and as a community doing something practical to remember the soldiers as a part of Anzac Day (Greeno et al., 1996).
2.10 Conclusion

The importance of learning about National history has been well recognised and has led to public debate about the content and how it should be presented to students. The lack of student engagement with history has suggested that a change in classroom pedagogy from teacher to student-centred activities is required. The motivating aspects of authentic activities utilising ICT with local connections have been used in the activity used for this classroom research. The methodology used to investigate the effect and usefulness of the authentic activity is examined in the following chapter.
Chapter 3: Methodology

3.1 Introduction

The purpose of this chapter is to explain the rationale and describe the research methodology employed to investigate the research problem of defining design principles to assist teachers in motivating and engaging students in the study of Australian History through the use of technology to support authentic tasks.

The following research questions directed the data collection and served as a framework for the interpretation of the data:

1. What are the critical principles applicable to the design of a technology-based authentic task, which will interest motivate and engage students in the study of Australian History?

2. What processes do students engage in when completing an authentic historical task using a technology-based learning resource?

3. How do teachers facilitate the use of a complex and sustained technology-based task in their history classes and what is their perception of improved learning outcomes for students?

The authentic task and authentic activities employed in this research required Year 9 History students to use technology and online sources to investigate the individual stories of local people who had served as soldiers in World War One (WW1). This fitted with the History syllabus for Year 9 students as it covered both the theory and practical technology use requirements of the syllabus (Board of Studies, 2003). It was made possible by the availability of websites containing information that could be used to piece together the stories; and the technology to access those websites being available to students in school classrooms. This activity also had the motivating factors of linking local history to World history and the commemoration of Anzacs.

ANZAC is an acronym for Australian and New Zealand Army Corps. Anzac Day is a public holiday and National Day of commemoration in Australia when those that have served and fallen in past conflicts are remembered. It is held on 25 April each
year, the anniversary of the day of the landing of the ANZACs at Gallipoli in Turkey in 1915. Those that served at Gallipoli first became known as Anzacs, and later any Australian or New Zealander that served in WW1 was referred to as an Anzac ("ANZAC Day," 2009; "Anzac or ANZAC?," n.d.).

3.1.1 Context of the study

This research was conducted in a small high school in a rural community in the state of New South Wales, Australia. The school usually has approximately 420 students (in 2010 it had an enrolment of 435 students, of whom 82 were Aboriginal students) and is a State Government Comprehensive Public High School and as such, it is Government funded and accepts all students that choose to enrol there. The school is a part of the much larger state education system run by the now New South Wales (NSW) Department of Education and Communities (DEC). At the time of the research it was known as the Department of Education and Training (DET) and it is mostly referred to by this title in this study.

Within the school, the teaching of History is the responsibility of teachers in the Human Society and Its Environment (HSIE) Faculty (or Department). The HSIE Faculty had a Head Teacher and 4 classroom teachers (the number of teachers varied depending on the classes run and how many teachers were teaching across faculties). The students in Year 9 History/Geography were divided into three separate classes. The students were streamed into these classes according to academic performance in History, Geography and English. The class sizes varied between 15-30 students, with lower ability classes generally having smaller numbers of students. The school had 4 computer rooms (with Windows based desktops), but only the 2 largest of these had enough computers for up to 25 students. This meant that in classes of over 25 students, some students had to share a computer or some in the class had to be split across another computer facility.

Students were required to complete 100 hours of History study in Stage 5, spread over Years 9 and 10. This study was specified by the History Years 7–10 Syllabus June 2003 produced by the Board of Studies New South Wales (Board of Studies,
2003). The student activity used for this research addresses Stage 5 Topic 2: Australia and World War I.

The school had at the time of this research, an 8 period (lesson) day with each period lasting 40 minutes. Year Nine students had 4 periods of History each week and the way this was presented (as singles and/or doubles and the time of day) varied each year depending on timetabling. The teaching curriculum was divided into units of work lasting between 4 and 6 teaching weeks. The units were designed to cover the content and outcomes of the NSW History Syllabus. The teachers often felt pressured as they felt that they only had a short amount of time to cover each topic.

The researcher had been a classroom teacher of Science and Computer Technology at the rural high school for over 10 years and was well known to both the teachers and the students. The researcher needed the agreement and active co-operation of the school principal, Head Teacher HSIE and the classroom teachers of History for the research to be conducted in the school. This required full explanation of what was planned and how this research would be beneficial to teachers and students in the school. The case was assisted by the researcher being within the school and known and trusted by the school staff.

In order to conduct doctoral research within a NSW State School it was necessary to complete the State Education Research Approval Process (SERAP) to gain official ethics approval to conduct the research. As well as this, any change of class routine in the school, such as running the research activity in lesson time, required not only the approval and cooperation of the school principal and classroom teacher, but also that of the Head Teacher HSIE, as he was responsible for coordinating teaching and ensuring that the curriculum and syllabus were followed.

The research at the rural high school was conducted over a period of 3 years (2008, 2009 and 2010) with one iteration run each year; and over that time involved 4 different classes of Year 9 students and 4 different classroom history teachers (and the HSIE Head Teacher). This meant that each iteration (instance of research when the authentic task was employed in the classroom) was conducted with a new cohort.
or group of students and a new or different teacher with a fresh attitude to the intervention.

### 3.2 Design-based research

The research used a design-based research approach (Reeves, 2006). Qualitative methods were employed within a design-based research framework in order to cater for the complex issues of classroom-based research in practical ways and to inform the design process in a systemic and rigorous way. Qualitative research methods were deemed appropriate as it is suited to studies involving human interactions where researchers attempt to interpret or make sense of human practice in natural settings (Mertens, 2005).

The design-based research approach involved four stages (detailed below) and was appropriate for this investigation as it involved successive iterations of a ‘design solution’ and collaboration with practitioners; thus providing practical design principles that can be used by teachers to engage and motivate students in learning about history supported with the use of technology.

The use of design-based research in this study demonstrates “socially responsible” research (Reeves et al., 2005), as it produces relevant and practical outcomes to directly influence and improve teaching practice in classrooms. The most tangible and direct benefit for the school involved was the development of a unit of work that is now a part of their current curriculum and used by all teachers and students of Year 9 History. The work in the classroom was also a form of professional development for teachers as it introduced and gave them practical experience in the use of technology-based, student-centred tasks.

A DBR approach was appropriate because it takes into consideration the real life complexity of a classroom situation (Barab & Squire, 2004), where the variables are impossible to control and utilised real life situations where complex social interactions between the students and the students and teachers occurred (Barab & Squire, 2004; Reeves, 2006). The study was conducted with four classes of approximately 25 students each and 4 different teachers at one school over a period
of 3 years. Whilst this was, a relatively long period of time and represents a relatively small sample size, it was most appropriate for DBR (Reeves et al., 2005, van den Akker, 1999) and resulted in a ‘product’ directly usable by teachers that has undergone multiple iterative cycles where improvements have been made after each iteration (Reeves et al., 2005); thus future users of the product can be assured of its verified suitability for classroom use. The study involved close collaboration between the researcher and teachers (participants) (Barab & Squire, 2004; Reeves et al., 2005) whereby the distinction between the researcher and participants was sometimes blurred as in some classroom situations the researcher was also a co-teacher.

The four stages of this DBR study are detailed below.

### 3.3 Stage 1: Analysis of practical problems

The first stage in design-based research (Figure 3.1) involved the intensive collaborative analysis of the problem by the researcher and the practitioners and in-depth investigation of the issues and opportunities identified from the literature.

![Figure 3.1 Stage 1 of Design-based Research](image)

These issues related to poor student interest in the study of history; the need for a modernisation in the pedagogy of history teaching; and the opportunities availed by online resources and authentic tasks.

This stage was informed by the following data sources:

- The researcher’s extensive experience as a teacher
- The results of a pilot study (detailed in Chapter 4)
- A literature review
3.3.1 The researcher's extensive experience as a teacher

The researcher is a high school teacher with around 25 years of teaching experience and his work with students in the classroom has been brought to this research issue. The concept of reconstructing the life of a local WW1 soldier was first used by the researcher with a senior computing class (Year 11 Information Processes and Technology) in 2000 as a practical ICT task.

The researcher looked at the many names on the town’s War Memorial and wondered whether the ‘lost’ stories of these long dead soldiers could be recreated using technology and the Internet. Even though the amount of relevant information then available on websites was limited (compared to now), the student-centred task was continued in subsequent years as it was very effective in motivating and engaging students as it gave the students a personal view of how past world events had impacted on their local community.

The task details given to students were paper-based and the researcher noted that students tended to have difficulty in finding appropriate sources and in organising the information they found into a logical sequence. A copy of a part of this task is included in Appendix A. The success of the task led the researcher to explore further ways to utilise this concept with other students.

3.3.2 The results of a pilot study

A small pilot study was conducted by the researcher using this concept in 2006. The researcher developed a prototype that included an online resource to use with Year 9 students. The pilot study was conducted with a Year 9 computer class and a Year 9 history class from different schools. Data collected included classroom observations, interviews with the two teachers and interviews with a sample of two students from each of the two classes.
All teachers spoke positively about the resource and the learning tasks associated with it. The task occupied students for an extended period of time in a genuine authentic task that required them to use technology. The task gave them a personal local connection to momentous events in history. All teachers indicated that they would use the resource again with a class the next year.

The students said that they were motivated and found the task interesting. They generally used their time effectively and were satisfied by the product they produced as a result. They had obviously extended their knowledge of aspects of a soldier’s experience of WW1 as they still clearly remembered parts of their research after a period of months had elapsed.

Although teachers and students showed that they were happy with the resource and the task associated with it; there was a clear indication of a need to extend aspects of the resource to improve its usability by students. Milson (2001) states that “students’ strategies for gathering and organising information are initially characterised by a quest for the ‘Path-of-Least-Resistance’” (p 19). In other words, they try to find the information quickly and easily. If there is an easy way to complete the task, they will use it. The ‘Path-of-Least-Resistance’ was very much evident in both the teacher and student approach to this task. Planning to avoid this issue would be needed for future tasks. (This pilot study is detailed in the next chapter.)

3.3.3 The literature review

An extensive search of literature sources (including journals, books, websites, reports and newspaper articles) using a range of search terms such as ‘authentic learning’ and ‘teaching history’ was used to find sources relevant to this study. These were reviewed and examined to inform the design of the solution in Chapter 2: Literature review.

The literature review noted some of the concerns and politics involved in the teaching of history. It identified a need for a change in pedagogy from teacher-directed to student-centred as a way to address the issues around a lack of student interest and engagement in history. Constructivist activities based around inquiry-
based learning fitted well with the new opportunities engendered by technology and the availability of digitised primary and secondary sources on the Internet. The use of authentic learning was identified as an effective way to motivate and engage students. The 10 principles for authentic tasks (Reeves et al., 2002) guided the design of the prototype.

### 3.3.4 The syllabus

The document that the practitioners and DET were most concerned with was the *History Years 7-10 Syllabus* (Board of Studies, 2003) for the State of NSW. The committee responsible for approving research in NSW DET School, the State Education Research Approvals Process (SERAP), would not approve this research until they were completely satisfied that the activity proposed for the research was fully compliant with the requirements of the syllabus. In 2008, a former History Head Teacher and an experienced classroom teacher assisted with the drafting of a response to SERAP showing their support for the project and also how it addressed components of the *History Years 7-10 Syllabus*.

### 3.3.5 Teacher practitioner consultation

In the initial analysis of the problem the researcher held many informal discussions with experienced History teachers from the small rural high school where the research was to be conducted. These included the then Head Teacher HSIE, a former Head teacher (she was then retired but had been the Head Teacher of English/History at the school for many years and was at that time working as a librarian) and a classroom teacher with over 30 years of History teaching experience. This was necessary not only as a component of the design-based research process, but also to gain their confidence, trust and co-operation in being able to run the research at the school.

These teachers were very supportive of the concept of using this type of project with Year 9 History students and the classroom teacher volunteered to be the first to run it with her Year 9 class. The Head Teacher HSIE was not an experienced History teacher, but was also keen on the concept. He was mainly concerned about where this project would fit within the teaching program as Year 9 History students have
only a limited amount of time to cover an extensive course. He was reassured by the support of the other History teachers; the reference to the components of the Syllabus that the project would cover; and that the project could be run initially as an extra and not replace any current part of the teaching program. The school principal was only concerned that the research had the support of the Head Teacher HSIE and the classroom teachers.

3.4 Stage 2: Development of solutions

Stage 2 of design-based research involved the development of a practical solution (see Figure 3.2) to the issues or problems identified in Chapter 1, informed by the literature review from Stage 1 and in consultation with practitioners (history teachers and school hierarchy) who would be involved in the implementation of the prototype.

![Figure 3.2 Stage 2 of Design-based Research](image)

The practical problems and opportunities of this research included the challenge of conducting it within the everyday school environment, with working teachers and History classes. The solution had to be designed and implemented so that teachers were happy to use it with their classes, so that it fitted into the working curriculum of those classes and so that it caused minimal or no disruption to school routine and curriculum implementation.

The solution was a unit of work that comprised a student-centred authentic activity which enabled Year 9 students to act as historians. Students were required to complete a task where they conducted research using primary and secondary sources to reconstruct the life and experiences of an individual Australian soldier from the local area who served during World War One. This gave meaning to the long lists of
names found on war memorials located in Australian towns. The solution had two major components: the online website resource and the teaching pedagogy used in the classroom.

The solution was guided by: constructivist learning principles; the ten design characteristics of authentic activities (Herrington, 2006; Herrington & Oliver, 2005; Herrington et al., 2003; Herrington et al., 2004; Lombardi, 2007; Reeves et al., 2002); the subject syllabus; school/faculty requirements and practitioner experience in setting appropriate activities and assessment tasks for students. The task was enabled by the ready access of students to technology resources (computers and Internet access); and the availability of digitised resources on the Internet. The solution addressed a major part of Stage 5 Topic 2 Australia and World War 1 from the New South Wales History Years 7-10 Syllabus (Board of Studies, 2003, pp. 32-33).

The online website resource (www.notjustanameonawall.com) was designed, developed, and produced entirely by the researcher. The domain name (notjustanameonawall.com) was registered for this purpose. The first draft of this website resource was set up as part of the pilot study described in Stage 1 (and detailed in Chapter 4). The website was produced to support the classroom activity/task and assist students in locating and using appropriate web links for primary and secondary source research. As the researcher was the web designer and owner of the domain name, he was able to fully control the content of the website and make any changes identified as the result of subsequent iterations. The website was designed with a logical sequence of links to online digital sources, a scaffold and instructions to create opportunities for students to act as historians in their own contexts. The resource was an appropriate vehicle for the planned solution to the problem described in this study.

The teaching pedagogy used in the classroom involved the teacher setting a task (assessment task or simulated assessment task) for the students to individually complete using the online website resource. The task involved students choosing a name from the local war memorial and constructing a story through the use of
primary and secondary online resources. This task was consistent with the learning outcomes of the *History Years 7-10 Syllabus* (Board of Studies, 2003) and satisfied most or all of the ICT outcomes of that syllabus.

The unit of work served as a prototype solution for practitioners to use. The history teachers each had a trial run of the prototype to check its usability for students. Each teacher that used the prototype (in the first and subsequent iterations) presented it in their own way depending on their class makeup and their personal teaching style. Practitioners noted that the authentic task fitted neatly with the *History Years 7-10 Syllabus* and had the potential to be a useful part of the history curriculum.

**3.5 Stage 3: Iterative cycles of testing and data collection**

The study utilised three cycles of iteration and revision (Figure 3.3). The prototype solution was progressively refined through the cycles.

![Figure 3.3 Stage 3 of Design-based Research](image)

The first iteration was conducted in November/December 2008 and involved a Year 9 History class of 25 students and the teacher. It place over 4 weeks at the end of the school year outside the school assessment period. The outcome of this iteration resulted in a major revision of the website resource, the development of a task scaffold, and revised teacher guidance for implementing the unit of work.

The second iteration was conducted in November/December 2009 with a Year 9 History class and a different teacher. Again, the task was not run as an assessment as it was outside the normal assessment period. This iteration did not result in major...
recommendations for change and reaffirmed the appropriateness of those changes made from the first iteration.

The third iteration was opportunistic and conducted in March/April 2010. The HSIE faculty, having observed the first two iterations, had decided to incorporate the task into the teaching curriculum for all Year 9 History students at the school. It was run as a major assessment task and a lead up activity to ANZAC Day. A number of practitioner-initiated changes were incorporated into the unit of work to ensure its appropriateness as an assessment task.

Mertens (2005) gives five types of research participation ranging from complete non-participation such as watching a videotape to complete participation where the researcher becomes a natural participant. In iterations one and two, the researcher was both a practitioner and participant in the classroom. He had the role of a co-teacher and assistant to the teacher when in a classroom setting. In iteration three, the researcher was not present and did not participate in or observe the interventions in the classroom.

How data was collected and analysed in each iteration is discussed below.

### 3.5.1 Iteration 1 – data collected

Data collected for iteration 1 included:

- Lesson observations
- Teacher interview
- Student focus group
- Video recordings

This is summarised in Table 3.1 and each data source is explained below.

<table>
<thead>
<tr>
<th>Summary of Data Collected For Iteration One</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Lesson Observations</strong></td>
</tr>
<tr>
<td>Audio Recordings of 7 lessons (approximately 3hr 30 min)</td>
</tr>
<tr>
<td>Detailed field notes on 4 lessons</td>
</tr>
</tbody>
</table>
### Teacher Interview
Audio Recording (approx 14 min) after 2 weeks of lessons

### Student Focus Group
Audio Recording of discussion with 7 students at conclusion (approx 20 min)

### Video Recordings
Every student in the class speaking on his/her soldier from written assignment
Students read from written work for video recording (approx 1 hr)

#### 3.5.1.1 Lesson Observations:

There were 8 lessons for iteration 1’s unit of work and data was collected for every lesson. The researcher collected detailed field notes on the first four observed 40 minute lessons and audio recorded seven of the eight 40 minute lessons. The field notes were made after the end of the lessons, as the researcher was both a participant and observer during the lessons. The field notes were crosschecked against the audio recordings of the lessons. The researcher was not present at the 4th lesson but was able to interview the teacher immediately after the lesson to collect her observations.

In the first three 40 minute lessons the researcher set the digital recorder on a stand at the front of the classroom. This worked well at recording the teacher and researcher’s voices when they were talking at the front of the classroom. However, when the students settled down to work on the task, it recorded a hubbub of noise where many students were talking at once. It was more difficult to distinguish individual comments from the background noise. In order to improve clarity, it was decided that the teacher should carry the device around with her. In this way she recorded her interactions with students and any help that she had to give them.

While the digital recorder worked well, portions of some lessons were missed due to flat batteries or incorrect operation of the recorder. However, as the researcher also recorded field notes for these lessons, no critical parts of the lessons were missed. All the recordings were transcribed.
The researcher was present and a participant for the entire time of the critical first three lessons. These lessons were crucial as they set the foundation for the success of the task. The researcher was able to be present at parts of the other lessons; however all these lessons were recorded by the teacher using the digital recorder.

3.5.1.2 Teacher Interview

The teacher was formally interviewed after 4 lessons, in the second week of the task. The interview took place in the teacher’s staffroom during a ‘free’ period between classes. The teacher was relaxed and keen to talk about the task and how it had worked so far.

The researcher chose to conduct this interview after just one week rather than at the end of the task as he had observed some issues or difficulties that she and the students had had with the task and he wanted to record her thoughts on this while what had occurred was still fresh in her memory.

The interview was semi-structured with the teacher being asked to recall what had happened so far, and being allowed to talk or discuss at length. It was not necessary for the researcher to ask many questions as the teacher spoke enthusiastically at length on what had happened so far, what she expected the students to have achieved by the following week, difficulties that some students had encountered, and interesting and positive incidents. The interview followed the process of the field interview outlined by Neuman (2007) of “asking questions, listening, expressing interest, and recording what was said” (p. 296).

The whole interview was successfully recorded with the digital audio recorder and then transcribed to record significant comments.

3.5.1.3 Student Focus Group

At the conclusion of the unit of work, the researcher conducted a focus group interview with seven of the students that had just completed the task. The students were selected by the teacher to represent the range of interest and ability in the class. There were 5 girls and 2 boys in the group.
A focus group was chosen as the researcher thought that interaction amongst the students might stimulate some insightful discussion (Hancock, Ockleford, & Windridge, 2007; Neuman, 2007).

The students were sent out of their history lesson by the teacher and met with the researcher in an empty classroom. It was considered unnecessary to establish ground rules (Hancock et al., 2007) as the students were well known to each other and comfortable in each other’s presence. They were also familiar with classroom discussion etiquette. The researcher prepared a number of open-ended questions as discussion starters, and to direct the conversation. He paid particular attention to ensuring that each member of the group had the opportunity to contribute.

The focus group discussion was recorded with a digital audio recorder and later transcribed verbatim.

3.5.1.4 Video Recordings

The teacher required each student to prepare a talk on their soldier and present it to the rest of the class. This was their finished product which would have formed part of their assessment had the task been completed within the assessment period. Some of these were initially recorded as a component of lesson observations with the digital audio recorder. However all were asked by the teacher to give their talk while being videoed (some had to repeat their talk). Both methods recorded both the student talk and any teacher or class discussion stimulated by the talk. The recordings were used to verify the quality of the learning and to cross check with other sources of data.

3.5.2 Iteration 2 – data collected

Data collected for iteration 2 included:

- Lesson observations
- Student interviews
- Teacher interview
- Class discussion or focus group
- Written work
A summary is provided in Table 3.2 and each data source is explained below.

Table 3.2 A Summary of Data Collected for Iteration 2

<table>
<thead>
<tr>
<th>Summary of Data Collected for Iteration Two</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Lesson Observations</strong></td>
</tr>
<tr>
<td>Field notes of 3 lessons (audio device was not working)</td>
</tr>
<tr>
<td>Audio Recordings of 8 lessons (approx 30 min each)</td>
</tr>
<tr>
<td><strong>Teacher Interview</strong></td>
</tr>
<tr>
<td>Audio Recording of individual interview with class teacher at end of task (20 min)</td>
</tr>
<tr>
<td><strong>Student Interviews</strong></td>
</tr>
<tr>
<td>Audio recording of individual interviews with 10 students (approx 20 min each)</td>
</tr>
<tr>
<td>Audio recording of class discussion (18 min)</td>
</tr>
<tr>
<td><strong>Class Discussion</strong></td>
</tr>
<tr>
<td>Audio recording of class discussion at conclusion of task (approx 20 min)</td>
</tr>
<tr>
<td><strong>Written work</strong></td>
</tr>
<tr>
<td>Formal task handout.</td>
</tr>
<tr>
<td>Copies of the written work of 9 students. Not necessarily same as interviewed.</td>
</tr>
</tbody>
</table>

### 3.5.2.1 Lesson Observations:

The researcher was present as an observer and participant, at all the lessons where the students worked on the task. These were 2 x 40 minute lessons per week with breaks due to exams and the regular teacher being absent. The researcher made field notes of the first three critical lessons as the digital audio recorder was not working. These notes were made as soon as possible after the end of the lessons.

Audio recordings of eight lessons were made using the digital recorder. The recorder was placed on a desk at the front of the room, where it was obvious to all the students. It clearly picked up the teacher speaking and the interactions of those students closest to it. The students tended to ignore the recorder and behaved as they normally would in a classroom.

### 3.5.2.2 Interviews

The interviews took the form of “semi-structured” individual interviews (Hancock et al., 2007). This meant that each of the selected students was effectively asked
identical sets of questions, in the same sequence. However, most of the questions were open-ended and the researcher encouraged those being interviewed to elaborate or expand on their answers.

The identical questioning was to enable comparison between respondents in their answers to the questions.

The teacher was asked an almost identical set of questions to the students. Minor changes were made to allow for the teacher’s different role in the intervention. The questions were sequenced to provide answers to the three research questions. The questions asked are listed in Appendices F and G.

3.5.2.3 Teacher Interview
The teacher was interviewed at the end of the unit of work, after the students had been interviewed. The interview was conducted by telephone as the unit of work was completed at the end of the school year and the teacher finished school a week before the school holidays. The phone was put on speaker and the digital recorder was used to record the interview.

3.5.2.4 Student Interviews
Ten students were interviewed and their responses digitally recorded to glean more detailed feedback about the unit of work. Eight of the students were individually interviewed and two students were interviewed together as they felt they would be more comfortable in that situation. The interviews were conducted in a public, open area of the school library. Each student (as described earlier) was asked an identical set of questions and encouraged to expand on their answers.

3.5.2.5 Class Discussion
The researcher informally conducted a class discussion to give those students who were not interviewed an opportunity to contribute feedback on the task. This session was digitally recorded.
3.5.2.6 Written Work

Samples of written work were collected after the task had been completed. This consisted of:

- The handout prepared by the teacher and given to the students at the commencement of the task. This formal sheet described the nature of the task (as an assessment task) and what the students were expected to do to complete it. See Appendix H.
- Digital copies of the work of nine students. This sample of students was different from those who were interviewed.

3.5.3 Iteration 3 – data collected

Data collected for iteration 3 included:

- Teacher interviews
- Student interviews
- Observation of student presentations
- Written work

A summary is provided in Table 3.3 and each data source is explained below.

<table>
<thead>
<tr>
<th>Summary of Data Collected for Iteration Three</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Teacher Interviews</strong></td>
</tr>
<tr>
<td>Audio Recordings of individual interviews with 2 class teachers (different classes) and HSIE Faculty Head Teacher (each recording lasts between 30 to 40 min)</td>
</tr>
<tr>
<td><strong>Student Interviews</strong></td>
</tr>
<tr>
<td>Audio recordings of individual interviews with 7 students (each recording lasts between 10 to 15 min)</td>
</tr>
<tr>
<td><strong>Observations</strong></td>
</tr>
<tr>
<td>2 students giving a formal presentation of their soldier’s story at an Anzac assembly (Videotaped 15min)</td>
</tr>
<tr>
<td>4 Student talks at school assemblies</td>
</tr>
<tr>
<td><strong>Written work</strong></td>
</tr>
<tr>
<td>Formal task handout.</td>
</tr>
<tr>
<td>Marking rubric</td>
</tr>
</tbody>
</table>
3.5.3.1 Teacher Interviews

For this iteration two teachers implemented the unit of work with two different classes of students. Each of these two teachers and the Head Teacher were interviewed after the students had completed the unit of work. The interviews were conducted separately and each took between 30 and 40 minutes. The interviews were conducted in an empty classroom after school and so were in a private, comfortable objective environment (Neuman, 2007) and not time constrained.

The teacher interviews followed the same process as that used for the second iteration. These questions are listed in Appendix G. The questions asked and the sequence of questions were almost identical. Some questions were added or modified to reflect the different context (timing and assessment task) of this iteration. The interviews were semi-structured with identical set questions and question sequence for each of the two teachers. The teachers were encouraged to talk at length and expand on their answers.

The two teacher interviews took place several weeks after the end of the student task due to the Easter Holidays occurring at that time. The two teachers appeared to have a vivid memory of events and spoke at length on each of the questions.

The Head Teacher was asked a different set of questions. The questions related to his role and responsibility in incorporating the student task into the teaching curriculum for year nine history students. The Head Teacher was not involved in the actual delivery of the task in the classroom but was aware of events that occurred in his teachers’ classrooms and the educational value of the task.

The interviews with the two teachers and the Head Teacher were all digitally recorded. The recording device was placed in an obvious place on the desk in front of the interviewee. The three recorded interviews were transcribed verbatim.
3.5.3.2 Student Interviews

Seven students were selected by the two teachers based on their participation in the task and their willingness to be interviewed. These were interviewed after the end of the task and their responses digitally recorded. Five of the students were individually interviewed and two students were interviewed together to minimise the time each spent out of class. Another two were initially interviewed together, but the interview had to be ended early due to the lunch break. The students were interviewed again at a later time, but separately. For interviews where there were two students together, they did not appear to be as effective in this iteration as it in the second iteration. The students appeared to feel more comfortable with individual interviews. The interviews were conducted in a public area of the school library away from other students. Some student interviews were conducted 6 to 8 weeks after they had completed the task.

Each student (as described earlier) was asked an identical set of questions, presented in the same order, and encouraged to expand on their answers. The questions are listed in Appendix F. The interviews were conducted in the same manner as those of iteration 2. The questions were the same as those given to students from iteration 2, with some slight modifications to evaluate the effectiveness of some changes made to iteration 3 such as the timing and the task being used as an assessment. All interviews were recorded and transcribed verbatim.

3.5.3.3 Observations

The researcher observed four students selected by the teachers giving short talks to the morning school assembly leading up to Anzac Day commemorations. The talk was the final part of their assessment task, where they shared their research on an individual soldier with the whole class.

Anzac Day in 2010 fell during the Easter school holidays. At the beginning of each school day in the rural high school all the students assemble in the quadrangle (school courtyard) before classes. Notices are read and the class rolls are marked. Each morning in the week before the Easter holidays, a Year 9 student read their soldier’s story to the assembled school.
On the Friday a special formal Anzac Assembly was held in the school hall where members of the local Returned Services League (RSL) were special guests. The research observed and videotaped two Year 9 students giving their talks to the school and community. These observations were used to verify the quality of learning that had occurred and to cross check against other data sources.

### 3.5.3.4 Written Work

Documents from this iteration collected by the researcher were:

- The formal handout given to students at the beginning of the assessment task explaining the requirements of the task, due date and its assessment value. It was also made available digitally on the school server.

- The marking rubric of the task. This was handed out to students and was also made available digitally on the school server. It detailed the guidelines used by the teachers in allocating assessment marks.

- The scaffold used in the task. This document assisted the students with the type of information needed for the task. It was also given out to students at the beginning of the task and available as a digital copy on a shared space on the school server.

- Six copies of student work. Five of these were digital copies of part completed scaffolds or short student talks. One was a (hard copy) folder of documents related to the task, including the scaffold and talk. This student gave a presentation at the formal Anzac assembly.

- Class marks. The researcher has observed a copy of the class marks for the students while with the teacher. This copy remained with the teacher.

### 3.6 Stage 4: Analysis of data and reflection to produce design principles

In Stage 4 the data from all three iterations was analysed to determine the draft design principles to inform future practice in the classroom (see Figure 3.4).
Mertens (2005) says that in qualitative research data analysis is an ongoing process where findings gradually emerge. The researcher should periodically go over the data carefully looking for “similarities, differences, correspondences, categories, themes, concepts and ideas, and analyse the logic of previous analytic outcomes, categories, and weakness or gaps in the data.” (Mertens, 2005 p421) She goes on to say that data analysis is:

- Systematic but not rigid
- Includes a reflective process that produces notes
- Begins with reading the data and dividing it into meaningful units
- Deductive and allows for themes to emerge
- Flexible and uses comparisons

This research used an analysis approach based on the constant comparative method. This method looks for important themes in a systematic way (Hancock et al., 2007).

All data sources – observations, interviews, reflections and digital audio files were transcribed into word processor documents. As much as possible this was done verbatim.

The researcher used an outside source to transcribe most of the teacher and student interviews but preferred to transcribe audio recordings of lessons himself. The researcher was present at most of those lessons and the audio reminded him of the sequence of the lesson and the context of the comments and conversations recorded.

The researcher used the following stages described by Hancock, Ockleford, & Windridge (2007, pp. 26-27) as a guide to constant comparison analysis:

- Open coding by splitting the transcribed text into sections related to a particular theme or idea.
• Progressive focussing by grouping the ideas or themes into broader categories related to their common theme or idea

• Using computer software to search through and group the snippets of text by code, colour or tag to search for new themes and novel ways of perceiving situations.

How the data from each iteration was analysed is explained below.

3.6.1 Iteration 1 – data analysis

The data collected for iteration one was first transformed into a common digital format (Microsoft Word documents) to be manipulated as part of the data analysis. The field notes; and digital audio recordings of the teacher interview and the student focus group were transcribed into Word documents. The digital recordings were transcribed verbatim with no data reduction. The audio recordings of lessons went through a process of data reduction where the researcher listened to the audio and transcribed or described sections which provided evidence which appeared to be relevant to the research questions.

The text produced by the above process was split into sections that related to a particular theme or idea in a process of Open Coding (Hancock et al., 2007). The sections of text related to themes or ideas were then sorted according to each research question and copied and pasted into a table in Word (see Figure 3.5). This was the process of focusing the themes or ideas through grouping (Hancock et al., 2007).

Each theme or idea was evaluated regarding its implications for the next iteration and compared to the original authentic online learning principles promoted by Herrington (Herrington, 2006; Herrington & Oliver, 2005; Herrington et al., 2004) This led to the recommendation of a significant number of changes to the prototype - the website resource, documents used by the teacher, and presentation to the students in the classroom (see Chapter 5, section 5.3 Changes made to the prototype for the next iteration).
At the conclusion of the research (after iteration 3), the data collected during iteration 1 was revisited and sorted or analysed according to themes using the OneNote software and the methods as described for iteration 2.

3.6.2 Iteration 2 – data analysis

The student interviews, teacher interview and field notes from the first three lessons were transcribed into Word documents from audio recordings (mp3 files). The ten student interviews were then copied and pasted into a Microsoft Excel table with the questions asked of students in the first column and their responses in the other columns. Each question and student response was placed in a separate spreadsheet cell (see Figure 3.6).

The first attempt at constant comparison analysis tried to colour code each of the cells according to the themes evident in the responses (open coding). This method was unsuccessful as it was both time consuming and confusing. The idea was to be able to group the evidence to support and identify new themes by colour matching (progressive focussing). There were only a limited number of colours to shade the cells; some of the colours were very similar while other colours almost visually obliterated the text. Some of the responses provided evidence for two or more themes.
and this was difficult to represent. The use of shading options was tried, but these took a long time for each cell and many appeared similar in appearance, especially when the spreadsheet was shrunk to display all the cells.

<table>
<thead>
<tr>
<th></th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>I</th>
<th>J</th>
<th>K</th>
<th>L</th>
<th>M</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Question</td>
<td>Student1</td>
<td>Student2</td>
<td>Student3</td>
<td>Student4</td>
<td>Student5</td>
<td>Student6</td>
<td>Student7</td>
<td>Student8</td>
<td>Student9</td>
<td>Student10</td>
<td>Teacher</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>A. What are the critical principles applicable to the design of a web-based analysis task which will interest and engage students in the study of Australian History? (DESIGN: this question is concern</td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

![Figure 3.6 Screenshot of a small portion of the spreadsheet first used for analysis](image)

The second attempt tried to print out the spreadsheet so that each of the cells could be manually colour coded. This attempt failed as the researcher did not have access to a suitable A3 printer that could have displayed the large spreadsheet. This may have worked had the researcher persevered and printed on A4, cutting and sticking the sheets together.

A successful solution was found on the third attempt at data analysis when Microsoft Office OneNote was utilised as an analysis tool. OneNote is promoted as planning, organising, sharing and note-taking software. It is based around notebooks (files) that have tabs along the top for multiple sections and tabs along the right hand side for unlimited pages and subpages.

The feature that makes it an unexpectedly powerful analysis tool is its ability to create customisable Tags. These Tags (or multiple Tags) can be added to any paragraph of text. OneNote can then create summaries of these Tags by page or section. The other powerful feature of OneNote is its ability to import and export
Microsoft Office documents. These can be copied and pasted across between applications without changing the formatting. OneNote automatically saves any information added to it.

In the OneNote data analysis of Iteration Two, the researcher created a new OneNote Notebook with one Section (with one Page). The previously created Excel spreadsheet (student interviews) was copied and pasted onto the blank Page (in OneNote). The OneNote Page expanded to fit the large spreadsheet file. The Tag menu was customised with the themes evident from the First Iteration, and the researcher looked for and Tagged evidence related to each theme. Each paragraph of evidence was attributed (noting the source of the information). Where the response provided evidence for, or related to more than one theme, multiple Tags were added to each paragraph of text. Text relating to different themes within each cell could be separated by the return key (new paragraph) so that they could be Tagged differently.

As more themes became evident, additional customised Tags were created until each relevant student response had at least one Tag. The Microsoft Word documents for the field notes (first three lessons), transcriptions of recorded lessons and teacher interview were each copied and added to subpages (of the spreadsheet page). The evidence in each of these documents was then Tagged in the same fashion. See Figure 3.7, which is a screen print from OneNote showing the use of customised Tags.

Another powerful feature of OneNote was that it did not matter what type of Microsoft document (Word or Excel) was pasted onto each page, so long as each theme or idea was separated by a return (into a new paragraph) the tags or multiple tags could be used to group the evidence relating to themes so that the different responses could be compared.

The Tags were summarised by ‘This Page Group’ (meaning that all the Tags were summarised by themes for all three documents). This created a new Page in OneNote, which had all the Tags listed in sections. This new summarised Page was then further examined for new subthemes or missed themes.
1. Authentic tasks have real-world relevance

I know that he was in France and something happened to him. Didn’t say he died. Laura had one of the brothers Alexander. My soldier was Albert Thomas Nelson. My soldier has relatives here. (Students’)

It was also quite localised for them. They could recognise names and addresses where people lived. This made it very local and real for them. (Teacher)

But yeah, this was a good or useful task you found out about local people, you learn stuff better, it sticks in your head better, but then again you are only learning about one bloke. (Student14)

Cos I went on the excursion to the western front and saved a lot of the places I’d been. It sort of expanded my knowledge on what actually happened. We went to the trench museum at Passchendaele and saw the conditions and how scary it would have been. His battalion went to most of the places we went to. I can relate to his experiences and the conditions of trenches. (Student14)

I quite liked it actually as it was primary sources and you got to know what was going on at that time and how they kind of felt about it. Cos he came from my area I felt that I was really looking back on something important. Cos he went over in the same battalion the 45th and a lot we’re from this area (Student5)

I wasn’t sure what he would be like but I remember you said that he came from Wanton. (Student14)

It was different and less interesting. My bloke was just in and out of hospital. As he didn’t die, I guess that he went back to Australia. (Student4)

It was interesting, it was cool to look up this information that actually had happened to them. (Student15)

That he did come from my area and he did build the hall (most interesting) (Student16)

Yeah I think some of us felt a connection with their soldier. One student found out the house of his person and drove past it. (Teacher)

Yes as he was from my area and had meaning for me and just from the amount of time he spent in hospital and that it helped me understand what was happening in WWI (Student15)

10. Authentic tasks allow competing solutions and diversity of outcome

I know that he was in France and something happened to him. Didn’t say he died. Laura had one of the brothers Alexander. My soldier was Albert Thomas Nelson. My soldier has relatives here. (Students’)

It was working by yourself so you did not have people talking and preventing you from hearing it. Could work at your own pace. (Student14)

I found a lot of it quite interesting. It was good to do something no one else was doing and be one of the first people to view his file. (Student14)

I think it (each student having a different soldier) added to the task. They were often comparing stories with each other and seeing what was similar and different between each personality. (Teacher)

I think it was good for their research methodology. They had a good opportunity to actually locate and then translating old texts and then the process of sitting down and going through documents to find answers. Some found this quite frustrating but it is a good skill to have. Some got to know some of the difficulties of using original documents. (Teacher)

It was different and less interesting. My bloke was just in and out of hospital. As he didn’t die, I guess that he went back to Australia (Student4)

Figure 3.7 Screen print from OneNote showing customised Tags

Figure 3.8 Screen print from a sample portion of OneNote showing the grouping of themes
New customised Tags were created and added to the appropriate evidence. This Page Group was summarised once more and again examined for subthemes. The process of comparison and examination for themes was thus repeated three times, each time further refining the themes and identifying subthemes. Finally this Page Group was summarised by Tags (see Figure 3.8 which shows a screen print of a portion of a summary page) and this copied to a new Microsoft Word document.

3.6.3 Iteration 3 – data analysis

The teacher interviews, Head Teacher interview and student interviews were transcribed from the digital audio recordings in MS Word documents. These were for the most part a verbatim record of the interviews.

The third iteration data was analysed using OneNote by the same method described for the second iteration. A new section was created in the OneNote document used for the analysis of iteration two data, described above. This meant that the customised Tags from the second iteration could be reused. New pages for each of the separate Word documents were created (these appeared as tabs along the right hand side of the section. Each transcribed Word document was copied and pasted to the appropriate page. The first Word document was copied to a new page and subsequent documents were copied to subpages of this page. The page can expand endlessly to accommodate even large documents. Each document was analysed for themes; and sections of text providing evidence were separated using a Return and attributed to its source.

The themes (or Tags) from the second iteration were also reused and applied to the third iteration without change. As new themes were identified, new Tags were created. Again the software enabled the evidence related to themes to be sorted, summarised, compared and grouped so that common themes could be identified.

3.7 Quality of the Research

This research set out to observe, record and analyse the classroom process in a typical Australian history classroom when students are engaged in a student-centred authentic learning task. The design-based research was conducted by an insider over
an extended period of time. The iterations took place over a period of three teaching years and the first two iterations had lesson observations over four to eight weeks. There were at least four different sources of data collected for each iteration enabling triangulation and confirmation of information between sources.

Mertens (2005) gives a listing of criteria used to judge the quality of qualitative research. These are: Credibility (parallels internal validity in quantitative research); Transferability (parallels external validity); Dependability (parallels reliability); Confirmability (parallels objectivity); Authenticity and Emancipatory.

This study demonstrates:

- **Credibility** through: prolonged, substantial engagement (the researcher was embedded in the school as a teacher and conducted the research over a period of 3 years); persistent observation (most of the lessons where students were doing the activity were either observed and/or recorded for each of the iterations); peer debriefing (discussions with supervisors and practitioners); member checks (transcribed interviews had their accuracy verified by practitioners) and triangulation (the use of multiple sources of data) (Mertens, 2005).

- **Transferability** through the use of “thick descriptions” so the reader can judge whether the findings are appropriate to their situation. Transferability is a measure of the extent to which the results can be generalised to other situations. “Extensive and careful description of the time, place, context and culture is known a “thick description” (Mertens, 2005, p. 256).

- **Confirmability** and **Authenticity** through the extensive use of audio and video recording. This means that the content can be checked multiple times to ensure accurate interpretation of data and the objectivity of the researcher (Mertens, 2005).

This study complies with Neuman’s (2007) four tests of field research validity:

- **Ecological validity**, which means that the presence of the researcher did not affect or change normal interactions in the classroom. As the researcher was known by the students as a teacher in the school and also acted as a practitioner in the classroom, the students accepted his presence and acted as they normally would in that situation.

- **Natural history** through the use of detailed descriptions of the conduct of the research.
• *Member validation* through practitioners checking and verifying the accuracy of transcriptions and descriptions. The researcher collaborated closely with practitioners as an integral part of the design-based research process.

• *Competent insider performance.* The researcher was a teacher at the school and passed as an insider in the classroom and was familiar with the nuances of the classroom.

According to van den Akker (1999) the aim of formative evaluation (design-based research) is to improve the quality of the product or intervention being developed. He says that during the research process “the emphasis in criteria for quality usually shifts from validity, to practically, to effectiveness.”(van den Akker, 1999, p. 10) The quality of the prototype developed through three iterations has been verified by its recognition by the practitioners at the school where the research was conducted. The activity is now accepted as an important component of the Year 9 History Curriculum and Assessment program. All Year 9 students each year at the school complete the activity and their presentations to the school are now an accepted part of the school culture. The solution (unit of work) developed through this research was still in active use in the 2014 school year.

### 3.8 Conclusion

This chapter detailed the design-based research methodology employed to investigate the research problem of defining design principles to assist teachers in motivating and engaging students in the study of Australian History through the use of technology to support authentic tasks. It described the data collected and the analysis of data to identify themes to develop draft design principles across each of the three Iterations of this study. The chapter concluded by explaining how this design-based research study addressed qualitative research 'quality' criteria: credibility, transferability, confirmability and authenticity.
Chapter 4: Design of the Intervention

4.1 Introduction

This chapter explains the development of the initial solution and intervention related to motivating and engaging school students in the study of Australian History. It corresponds with Stage 2 of the design-based research process. A review of the literature identified constructivist, student-centred, inquiry-based activities utilising technology as being a possible effective means to motivate and engage students. More specifically, utilising these as an authentic task using technology based on the ten design characteristics of authentic activities identified from the literature by Reeves, Herrington & Oliver (2002, p. 3). These ten design characteristics, well established in the literature (Herrington, 2006; Herrington & Oliver, 2005; Herrington et al., 2003; Herrington et al., 2004; Reeves et al., 2002) were used as the basis for Draft Design Principles (DDP) to inform the initial design of the intervention.

This chapter will describe the background to the task and its effect on the design and implementation of the intervention. It will look at: the influence of current history teachers; education requirements, school systems and culture, technology accessibility and the opportunities availed by online resources on the design of the task/activity.

![Stage 2: Design-Based Research](image)

Figure 4.1 Stage 2 of DBR – Development of a Solution (the Intervention)
4.2 The solution – learning about a soldier

The solution consisted of two components, the authentic task (requiring students to engage in authentic activities) designed through the DBR process and the website resource to support students and teachers in completing the task.

4.2.1 The authentic task

The authentic task required Year 9 History students to be historians and use online technology to discover and document the individual stories of local people who had served as soldiers in World War One (WW1). The website resource (www.notjustanameonawall.com) was an essential support for the authentic task as it: guided students in their research with links to information; had a downloadable scaffold to support students in organising their information; had lists of soldier’s names from the War Memorial; and included guides for the teacher and sample stories.

The way the solution was employed in the classroom ultimately depended on individual teachers and the pedagogy used with their students. However it was expected that the authentic task would: form part of the subject assessment, take place over a period of at least 2 weeks, require students to each have a different soldier to research, require students to produce a product (written document or oral presentation) at the conclusion of the activity and be associated with a WW1 event such as Anzac Day or Armistice Day.

The authentic task aligned with the History syllabus for Year 9 students as it covered both the theory and practical technology use requirements of the syllabus (Board of Studies, 2003). It was made possible by the availability of websites containing information that could be used to piece together the stories; and the technology to access those websites being available to students in school classrooms. The authentic activity also had the motivating factors of linking local history to World history and the commemoration of Anzacs.
4.2.2 The website resource

The website http://www.notjustanameonawall.com was an alternative to providing verbal or printed links or having students conduct their own random Internet searches. Internet search engines can provide students with an array of links that may lead to frustration as many can be unsuitable as the search results can be very dependent on the search terms used. The Internet links provided on the website resource had been tested and were known to provide students with appropriate and relevant results. Most are links to database searches so the students will need to still put in search terms, but instructions are provided on the website to assist with this.

The downloadable scaffold was a crucial part of the website resource as it delivered a means of supporting students in digitally organising their information. It also provided a guide to students as to the type of information they needed to look for in their primary and secondary sources.

The researcher needed to build the website so that students had easy access to links and activity resources from their desktop while they were working, whether at home or at school. At the time there was nothing else available on the Internet that could have provided this. The website was constructed by the researcher over a period of about three months.

4.2.3 Draft Design Principles

The solution was guided by constructivist learning principles and informed by Draft Design Principles (DDPs) distilled from a review of literature related to the characteristics of authentic activities. Reeves, Herrington and Oliver (2002) first proposed ten characteristics of authentic activities based on an extensive review of literature and research. The ten characteristics feature in much of the subsequent literature related to authentic learning (Herrington, 2006; Herrington & Oliver, 2005; Herrington et al., 2003; Herrington et al., 2004; Lombardi, 2007). These ten characteristics are the basis for most of the DDPs used to guide the initial design of the intervention. A further two DDP have been taken from the nine elements of authentic learning described by Herrington (2006; 2010). The following Table 4.1 demonstrates how the DDPs applied to the intervention activity.
<table>
<thead>
<tr>
<th>Draft Design Principles</th>
<th>Application to the Design</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1.</strong> “Authentic activities have real-world relevance.** Activities match as nearly as possible the real-world tasks of professionals in practice rather than decontextualised or classroom-based tasks” (Reeves et al., 2002, p. 564).</td>
<td>Students assume role of historian and construct individual history of soldier (Home Page Figure 4.2, Task Page Figure 4.4, Teacher Info Page Figure 4.8) Students select own soldier to research (Home Page Figure 4.2, Task Page Figure 4.4, Coonabarabran Memorial Clock Tower Page Figure 4.5) Soldiers chosen from local area Students likely to be familiar with soldiers’ family names and local places mentioned (Coonabarabran Memorial Clock Tower Page Figure 4.5)</td>
</tr>
<tr>
<td><strong>2.</strong> “Authentic activities are ill-defined, requiring students to define the tasks and sub-tasks needed to complete the activity.** Problems inherent in the activities are ill-defined and open to multiple interpretations rather than easily solved by the application of existing algorithms. Learners must identify their own unique tasks and sub-tasks in order to complete the major task” (Reeves et al., 2002, p. 564).</td>
<td>Students each construct a unique story from different information sources. (Task Page Figure 4.4, Research Page Figure 4.3, Memorial Clock Tower Page Figure 4.5, Resources Page Figure 4.7, Teacher Info Page Figure 4.8)</td>
</tr>
<tr>
<td><strong>3.</strong> “Authentic activities comprise complex tasks to be investigated by students over a sustained period of time.** Activities are completed in days, weeks and months rather than minutes or hours. They require significant investment of time and intellectual resources” (Reeves et al., 2002, p. 564).</td>
<td>Activity takes at least two weeks to complete and requires a number of separate subtasks such as: locating relevant information, selecting portions of it, sequencing and writing a story (Research Page Figure 4.3, Teacher Info Page Figure 4.8)</td>
</tr>
<tr>
<td><strong>4.</strong> “Authentic activities provide the opportunity for students to examine the task from different perspectives, using a variety of resources.** The task affords learners the opportunity to examine the problem from a variety of theoretical and practical perspectives, rather than allowing a single perspective that learners must imitate to be successful The use of a variety of resources rather than a limited number of preselected references requires students to detect relevant from irrelevant information” (Reeves et al., 2002, p. 564).</td>
<td>No one right way to complete the task (Teacher Info Page Figure 4.8) Each soldier has different sources of information available. (Research Page Figure 4.3) Student selects what is relevant. (Research Page Figure 4.3, Scaffold Figure 4.9) Each soldier gives a different view of the effect of the war on individuals and community (Home Page Figure 4.2).</td>
</tr>
<tr>
<td><strong>5.</strong> “Authentic activities provide the opportunity to collaborate.** Collaboration is integral to the task, both within the course and the real world,</td>
<td>Each student works on a different soldier (Task Page Figure 4.4, Teacher Info Page Figure 4.8) Collaboration not necessarily built into the</td>
</tr>
<tr>
<td></td>
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<tr>
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</tr>
<tr>
<td>6.</td>
<td>“Authentic activities provide the opportunity to reflect. Activities need to enable learners to make choices and reflect on their learning both individually and socially” (Reeves et al., 2002, p. 564).</td>
</tr>
<tr>
<td>7.</td>
<td>“Authentic activities can be integrated and applied across different subject areas and lead beyond domain-specific outcomes. Activities encourage interdisciplinary perspectives and enable diverse roles and expertise rather than a single well-defined field or domain” (Reeves et al., 2002, p. 564).</td>
</tr>
<tr>
<td>8.</td>
<td>“Authentic activities are seamlessly integrated with assessment. Assessment of activities is seamlessly integrated with the major task in a manner that reflects real world assessment, rather than separate artificial assessment removed from the nature of the task” (Reeves et al., 2002, p. 564).</td>
</tr>
<tr>
<td>9.</td>
<td>“Authentic activities create polished products valuable in their own right rather than as preparation for something else. Activities culminate in the creation of a whole product rather than an exercise or sub-step in preparation for something else” (Reeves et al., 2002, p. 564).</td>
</tr>
<tr>
<td>10.</td>
<td>“Authentic activities allow competing solutions and diversity of outcome. Activities allow a range and diversity of outcomes open to multiple solutions of an original nature, rather than a single correct response obtained by the application of rules and procedures” (Reeves et al., 2002, p. 564).</td>
</tr>
<tr>
<td>11.</td>
<td>“Coaching and scaffolding ... principally by the teacher ” (Herrington, 2006, p. 2)</td>
</tr>
<tr>
<td>12.</td>
<td>“Access to expert performances and the modelling of processes” (Herrington, 2006, p. 2)</td>
</tr>
</tbody>
</table>
4.3 Website resource prototype design

The website resource at http://www.notjustanameonawall.com was designed and constructed to provide easy access for students to the rich array of digitised primary and secondary sources related to WW1 to be found on the Internet. It was built to enable Year 9 History students to find appropriate online sources and organise their information as they pieced together the story of an Australian WW1 soldier from their local area. Students through doing this gained insight into the personal experiences of Australian soldiers in that War. The website resource was designed to support an assessment task or classroom activity.

Having the information and resource links related to the activity available on the Internet enabled these to be readily available to students and teachers in any classroom and outside of school. It also allowed the potential for other schools to make use of this resource.

The webpages and site have a consistent look based on the appearance of ink on aged paper (reminiscent of an old photograph album) with each page having a similar appearance. The appearance of each page is controlled by Cascading Style Sheets (CSS). The information on each page is constrained within a bordered table of set dimensions so that it will have the same appearance regardless of screen resolution and always prints as it looks on the screen. It also means that students will see all the information needed without having to scroll from side to side. In addition, the content on each page is limited so that most of it will fit on the screen at one time and the students will not always have to scroll down to find information.

The site uses colours and graphics to enhance visual appeal and assist learning (Hartley, 1996). The heading graphic is red (aged ink) over aged paper and there is a WW1 related picture on each page from the album of Mrs Shirley Clifton of Coonabarabran, her father H. G Carter served in WW1.

The site has used techniques to make text more readable by students. These include: high contrast between the text and background; the use of a san-serif font; short
paragraphs; and a mixture of short and long sentences within each paragraph (Hartley, 1996).

The first draft of the website resource (used with the first iteration) had six main pages linked through an interactive top menu bar where a mouse rollover changed the text to bleeding blue ink text. In addition there were descriptive redundant (or duplicate) html links throughout the page text and in a bottom menu bar. This meant that the students had two or more ways to find their way around the site.

The website consisted of six main pages (with ancillary pages). These were:

- Home page
- Research page
- Task page
- Coonabarabran Memorial Clock Tower page
- Resources page
- Teacher Information page
- Scaffold page

Each are elaborated on and related to the draft design principles (DPP) as follows.

4.3.1 Home page

The Home page (www.notjustanameonawall.com/index.htm - see Figure 4.2) introduces the websites and has descriptive links to other pages. This is usually the first page on the site visited by students. It sets the theme of remembering individual Australian soldiers of WW1 and introduces the activity of finding their stories through online research (DDP1, DDP4). The site gives a suggested method to find out about the life and experiences of individual servicemen using primary and secondary sources.
4.3.2 Research page

The research page (www.notjustanameonawall.com/research.htm - see Figure 4.3) has links to the most reliable sites to find an individual soldier’s information. This was the most important page for students as it suggested a way to conduct research using the scaffold; as well as providing links to a suggested sequence of web sites (starting at the top) where they could reliably find information on their soldier as well as information on how to use the sites (DDP11).
Figure 4.3 Screen Print of part of the Research Page

It showed a way for the student to assume the role of an historian in conducting individual research (DDP1), by writing rough notes and arranging information using the scaffold (DDP11). The page offered a choice of links that should provide information specific to a student’s individual soldier (DDP2, DDP4). The student needs an extended time to investigate the sources, select and make sense of the information (DDP3). A range of skills beyond history, particularly in the use of ICT
is required to complete the activity (DDP7). The student is encouraged to present the product of their research in a form that can be shared with others (DDP9). To assist the student there are links to example websites (DDP12).

4.3.3 Task page

![Screen Print of part of Task Page](image)

**Figure 4.4 Screen Print of part of Task Page**

The Task

This task requires you to be an historian, not a pretend one, but a genuine historian. You will find out the history of one soldier, or one name. The information that you will put together will form a unique document. It is unlikely that anyone else has attempted to compile a story (as you will in this task) on your one individual, out of the many Australian soldiers that served in World War 1. Even though much of the information is now publicly available, most writers tend to focus on the high profile figures of the period. The ordinary soldier remains anonymous, except for the surname and initials on the War Memorial. Your task is to personalize one of these anonymous names and find out and record the story in as much detail as you can. You will then present the information in a form that can be made publicly available.

You may complete this task either because you wish to find out more about a relative; or because you have an interest in local history; or in order to complete a task set by your teacher at school. Teachers see [Teacher Information](http://example.com/teacher_info).

The first thing to do is to choose a name to research. This may be a family relative or a relative of friends (which may mean that you have access to photographs and personal stories). Otherwise you may choose a name from the list on your local war memorial. The names on the [Cumnambara Memorial Clock Tower](http://example.com/cumnambara) are presented for you to view.

Next you should find out as much information as you can using the procedure on the [Research Page](http://example.com/research) as a guide. This information is best written as notes in a logical form. A [Scaffold](http://example.com/scaffold) is provided to assist you with this.

The rough notes from your scaffold can then be used to write an interesting and accurate story which represents the soldiers experience of WW1. The story together with appropriate pictures can be the basis for a web page or newspaper article on that soldier. Some examples of these can be found at [Joseph Michael Nelligan](http://example.com/joseph-nelligan) and [Donald F. Kerr](http://example.com/donald-kerr).
The Task page (www.notjustanameonawall.com/task.htm see Figure 4.4) introduces the student task (with a link to the Teacher page) which requires each student to work as an historian (DDP1) and investigate the story of just one soldier (DDP1, DDP5, DDP10). It suggests a way to choose a name and provides a link to the Clock Tower Memorial page where students can select the name of a local soldier (DDP1). Students are supported in conducting their research and completing their task with links to the Research Page, Scaffold page and to sample stories (DDP11).

4.3.4 Coonabarabran memorial clock tower

The Coonabarabran Memorial Clock Tower would be familiar to any traveller along the Newell Highway between Brisbane and Melbourne. It is built from local sandstone and was dedicated in 1928. The tower has a large brass plaque on each side inscribed with the names of 265 servicemen that served in The Great War (WW1). Those that died during the war (41) have a star next to their name. These names can be read by clicking on the icon of each plaque below. This will open an enlarged image of the plaque.

Figure 4.5 Screen Print of part of Coonabarabran Memorial Clock Tower Page

The Memorial Clock Tower page (www.notjustanameonawall.com/clocktower.htm - see Figure 4.5) has a picture and details about the Coonabarabran War Memorial Clock Tower along with thumbnails which link to pages that display photographs of
the name plaques (Figure 4.6) from each of the four sides of the Tower (This is the local area where the research was conducted.) The photographs of the name plaques allow students to choose a local name without having to physically visit the Memorial (DDP1, DDP2).

Figure 4.6 Screen Print Showing Name Plaque on South Wall of Memorial Clock Tower
4.3.5 Resources page

The Resources page (www.notjustanameonawall.com/resources.htm - see Figure 4.5) had links to more general resources on WW1 that could be used to access another perspective on the War and to supplement the information found on the individual soldier using the Research page (DDP2, DDP4).

Figure 4.7 Screen Print of part of Resources Page
4.3.6 Teacher information page

The Teacher Information page (www.notjustanameonawall.com/teacher.htm - see Figure 4.8) provides support for teachers in using the site and in setting a task for students, which utilises the resource. The page has a link to a sample assessment.
task, which could be used as a guide to setting their own task. (DDP1, DDP2, DDP3, DDP4, DDP5, DDP6, DDP7, DDP8, DDP10)

### 4.3.7 Scaffold page

![Scaffold Page](image.png)

The scaffold page ([www.notjustanameonawall.com/scaffold.htm](http://www.notjustanameonawall.com/scaffold.htm) - see Figure 4.9) is an ancillary page linked both from the Research page and the Task page that can be printed for students to use. It is there to assist students to order and arrange the different bits of information they find into a logical sequence so that they can
describe and construct the soldier’s story (DDP11, DDP4). There is also a link on this page to download the scaffold as a Word document so that students can customise it and use it in a Word Processor.

4.4 Practitioner review of web resource

The Head Teacher HSIE and the experienced history teacher (who had volunteered to assist with the research) each informally used the website resource in 2008 as a part of the negotiation process leading up to the agreement to conduct the research in their faculty at the school. They needed to see whether it was suitable for student use and if it fitted with the teaching outcomes for students studying History. They each investigated the story of a relative who had been a serviceman in the Great War (WWI). The Head Teacher became quite involved in the process of finding out about his relative and as a result strongly endorsed the website resource and was very enthusiastic about it being used with the Year 9 History class. The history teacher was similarly enthusiastic about the resource after using it. They were both reassured that the activity would be motivating for students and complied with the Year 9 Unit on WW1. Each of the teachers was asked whether they had had any problems in using it and whether they could suggest any changes that could improve it for student use. Both of the teachers said that the website resource was fine just the way it was.

4.5 Teaching pedagogy used in the classroom

The teaching pedagogy of the solution (i.e. how it was actually presented to the students in the classroom; what they were required to do; and how long students spent on the activity) was influenced by the timing and the preferences and personalities of the practitioners (Head Teacher and teachers). These differences in classroom presentation applying to each iteration are described in subsequent chapters. The website resource (Teacher Information Page Figure 4.8, Task Page Figure 4.4) provided guidance to teachers in setting an activity for students through explanation and examples. As part of the design-based research process, the prototype solution evolved through the iterations as a result of data collected from observation, the teacher and the students.
The pedagogy attempted to comply with the original draft design principles (Table 4.1). In each iteration: the students researched the story of an individual soldier from WW1 using the Internet links from www.notjustanameonawall.com; the activity was introduced in the first lesson; the activity took place over a significant number of lessons; most student work happened in the classroom; the activity was an assessment task or simulated an assessment task, the students each researched a different soldier; and the students shared their stories by presenting them to the teacher/class at the end.

The first intervention, that is, the first use of the solution (the student authentic activity designed through the DBR process) in the classroom is described in the following chapter. The solution was at this stage a prototype, as it was going through a process of testing and improvement. This intervention was the first of three iterative cycles conducted in this study. They are each described in the subsequent chapters.

4.6 Conclusion

This chapter detailed the development of the prototype solution (Stage 2 of DBR) from the draft design principles (DDPs) distilled from a literature review related to characteristics of authentic activities (Stage 1 of DBR). The solution was an authentic task requiring Year 9 History students to be historians and use online technology to discover and document the individual stories of local people who had served as soldiers in World War One (WW1). The task was supported by a website resource (www.notjustanameonawall.com) with links, a scaffold and activity descriptions; and this chapter described each page of the website and its links to the DDPs.
Chapter 5: Iteration 1

5.1 Introduction

This chapter examines the first of the three consecutive iterative cycles of testing and refinement conducted following the initial design of the solution. The next two chapters describe the subsequent iterative cycles. This iteration was examined, based on the data collected (described in Chapter 3), for answers to the research questions and the prototype solution was critically scrutinised for ways in which it could be further improved or refined. This resulted in changes being made to the prototype for the next instance of testing (next iteration).

The iterative processes detailed in this and the following two chapters correspond to the third and fourth stages of design-based research (see Figure 5.1) where the cycles of testing are conducted and reflected upon to produce “Design Principles” and improvements to the prototype.

![Figure 5.1 Stage 3 of DBR – the Iterative Cycles of Testing](image)

5.2 Iteration 1 - 2008

5.2.1 Context

The intervention involved the classroom use by students of the solution designed through the DBR process (Figure 5.1). The solution was an authentic activity, which required students to research (using mostly primary sources available from the Internet) and construct the story of a WW1 soldier from their local area. A major component of the solution was a web-based resource
(www.notjustanameonawall.com) established to assist students and the teacher with the research.

The first iteration of this intervention was conducted at an Australian rural high school in NSW between late November and mid December 2008. The first lesson was on 27th November 2008 and the last on 16th December 2008. This timing meant it was outside the school assessment period and did not interfere with the regular curriculum. However, it meant that a number of motivators no longer applied for this intervention. It could not be a formal assessment task, it was not associated with any significant public event (such as Anzac Day or Armistice Day), and students can be reluctant to complete class work after their formal exams.

The iteration could not be commenced until ethics approval was received from the University of Wollongong and the then NSW Department of Education and Training (DET). The DET approval was through the State Education Research Approvals Process (SERAP). SERAP approval was received in November 2008, which was late in the school year.

In 2008 there were three Year 9 History classes in the school with each student allocated to a class according to their academic performance in History, Geography and English in the previous year (Year 8). The History classes and teachers were part of the HSIE (Human Society and its Environment) Faculty under the supervision of the Head Teacher of that faculty. The researcher was a teacher at the rural high school but not part of the HSIE faculty.

The school’s timetable was based on an 8 period (lesson) day with each period lasting 40 minutes. The Year Nine students had 4 periods of History each week. This was allocated as a double (80 minute) lesson on Thursday and single (40 minute) lessons on Monday and Tuesday each week. The History teaching curriculum was divided into units of work usually lasting between 4 and 6 teaching weeks. The units were designed to cover the content and outcomes of the NSW History Years 7-10 Syllabus.
The unit of work required each student to have access to a computer with an Internet connection. The school had 4 computer rooms, but only 2 of these had sufficient computers for the number of students in the Year Nine History class used for this study. The teacher made sure that she booked one of the larger computer rooms for each of the Year Nine History lessons for the two weeks (8 lessons) of this study.

5.2.2 Participants

The female teacher participating in the intervention was very experienced with over 30 years in the teaching profession and in the subject area of History. She was highly regarded by her peers; and had a reputation for innovative, interesting activities with her students and in motivating students to work well in her classes. Her Year 9 History class of 2008 consisted of 17 girls and 10 boys. This was the top streamed academic class but in a small school still included a broad range of abilities amongst the students. The class did not have any students with serious behavioural issues and there was a strong culture of learning amongst the students.

It was agreed that the researcher would (initially at least) act as an assistant to the teacher and actively participate in the lesson. This assistance included helping the teacher with the introduction of the task, demonstrating how to use the website and helping individual students as required in the classroom. The researcher was also a teacher at the school and was timetabled on to another class at the same time as the lessons. He was able to be at most of the History lessons through “buddy” swaps with other teachers. It was not possible for him to be present for the full duration of all lessons, however all except for one lesson were digitally audio recorded. The researcher was present for the crucial lessons at the beginning and at the conclusion of the task.

5.2.3 Practitioner consultation

The researcher met informally with the teacher on several occasions in order to plan the best way to present the authentic activity to students. The teacher considered that the authentic activity (see Chapter 4, section 4.2.1 The authentic activity) would not in itself be sufficiently motivating for the students (especially as it could not be an assessment task). She said that the task needed some kind of ‘hook’ (her words) to
draw in the students and create interest and motivation for them to complete the task. The teacher would do this in other tasks through such strategies as assessment combined with novel practical activities such as diary making, model making or posters.

She decided on the ‘hook’ being a theme of ‘Remembrance’ with an aim to develop empathy and feeling for the specific person and their family. The teacher said that there are different ways of remembering people and in some cultures if the name is remembered then the person ‘lives’. This theme was considered important as the person might not have any family or relatives left to remember them and may only be remembered by the student.

The conduct of this iteration was informed by the researcher’s previous pilot study and experience in presenting this type of task to students (see Chapter 3, section 3.3.2 The results of a limited pilot study). Students tend to try to find information quickly and easily and not complete the activity in the manner expected, the ‘Path-of-Least-Resistance’ (Milson, 2002). The researcher requested that the authentic activity be clearly defined at the beginning with each student having a different soldier to research to avoid student shortcuts.

The teacher verbally delivered all the directions for the authentic activity (see Chapter 4, section 4.2.1 The authentic activity) and what she expected them to do at the beginning of each lesson; and as the task unfolded, this was adapted lesson by lesson. The initial concept was for students to each choose one name from the local War Memorial and to research the story of that soldier using the scaffold and resources to be found at http://www.notjustanameonawall.com. The students would each have a different name to research.

5.2.4 Implementation of the unit of work

The authentic activity took place over 2 weeks and comprised 8 lessons of which 7 were observed and recorded (the other lesson was described by the teacher). Each double lesson was noted as two lessons. The sequence of each lesson always followed the same routine. After all the students had come into the classroom, the
teacher asked for their quiet attention. She then went over what they had completed in the previous lesson, said what they would be doing in the current lesson and what she expected they will have achieved by the end of the lesson or the next day. Students then set about their work for the lesson and the teacher and the researcher moved amongst them answering questions and assisting individual students. The classroom was not quiet due to background noise of students working and talking to each other. Table 5.2 provides an overview of the sequence of the lessons.

<table>
<thead>
<tr>
<th>Lesson</th>
<th>Date</th>
<th>Day</th>
<th>Duration</th>
<th>Observed</th>
<th>Focus</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 and 2</td>
<td>27/11/2008</td>
<td>Thursday</td>
<td>80 minutes</td>
<td>Yes</td>
<td>Introduction to Task and website resource, choosing a name, finding information using the scaffold as a guide</td>
</tr>
<tr>
<td>3</td>
<td>1/12/2008</td>
<td>Monday</td>
<td>40 minutes</td>
<td>Yes</td>
<td>Make sure each student has a unique local name to research, continue finding information</td>
</tr>
<tr>
<td>4</td>
<td>2/12/2008</td>
<td>Tuesday</td>
<td>40 minutes</td>
<td>No, but described in teacher interview after lesson</td>
<td>Continuing with individual research and completion of scaffold</td>
</tr>
<tr>
<td>5 and 6</td>
<td>4/12/2008</td>
<td>Thursday</td>
<td>80 minutes</td>
<td>Yes</td>
<td>Continue with research. Use digital copy of scaffold to type in information. First use of “Mapping our Anzacs” website.</td>
</tr>
<tr>
<td>7</td>
<td>8/12/2008</td>
<td>Monday</td>
<td>40 Minutes</td>
<td>Yes</td>
<td>First short talks given by students to share their soldier’s story</td>
</tr>
<tr>
<td>8</td>
<td>9/12/2008</td>
<td>Tuesday</td>
<td>40 Minutes</td>
<td>Yes</td>
<td>Remainder of short talks given by students</td>
</tr>
</tbody>
</table>

The observed and recorded lessons are summarised below and a more detailed description is provided in Appendix I.
5.2.4.1 Lessons 1 and 2: Introduction, name choosing and research

The focus of the first two lessons was to introduce the authentic activity to students, help each student to choose a soldier’s name from the list on the War Memorial and show them how to find and organise information using the links and scaffold from the website resource. The students embraced the teacher’s enthusiasm as she introduced the activity with a remembrance theme. All directions for the activity were delivered verbally by the teacher; no written documentation or instructions were given to the students.

The students had initial difficulties in choosing a name and starting their research as the website resource was blocked for students by the DET. A workaround was found, the names were displayed on the interactive whiteboard (using a teacher password), and by the end of the double lesson most students had chosen a name, had a printed scaffold and had started their research.

5.2.4.2 Lesson 3: Name choosing, research and recording information

The focus of this lesson was to finalise a name for every student and get all students started with their research. The teacher made sure that each student had a different name to research by asking them to put their name next to the name of the soldier on a list of names from the Clock Tower. She used a mild incentive to encourage them: “Can you please write your name down next to the person and grab a lolly”.

The website resource worked for students this time and most students appeared to work effectively throughout the lesson. The teacher moved around the room encouraging students and assisting them with questions.

5.2.4.3 Lesson 4: Research and recording using scaffold

This lesson focused on students continuing with their research and filling in their scaffold sheets so they could prepare a talk for the class. At the beginning the teacher reinforced that she expected them to complete their scaffolds and prepare a two minute talk for the rest of the class. At the end of the lesson she stated: “What amazes me is the constant interest, apart from a couple of boys that are always sidelined; everyone is very interested and very proud of what they have found.”
Particularly today, one of my poorer students was very proud of the grave that he had found where he could post a tribute, and it has sparked his curiosity”.

5.2.4.4 Lesson 5 and 6: Research and recording using digital scaffold

The focus of this lesson was to continue with online research and completion of scaffold sheets. The teacher asked the students to download a copy of the scaffold and to record their information digitally. The students were using information from the soldier’s record on the NAA (National Archives of Australia) web site and some were having difficulties in locating their soldier. The researcher showed them a new Flash-based interface recently put up by NAA called ‘Mapping our Anzacs’ (http://mappingou ranzacs.naa.gov.au/) which sorted the soldiers by place of birth or enlistment. This made it much easier for students to use and find their soldier on the NAA site.

The teacher’s involvement and enthusiasm was encouraging and a great motivator for the students. She was constantly talking to the students about what they had found. For example, she announced to the class: “Excellent, (student name) who is incredibly smart at the moment, I am very impressed with your ability at the moment, has found the colour stripe of his battalion”. Even though they were each working on an individual soldier, students were constantly talking to classmates and sharing what they had found.

5.2.4.5 Lesson 7: Student talks

This lesson focused on student talks. The teacher had asked each student to give a short two-minute presentation (based on their scaffold information) to share with the class on what they had found out about their soldier. Some stories were quite detailed while others were very brief. The story of the Dutch immigrant boy Peter van der Lubbe from a nearby town had an impact on the class. His photograph showed his apparent youth and vulnerability. As one said, “It says here that he is 18. There is no way he is 18, he looks no older than the boys in this class”. It brought home the tragedy of war and its effect on that generation. Peter was killed in 1918.
5.2.4.6 Lesson 8: More student talks

The lesson focused on listening to the remaining student talks. The teacher asked questions or commented after each talk. The teacher concluded the lesson by asking the students to comment on the task. One says that she was amazed at the amount of information that could be found on the soldiers and some of it quite personal: “letters and stuff that his sister had written to the army and to each other”. The class commented that they had learnt more about World War One than they had in the previous task (where they created a fictitious diary) as it was more real and more personal.

5.3 Emergent themes

The data from this iteration was analysed to identify themes using the customised tags with Microsoft OneNote software (the methodology for data collection and analysis is described in Chapter 3: Methodology, sections 3.5.1, 3.6.1 and 3.6.2). The common themes resulted from looking at the data through the lens of the original three research questions (see Chapter 1, section 1.5 The research questions) and the guiding draft design principles (see Chapter 4, section 4.2.3 Draft design principles).

The themes have been sorted under headings corresponding to the Research Questions and are presented in order of dominance.

5.3.1 Critical principles applicable to design (Research Question 1)

The following themes evident in iteration 1 relate to the critical principles applicable to the design of a technology-based authentic task, which will interest, motivate and engage students in the study of Australian History.

5.3.1.1 Students were highly engaged despite design issues

This task worked extremely well, even with the task being poorly organised, having no descriptive documentation, being timed to run when students were less interested in completing organised work, lacking the significant motivation of assessment and having significant problems with the technology as important web sites were initially blocked, hard to read or unavailable.
The students (or most of the students) were highly engaged for the whole duration of the task. They dealt with the various problems encountered and continued working with enthusiasm. The teacher when interviewed said that she was amazed by the constant interest of students and how proud they were of the information found. The talks given at the conclusion of the task were well researched, thoughtful and displayed empathy towards the experiences of the soldiers. The students were quite positive at the end and considered that the task had been worthwhile. Their discussion comments show the involvement they had in the task:

Student 1 “Doing this is kind of special as they are, you know, a part of you now. I don’t think I will ever forget my person, like a family member or something ... The thing the teacher said about saying their name and they come back to life, like particularly my person they (the family) are not in the area any more, maybe died out or moved. And he did come back to life as there is no one else to remember him.”

Student 2 “We are going to do something for them on ANZAC day next year.”

Student 5 “Other classes should do it, as it is much better than a diary.

Student 6 “It is good to learn about the war.”

Student 7 “But you are just making it up (the diary, their previous task) where in this task you are actually researching and learning new stuff.”

5.3.1.2 Remembering a real person was a powerful motivator

Real-world relevance was a powerful stimulus in drawing students into this task. Students stayed on task in spite of this not being an assessed task. The “Remembrance” theme for a specific, real, local person was a powerful motivator and gave the perception that the students were doing something special for the soldier, not for themselves. “That is a special feeling, of maybe being the first person to specifically remember this person ... Having a real person enables you to almost form a connection; I know that that sounds kind of corny” (Student 6).

An important aspect of the task was that students were finding out about a real person, that had once lived in their district, walked the streets of their town and had gone away to die in a foreign country. Student 1 “Well it sort of personalises it, in the diary the teacher said: “No you can’t die at Gallipoli, you have to go on to other battles, and then you can die at the end. But this is a real thing, he could have died before”. 

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5.3.1.3 Each student had their own individual story to tell

Competing solutions and diversity of outcomes were an essential characteristic of the activity as students were allocated names by the teacher so that each had a unique name to research. Each student used different documents to extract information and each soldier’s story was different. This appeared to motivate students through adding interest and variety to the task. It also meant that students were happy to share information as they each had their own individual story to tell. This sometimes led to interesting interchanges between students e.g.:

Student 7 “I don’t think that my soldier fought in any battles as he seemed to spend a lot of time in hospital with gonorrhoea.”

Student 5 “Sir, it’s all in their medical records”.

Student 7 “He had 7 pages of hospitalisation”.

Student 7 “Tells what colour his urine is every day. Yuk!”

Laughter

Student 5 “Found out what he looked like, mine had a monobrow”.

Student 4 “Mine had a mole on his right butt”.

Laughter

5.3.1.4 Students had to piece together a puzzle of information

The task was ill-defined as the students had to collect pieces of information in a non-linear fashion and then arrange this in a linear fashion so that the story of the soldier made sense, a bit like putting together the pieces of a jigsaw. As each soldier had a different story, the students could not necessarily follow a particular sequence to find that story. The students initially found this aspect of the task quite challenging as they had to use some logic to put it all together and they were unused to not having a simple recipe to complete a task. Many of the students required individual assistance and reassurance to gain initial confidence finding the relevant information.

5.3.1.5 The scaffold helped students arrange their information

The students found it difficult initially to make sense or order of the confusing array of information available on each soldier. They were very much assisted in coping with the ill-defined nature and complexity of the task once they had downloaded the scaffold and started to fill in the sections. The scaffold meant that they could ‘fill in the blanks’ to put their information in a logical sequence. All students were observed
using the scaffold and the scaffold formed the basis for constructing their individual presentations to the class.

5.3.1.6 **Students were challenged by the array and complexity of source documents**

The Year 9 students found this task to be quite challenging and complex as they had to act like real historians and sort through the diverse array of documents to identify and arrange the relevant bits of information. Students had difficulty in making sense of the military terminology and abbreviations used in primary documents; and in making sense of the content of the hand written running writing used in primary documents from the NAA. The teacher was kept busy in the classroom helping students to read and interpret original documents and there were often a number of students with their hands up calling “Miss, what does this mean?” (Classroom observations).

5.3.1.7 **The students’ positive attitude at the beginning of the task helped them get involved**

In preplanning the teacher said that the task needed some kind of ‘hook’ (her words) to draw in the students and create interest and motivation for them to complete the task. She created the ‘hook’ through the use of the “Remembrance” theme for a specific person local WW1 soldier. The importance of doing this task was described in detail at the beginning of the task (lesson 1) and appeared to be a powerful motivator. The students began the task with enthusiasm and retained that attitude throughout the task. The perception that they were doing it for the soldier may have been one of the more important factors ensuring the success of the task.

5.3.1.8 **Personal aspects of history were powerful motivators and encouraged empathy and connection**

The personal aspects of the student research continually came up in conversations between students and in later interviews with the students and teacher. Finding out personal details enabled the students to relate to the soldier and form attachments or connections with the soldier. Students could easily remember details such as name, age and where and how they died without reference to written material.
Students felt empathy and attachment to their soldier. For example, in class on discovering that their soldiers were brothers, one said to another, “Isn’t it sad they both died”. Finding a picture helped a student connect to the soldier, she commented: “I had a picture. Having a picture I suppose helped form a connection, but it was mainly other information, he was much shorter than me, if he was alive today he would probably be in our class about our age and going to school with us. We’d know him. He wouldn’t be cool or anything but he wouldn’t look out of place in our class.” (Student 1) “You find out about little details, in the other (diary) you just find out about the war.” (Student 2) According to Student 7, the most interesting part of the task was “Information on family and parents and stuff that he had written.” While Student 4 stated that it was “Finding out what he was like before the war”. Student 5 declared “Yes, because this time you were actually researching one guy and you knew about their life and when you were doing the diary it was basically on the war and not the person. It wasn’t about them it was about the war. This personalised it.”

5.3.2 Processes that students engage in (Research Question 2)

The following themes evident in iteration 1 relate to the processes that students engage in when completing an authentic historical task using a technology-based learning resource.

5.3.2.1 Students helped each other and shared their findings

The high level of student collaboration was a feature of student work on this task. Even though the students had their own work to do in constructing the story of their soldier, they worked together, helping each other, sharing discoveries and snippets of information. In the classroom there was the constant noise of students working and talking to each other. Students wanted to loudly share any interesting thing they found with their friends and/or the teacher. Students looked at what others were doing and learnt from each other e.g. “How did you find that?” This was a non-competitive task as they appeared to act as they were working together to discover many stories to share with each other.

The teacher asked all students to verbally share their information with the rest of the class, by talking about it “Hopefully, Monday we will start asking you one by one to
get up just to read out a little bit about your soldier - where he went to fought at, died at, and if you found any interesting stuff, if you found any interesting documents and photos add these as well. Don’t be restricted by the profile, just add anything interesting that you find.”

5.3.2.2 Students thought about the effect of the War on the soldier and his family

A number of the students went beyond the straight research and formed a connection to the soldier. They wondered what the soldier must have experienced and felt empathy for the plight of his family when he was away or missing in action. Students were fascinated by the personal and moving information they uncovered in correspondence between the army and the soldier’s family. “It was interesting that I could look at letters that parents had sent to the war people. They had no clue where he was during the war and didn’t know if or when he died, it was really confusing. They were distraught and I thought it was really bad that he was so easily forgotten. The telegrams were a bit vague. The army didn’t seem to care, he was only a private” (Student 6).

5.3.2.3 Student access to working computers and resource websites was important

The task required the students to each have access to a computer and the Internet. The teacher had booked the computer room but this did not guarantee that they would all be working. There were unforeseen Internet problems in the first lessons as the website resource (www.notjustanameonawall.com) had been blocked (by DET) and was temporarily unavailable with student access privileges. In lessons 5 and 6 the NAA site was temporarily unavailable and this disrupted the lesson as most students wanted to use it. Student 7 commented after the task: “Make sure that the web sites are not blocked as it is hard to access some websites”.

5.3.2.4 Students do not always document all that they learn

The researcher noticed that not all the things that students discussed in class about their soldiers and WW1 (as shown by their classroom conversations) were written down and presented in their talk to the class. Students learnt quite a lot about the soldiers’ medical history but did not talk much about this in their presentation.
5.3.2.5 Students enjoyed the challenge of using primary sources

Students liked using the primary sources i.e. the digitised original documents of the soldier’s record found on the NAA site, even though they found them sometimes difficult to read and understand. According to the teacher “Students are dealing with primary sources and in all reality probably the first and only primary source they have used”. This was confirmed by all the students who were unanimous in agreeing that they had never before used primary sources. Student 2 said that the most interesting part of the task was “Seeing the documents that he wrote on from the NAA”.

According to Student 6 “It was surprising that these people’s lives had been put on a website like this, it was a bit weird as people might do this these days, but these events happened almost a century ago”.

5.3.2.6 Students liked working independently on their own individual task

It was apparent, seeing the students working in the classroom that each took ownership of their own soldier and that this method of allocating a name to each student worked well. According to Student 3, “It’s more interesting to find out about one person”. Student 5 thought that the best part of the task was: “How much information that was available on the soldiers. I found a gravesite where I could leave virtual flowers and a note. I left a note”.

5.3.2.7 Students initially try to follow the ‘Path-of-Least-Resistance’

Students look for the quickest and easiest way to succeed in a task. This was apparent in the first 2 lessons where students were looking for the soldier’s record at the NAA site. This site has a record for every soldier that served in WW1. However if a student could not locate the record on their first search, instead of changing their search terms or using another method of searching, they simply changed to look for another soldier. Student 1: “I also had a soldier that I could not find anything on and so I changed”. Student 6: “It was a bit sad as I had a soldier at first and could not find anything on him, so I changed to a new soldier. I can’t remember his name, aw, Milligan”.

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The students look for quick and easy ways to find information and quickly become frustrated and demanding of teacher attention when unsuccessful. The students want to swap a name if they cannot easily find information, particularly if they see other students that have been successful.

5.3.3 How teachers facilitate a complex and sustained technology-based task (Research Question 3)

The following themes evident from iteration 1 relate to the way that teachers facilitate the use of a complex and sustained technology-based task in their history classes and their perception of improved learning outcomes for students?

5.3.3.1 A handout at the beginning of task is important

Students were keen to start after the remembrance talk in the first lesson, but did not know what to do or how to go about it. The task was presented by the teacher verbally at the beginning of the task and at each lesson. This led to some confusion in early lessons as some students were not quite sure what they were meant to be doing. It was thought by both the researcher and the teacher that giving the students a handout describing the task would have reduced this problem.

5.3.3.2 Teacher involvement and enthusiasm was crucial to student participation

Possibly the most important factor contributing to the success of the task was the influence of the teacher and the relationship she had with her students. The teacher was infectiously enthusiastic about the task, she constantly talked to the class or individual students – they had her whole attention, she listened to students and responded, she acted as a team leader rather than an authority figure, she was congruent and talked to the students in the same manner as staff members or friends, she never spoke harshly to a student or raised her voice in anger, she was relaxed with the students and they were relaxed with her, she was tolerant of minor indiscretions by students and encouraged them back to their work, she took an active part in the work and loudly praised things that the students had done.

The teacher dealt with any individual issues (including technical issues e.g. “I can’t log on to the Internet”) as they arose in the classroom. She gave positive encouragement that the whole class could hear as individual students found
information. The teacher used an incentive to make sure that each student had a unique and appropriate name to research. “Can you all write your names down next to the person and grab a lolly”. She walked around the room, as students put their hand up with problems, encouraging them.

The teacher was quite relaxed about background talking noise in the classroom; she did not raise her voice at any stage to reprimand. Students worked well with minimal supervision and stayed interested.

The teacher’s personal involvement and enthusiasm was encouraging and a great motivator for the students. “He must be a relative of mine or my husband”. Later she says “Isn’t that interesting”, and reads out to the class his record from the roll of honour at the AWM site.

**5.4 Refinement of the Draft Design Principles**

The themes supported the initial draft design principles used to inform the design of the iteration. Some refinement was needed for DDPs. Table 5.2 shows that DDP1, DDP5, and DDP7 were refined to better represent the themes that emerged from iteration 1 whilst others were deleted or combined. DDP2 was deleted and combined with DDP3 as they were similar in effect. DDP8 was not tested but retained for future iterations. DDP12 was deleted and DDP11 was split to take account of the different aspects of support that the teacher was crucial in providing e.g. initial support through documentation and introduction; ongoing support in the classroom – modelling, guiding, helping and showing students what to do; and planning to take into account students’ tendency to follow the ‘path of least resistance’.

<table>
<thead>
<tr>
<th>Draft Design Principles</th>
<th>Relevant Themes</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. “Authentic activities have real-world relevance” (Reeves et al., 2002, p. 564).</td>
<td>Students were highly engaged despite design issues Remembering a real person. was a powerful motivator The students’ positive attitude at the beginning of the task helped them get involved. Personal aspects of history were powerful motivators and</td>
<td>DDP1 strongly supported. Modified to Authentic activities with real-world relevance, and involving personal aspects of real people, lead to student engagement.</td>
</tr>
<tr>
<td>2.</td>
<td>“Authentic activities are ill-defined, requiring students to define the tasks and sub-tasks needed to complete the activity“ (Reeves et al., 2002, p. 564).</td>
<td>Each student had a different individual story. Students enjoyed the challenge of using primary sources.</td>
</tr>
<tr>
<td>----</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>3.</td>
<td>“Authentic activities comprise complex tasks to be investigated by students over a sustained period of time” (Reeves et al., 2002, p. 564).</td>
<td>Students were challenged by the array and complexity of source documents. Students enjoyed the challenge of using primary sources.</td>
</tr>
<tr>
<td>4.</td>
<td>“Authentic activities provide the opportunity for students to examine the task from different perspectives, using a variety of resources” (Reeves et al., 2002, p. 564).</td>
<td>Students had to piece together a puzzle of information. Each student had a different individual story. Students were challenged by the array and complexity of source documents.</td>
</tr>
<tr>
<td>5.</td>
<td>“Authentic activities provide the opportunity to collaborate” (Reeves et al., 2002, p. 564).</td>
<td>Students helped each other and shared their findings. Students liked working independently on their own individual task.</td>
</tr>
<tr>
<td>6.</td>
<td>“Authentic activities provide the opportunity to reflect” (Reeves et al., 2002, p. 564).</td>
<td>Personal aspects of history were powerful motivators and encouraged empathy and connection. Students thought about the effect of the War on the soldier and his family.</td>
</tr>
<tr>
<td>7.</td>
<td>“Authentic activities can be integrated and applied across different subject areas and lead beyond domain-specific outcomes” (Reeves et al., 2002, p. 564).</td>
<td>Students enjoyed the challenge of using primary sources. Student access to working computers and resource websites was important.</td>
</tr>
</tbody>
</table>
5.4.1 Modified draft design principles (DDPs) for iteration 2

Based on the findings from iteration 1, below are the modified DDPs to inform Iteration 2:

1. Authentic activities with real-world relevance, and involving personal aspects of real people, lead to student engagement.
2. Authentic activities are complex, ill-defined tasks requiring investigation over a significant period of time.
3. “Authentic activities provide the opportunity for students to examine the task from different perspectives, using a variety of resources” (Reeves et al., 2002, p. 564).

4. Authentic activities provide the opportunity to collaborate with others, even when working on individual tasks.

5. “Authentic activities provide the opportunity to reflect” (Reeves et al., 2002, p. 564).

6. Authentic activities require students to employ a range of different skills

7. “Authentic activities create polished products valuable in their own right rather than as preparation for something else” (Reeves et al., 2002, p. 564).

8. “Authentic activities are seamlessly integrated with assessment” (Reeves et al., 2002, p. 564).


10. Students require structured and documented support to give clear direction to authentic activities.

11. Access to in-time teacher support is crucial to student participation in authentic activities.

5.5 Changes made to the prototype solution for iteration 2

Iteration 1 involved the actual testing of the prototype solution in a real classroom situation with all the unpredictable variables that entailed. An important facet of data collection was the identification of ways in which the prototype could be improved for the next iteration. The process in which the shortcomings and opportunities were identified and the subsequent changes made to the prototype for Iteration 2 is shown in Appendix C. The table in Appendix C illustrates the data evidence for change, its implications for the next iteration and suggested changes to the prototype.

A significant number of changes to the website resource, documents used by the teacher, and classroom presentation were required to refine the solution and enhance solution implementation. These refinements were:

- Changes in the presentation of the task to students by using a student handout and changes to the scaffold.
• Changes to the website resource

5.5.1 Changes to the unit of work

It was recommended that for iteration 2 the students receive a printed ‘hard’ copy of the task that they could refer to. This was completed by the History teacher and handed out at the beginning of iteration 2 (see Figure 5.2). It was recommended that the handout include:

1. *Description of assessment according to faculty policy* with requirements, syllabus reference and marking scale. A standard faculty format was used for the description of the written task. A marking scale was not included for iteration 2 as the task was conducted at the end of the assessment period.

2. *Introduction* with a ‘Remembrance’ theme. This was included in the task handout and read to the class in the first lesson to describe the task.

3. *Each individual handout will have the name of a different soldier* from the local district written on it. Names listed on the “Mapping our Anzacs” site were typed on a sheet. These were cut out and each student received one of these name cut-outs at the beginning of the task.

4. *The task should include a short talk* to share soldier’s stories. This was included on the handout as part of the task requirements.

5. *The teacher needs to be involved in setting the task*. The teacher prepared the handout after discussion with the researcher.

6. *Include a Timeline of WWI* An appropriate timeline was included on the Research page of the website. This resource also included division and battle details as well as dates.

7. *Include list of common abbreviations used by NAA*. A link to these was included on the Research page of the website.

*Include extension activities* for the faster students e.g. information on specific activities related to the soldier – battles, living conditions, recreation, diseases, on this day. The scaffold was completely revised and this was added to the scaffold.
Figure 5.2 Part of the handout given to Year 9 students at the beginning of the task

The scaffold was rewritten for the 2\textsuperscript{nd} iteration and was:

1. \textit{Extended to include the range of personal information} that can be extracted from NAA records.

2. \textit{Sequenced so that the easiest to find information was at the beginning}. This enabled students to achieve initial success at finding personal details from the NAA individual records.
3. **Modified with more complex and challenging sections towards the end** to extend and encourage the more capable students in more complex analysis of historical records.

The screen prints of the scaffolds for the 1st iteration and the changed scaffold for the 2nd iteration are included in Appendix D and Appendix E respectively for comparison.

### 5.5.2 Changes to the website resource

It was recommended that the website include:

1. **An Introduction with a ‘Remembrance’ theme** (Figure 5.3). The index or home page of the website was modified with an extra paragraph related to this theme.

   **Remembrance** This website enables the saying ‘Let us not forget’ to be put into practical action. It is possible to reconstruct part of the life of an individual soldier from your local area who served his country in the Great War. This can be done through online primary and secondary sources. After the war, parents, wives and family had almost no understanding of what had happened to the soldiers and what they experienced. If they had died they had no opportunity to grieve properly and for closure as they had no body or grave to visit. Many soldiers had changed dramatically and the families did not understand why. These days, many soldiers would have family or descendants to remember them. Reconstructing the life of an individual will enable them to briefly ‘live again’ and be remembered.

   Students and teachers wanting to use this site as a class task or assessment task should start by going to the [Task Page](#) and [download the scaffold](#). The scaffold can be saved and used to order the information that is found when working through the **Research Page**. The **Memorial Page** displays the names listed on the Commemoration Memorial Clock Tower.

   ![](image)

   **Figure 5.3** Part of the modified Index page (Home page) from the website showing the paragraph added on ‘Remembrance’ and the more obvious links to the Scaffold and the Research Page.

2. **A mechanism to offer alternative pathways to find information** including the **“Mapping our Anzacs”** site at NAA. The Research page on the website was completely rebuilt with a suggested sequence of links and alternatives if some links do not work. See Figure 5.4

3. **A Timeline of WW1** A link to this was included on the Research Page in the 4th row of links ‘Battles’. See Figure 5.4.

4. **A scaffold which should be more obviously available** on the website to download. There is a prominent link to download the scaffold (in Word 2003 format) on the Index page (see Figure 5.3), the Research page (Figure 5.4) and the Task page.

5. **A list of common abbreviations used by NAA**. This link is included in the 2nd row, ‘Find their service record’ see Figure 5.4.
6. **Updated links so that they are current** and reflect the best of what is available. There is a greater range of links on the modified Research page (see Figure 5.4) as a much greater range of relevant information has become available since the first page was constructed.

Figure 5.4 Part of the modified Research page used for second iteration, text is minimised and there are more links not shown in the screen shot.

5.6 Conclusion

The first iteration showed that an authentic task using online resources could engage students in learning about a period of Australian History. The students stayed motivated and on task in spite of apparent short-comings of the prototype and its delivery when tested in a classroom situation. The flaws identified in the prototype
led to recommendations for major modifications before its use in the second iteration.

The 12 Draft Design Principles (DDPs) used to inform the initial design of the first iteration were supported to varying degrees by the themes emerging from the data collected. The 12 DDPs were refined as a result of the themes that emerged from iteration 1. These became the 11 DDPs for iteration 2.
Chapter 6: Iteration 2

6.1 Introduction

This Chapter examines the second of the three consecutive iterative cycles of testing and refinement conducted following the design of the solution. This iteration utilises the improvements and modifications made to the prototype solution from data collected in iteration 1. It was examined, based on the data collected (described in Chapter 3), for answers to the research questions and to inform the development of Draft Design Principles. This iterative process corresponds to the third stage of design-based research (see Figure 6.1).

![Figure 6.1 Stage 3 of DBR – the Iterative Cycles of Testing](image)

Iteration 2 was conducted almost 12 months after iteration 1 at the same school and involved a different teacher and a different cohort of Year 9 History students. This instance of testing was, like the first, examined for answers and themes related to the research questions, and how these might inform the DDPs from iteration one.

This chapter describes the second iteration of intervention or second cycle of testing the use of the solution in the classroom, the themes evident from analysis of the various sources of data collected for the second iteration, and the changes informed to the draft design principles (DDPs) from this iteration.
6.2 Iteration 2 - 2009

6.2.1 Context

The second iteration was conducted at the same Australian rural high school as that of the first iteration. The first lesson was held on 2\textsuperscript{nd} November 2009 and the last on 15\textsuperscript{th} December 2009. (In Australia the school academic year begins in late January and ends in mid December, about a week before Christmas). In 2009 (as for 2008) the class involved in the iteration was the top-streamed Year 9 History class. In the school there were three Year 9 History classes with each student allocated to a class according to their academic performance in History, Geography and English in Year 8. The History classes and teachers were part of the HSIE (Human Society and its Environment) Faculty under the supervision of the Head Teacher of that faculty. The researcher was a teacher at the rural high school but not part of the HSIE faculty.

The school’s timetable in 2009 was again based on an 8 period (lesson) day with each period lasting 40 minutes. The Year Nine students had 4 periods of History each week and these were conducted as single 40 minute lessons. The single lessons were timetabled on Monday, Tuesday, Wednesday and Friday each week. As in 2008, the teacher assigned to the class in 2009, was responsible to complete each of the topics allocated in the school’s Year 9 History curriculum before using the solution with his class. It suited to run the iteration late in the year when all other work had been covered. However this meant that the task was interrupted by the Yearly Examinations, marking feedback lessons, and the sharing of lessons with another unit of work. The teacher aimed to devote 2 lessons per week to the iteration and the other 2 lessons to the early start of a Year 10 unit on World War 2 (WW2). This strategy was determined by the then availability of computer rooms.

The solution required each student to use a computer connected to the Internet. The school had 4 computer rooms, but only 2 of these had sufficient computers for each of the students involved in this study. It was only possible at that time to book a computer room for two lessons (out of four) each week to run the task. The teacher decided to run the task concurrently with another topic on WW2, which utilised the other two lessons each week.
The students each received a personal small laptop (netbook) at the end of the second week (of the iteration) as part of the then New South Wales Department of Education and Training (DET) Digital Education Revolution (DER) program. The DER program was funded by the Australian Federal Government and used by the (then) DET to provide each Year 9 student with a personal small laptop computer to use at school. The annual allocation of laptops started in 2009 and continued until 2013.

The students were very keen to use their laptop as much as possible, and even when timetabled into a computer room, many chose to sit on the floor under the computer desks with the laptop computer on their laps. The class was no longer constrained by access to computer rooms as wireless Internet access was also installed in every classroom. However the teacher had already started the second concurrent unit and felt obliged to continue working on it in some lessons.

The researcher met informally with the teacher on four occasions during the year to discuss the iteration before implementation. These meetings were to talk about the task and gain his approval for it to be run in his class (he was already familiar with it from the teacher in iteration one); to organise the student documentation (handouts); and to discuss the timing and conduct of the task in his class.

The teacher decided to set the task like a formal assessment and prepared a printed handout with task description and requirements to give to his students. The changes to the task resulting from iteration 1 were discussed and particular care was taken to make sure that these changes were implemented in iteration 2. The changes made to the prototype were described in Chapter 5.

The task was given to the students in the first lesson on 2nd November 2009. However, as the task continued beyond the formal assessment period, it was decided that it could not be used as an assessment and would not be marked by the teacher. However, the teacher still expected the students to complete the task.
The teacher did not utilise the motivational aspects or ‘hook’ of iteration 1 (where the teacher emphasised the importance of ‘Remembrance’ and doing something to honour and remember the Anzacs.) beyond what was written in the assessment sheet. This meant that student participation was dependent on the motivational aspects inherent in the novelty and interest of the task.

The second iteration, like the first, was conducted quite late in the academic year, in November/December 2009. The 9 lessons of the study were spread over 7 weeks and had many interruptions to the continuity of the task. These interruptions included: the other unit on WW2 running concurrently; the break resulting from Yearly Exams and feedback; and class teacher absences due to him being away at Higher School Certificate (HSC) marking. (All Year 12 students in NSW culminate their schooling by sitting for a common external exam (HSC) for each subject studied. The results gained may be used to gain admittance to tertiary study or employment). The teacher had set other work for the casual teacher to continue with. The task timing (at the end of the academic year and beyond the assessment period for Year 9) meant that the students were winding down and becoming more relaxed about their school work.

6.2.2 Participants

The Year 9 History class had a young, male, recent graduate as their teacher. This was his second year of teaching and his first experience in teaching Year Nine history. He was confident and capable; and had developed a very positive relationship with his class.

The Year 9 History class for the 2009 iteration had 29 students, 19 girls and 10 boys. The numbers at each lesson varied slightly from day to day due to student absences. This ‘top’ streamed class still had a broad range of abilities amongst the students.

Again, as in the previous iteration, the researcher acted as an assistant to the teacher and actively participated in the lessons. This assistance mainly involved helping individual students as required in the classroom. The researcher was also a teacher at the school and was timetabled on a ‘free’ during these lessons. He was able to be at the History lessons where the students were working on the task.
6.2.3 Implementation of the unit of work

The task took place over 7 weeks and comprised 9 forty-minute lessons. Table 1.2 provides an overview of the sequence of the lessons followed by a brief description of what occurred during each lesson.

<table>
<thead>
<tr>
<th>Lesson</th>
<th>Date</th>
<th>Day</th>
<th>Focus</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2/11/2009</td>
<td>Monday</td>
<td>Introduction to Task and website resource, handing out assessment sheets, giving out names, finding information using the scaffold as a guide.</td>
</tr>
<tr>
<td>2</td>
<td>6/11/2009</td>
<td>Friday</td>
<td>Continuation of Internet research and completion of scaffold; making sure that each student knows what to do.</td>
</tr>
<tr>
<td>3</td>
<td>9/11/2009</td>
<td>Monday</td>
<td>Continuing with Internet research and completion of scaffold.</td>
</tr>
<tr>
<td>5</td>
<td>27/11/2009</td>
<td>Friday</td>
<td>Continuing with research. Students actively involved asking questions and sharing with each other.</td>
</tr>
<tr>
<td>6</td>
<td>4/12/2009</td>
<td>Friday</td>
<td>Actively working, looking at soldier’s record and completing scaffolds.</td>
</tr>
<tr>
<td>7</td>
<td>7/12/2009</td>
<td>Monday</td>
<td>Still completing scaffolds, disruptive lesson, very noisy.</td>
</tr>
<tr>
<td>8</td>
<td>8/12/2009</td>
<td>Tuesday</td>
<td>Students worked well completing scaffolds</td>
</tr>
<tr>
<td>9</td>
<td>15/12/2009</td>
<td>Tuesday</td>
<td>Students relaxed, only some working on scaffolds, the rest talking or playing games.</td>
</tr>
</tbody>
</table>

The lessons are summarised in the following sections with rich descriptions shown in Appendix J. The lesson descriptions in Appendix J outline the sequence of events occurring in each lesson and demonstrate the student engagement with the task.

6.2.3.1 Lesson 1: Students are introduced to the task/activity

The focus of the first lesson was to introduce the authentic activity, make sure each student had a name to research and to start the research. The students were unsettled as it was the last lesson of the day and the teacher started off the lesson talking about homework. He then handed out the assessment sheet, talked about the task and gave each student a piece of paper with a soldier’s name printed on it. The students were told to download a scaffold from the website resource and follow the instructions printed on the assessment sheet.
The students were enthusiastic and quickly started their research. Many students had difficulties with their computer or using the Internet that required teacher assistance; some students independently watched and learnt what to do from their neighbours. It was apparent that this was a new and unfamiliar task for the students; however by the end of the lesson most students had commenced their research.

6.2.3.2 Lesson 2: Students in the computer room start to research their soldier

The second lesson focused on making sure that each student had their soldier’s name and was working through the authentic activity. Some students initially did not know what to do as the teacher did not introduce the lesson or actively direct the students. The teacher was busy supporting students who were not sure what to do or had difficulty reading the soldier’s record from NAA. Most students appeared to be working while talking to each other.

6.2.3.3 Lesson 3: Student interest and engagement with their soldier is evident

This lesson focused on students continuing with their research and completing their digital scaffold (as a Word document). This time the teacher introduced the lesson and told the students what he expected of them in the lesson.

Most of the students were working effectively while looking at their soldier’s personal records. It was obvious that they were getting more involved and interested in the task as the research progressed. There was active background noise as they asked questions, answered questions and shared the information they had found. There was evidence of students actively learning, collaborating and helping each other.

6.2.3.4 Lesson 4: Students enthusiastic and engaged in finding out about their soldier; and using the new laptops

This lesson focused on students continuing with their research and working through answering the questions in the scaffold. The students were enthusiastically using their newly issued laptop computers for the first time. They were quite relaxed and actively learning as shown by their comments and talking, most of which was related to their work. The teacher moved around the classroom assisting students with questions and problems.
6.2.3.5 **Lesson 5: Students were involved and actively engaged in trying to find out more information about their soldier.**

This lesson again focused on student research using their soldier’s record from the NAA. There was a lower level of noise in the classroom compared to the previous lesson and most students were involved and actively engaged in trying to find out more information. Students were going through the soldier’s record and trying to make sense of it. The teacher was again active in helping individual students with computer issues and in deciphering records. Students were keenly sharing information and helping each other.

6.2.3.6 **Lesson 6: Students were still actively engaged and sharing information about their soldier.**

In this lesson the teacher was keen on students finishing their research as he was aware that the school year was drawing to an end. Students were actively engaged and working and there was a low buzz of students talking to each other about what they had found in their research. The teacher was again active in moving about the classroom helping individual students, looking at details of their records, interpreting and making sense of dates.

6.2.3.7 **Lesson 7: Students were still working on the task but not as actively engaged as previously.**

This lesson focused on students completing their research. Most students appeared to be still working with their research, but a number of students were quite boisterous and rowdy. Overall, students were not concentrating or working as effectively in this lesson. They were still using the website information mainly from the soldier’s record to complete sections of the scaffold.

6.2.3.8 **Lesson 8: Most students are still engaged and working to complete the scaffold on the soldier**

This lesson focused on students completing the task. All students appeared to be working quite well on the task completing their scaffolds, despite this being the last lesson of the day and being almost at the end of the school year. The students who said they were finished were asked to look at other websites for information or photographs. The teacher, as in previous lessons, moved around the classroom.
assisting individual students. Students still needed help in making sense of the records in putting the soldier’s story together.

6.2.3.9 Lesson 9: Only some students are still engaged and completing the task
This lesson was in the last week of school and was the second last history lesson for the year. The students and teacher were quite relaxed and it was apparent to the students that they would not be required to hand anything in or present what they had found. The task just seemed to peter out and the teacher did not finalise it. Some students continued to look for information on their soldier while the rest used their computers to play games.

6.3 Emergent themes
The method used to analyse the data arising from iteration 2 has been described in Chapter 3: Methodology, section 3.6.2 iteration 2. The classroom observations, teacher interview and student interviews were transcribed and ‘coded’ by themes using the tag and summary function in Microsoft OneNote.

The common themes listed and described (with illustrative quotations selected from the data in the following sections) resulted from looking at the data through the lenses of the original three research questions (see Chapter 1, section 1.5 The Research Questions) and the guiding draft design principles (see Chapter 4, section 4.2.3 Draft Design Principles). The themes have been sorted under headings corresponding to the Research Questions and are presented in order of prevalence (extent of support).

6.3.1 Critical principles applicable to design (research question 1)
The following themes evident from iteration 2 relate to the critical principles applicable to the design of a technology-based authentic task, which will interest, motivate and engage students in the study of Australian History.

6.3.1.1 The real-world relevance of investigating actual soldiers from their local area engaged and motivated students
The local aspect of the task really appealed to students and gave real-world relevance to the activity. The students realised that they were not only working as historians but
were also individually researching the story of a real person that had actually lived in their area. The importance of this theme in motivating students was strongly supported by classroom observation and interview comments from the teacher and students.

The real-world relevance and local aspects of the task meant that students were quite enthusiastic about starting the task. “I thought it was going to be interesting to like look back and see like all the people that went to war from the Coonabarabran area” (Student 2, Interview). “I thought it sounded pretty cool, ‘cos it would be interesting ‘cos we get to like look at all the stuff that they done (sic)” (Student 5, Interview). “Might be interesting to get to know someone from the war” (Student 3, Interview).

According to the teacher, the students gained a connection to the soldier as they were familiar with the locations where they had lived and felt that some aspects of their life had parallels to their own. “They could recognise names and addresses where people lived. This made it very local and real for them. Yeah, I think some got to feel a connection with their soldier. One student found out the house of his person and drove past it” (Teacher, Interview). One student gained a strong connection to his soldier as he had helped build their community hall. “The most interesting thing was where he grew up and what he had to deal with as that's around my area. Him (sic) and his brothers built the Warkton Hall. I felt a connection with him 'cos that's where we go every Christmas and I've been there every year. It has nothing there about him. He was a bit unlucky as a soldier as he was always sick and when he went out he got killed” (Student 9, Interview).

The local relevance engaged and aided motivation and effective learning. “This was a good task as you find out about local people. You learn stuff better; it sticks in your head better” (Student 4, Interview). “Yes, as he was from my area it had meaning for me; and just from the amount of time he spent in hospital and that it helped me understand what was happening in WW1” (Student 9, Interview).

The students were all fascinated by the personal details and personal information they uncovered about their soldier. It made the soldier more real for them and helped
the students to relate to his experiences. All the students interviewed commented that the personal details that they uncovered were the most interesting part of the task. This was in agreement with classroom observations as much of the classroom banter involved students sharing personal aspects that they had discovered about their soldier. “I just liked learning the personal information, yeah as we kind of didn't realise what they went through” (Student 6, Interview). “Laura's one was so rebellious like he was caught kissing, and he was in heaps of trouble” (Students 7&8, Interview).

6.3.1.2 There was much evidence of sharing and collaboration even though it was an individual task

Student collaboration was a feature of this task and was strongly evident in classroom observations, the teacher interview and student interviews. The collaboration happened naturally even though the task was structured so that each student was doing their own investigation and was not obliged to work with others. It appeared that the task was seen as non-competitive by the students as they were all doing different work using different information sources, while working on a common task together. Students appeared to both enjoy and be stimulated by the classroom banter, it kept them motivated and made it more exciting for them.

Students sharing and helping each other meant that there was a constant background noise in the classroom. Each time that a student found out something new about their soldier, they had to tell everyone around them. An example of this was a student stating to everyone “This says that my soldier was killed in action” (Third Lesson, Observations). The other students listened to all this, making some feel that the soldier they were given was not very exciting. “Everyone was saying how their soldiers went through the battles and mine didn't. I'm a bit disappointed” (Student 6, Interview). “I heard in class that a lot of the soldiers had illnesses and mine didn't have any. And some of those came home and mine didn't” (Student 2, Interview).

Students seemed to know all about their friends’ soldiers “One of my friends’ soldiers when he was getting out of the army sent a letter saying that he had lost his discharge papers. That was kind of funny as it seemed like a typical thing that an
Australian would do so mine could have been more interesting in that sense” (Student1, Interview).

All of the students interviewed acknowledged that they had been given help by or had helped other students. “I followed what other people were doing. I've never used the handout and I think that it is lost now” (Student 3, Interview). “I was given an assignment sheet which I read, but I mostly found out (what to do) by talking to the people around me ... I helped my friends as a few had trouble finding websites or what they were looking for” (Student 1, Interview). “My friends and the teacher helped me to read the writing. And I helped other people, we worked together” (Student 2, Interview).

The student collaboration was credited by the teacher with reducing some of his workload. “Then they started asking each other and helping each other through the website, and reading texts. Towards the end, they would only ask the teacher for help if their friends couldn’t help them. The talking in the classroom was an important aspect of the task” (Teacher, Interview).

6.3.1.3 Students demonstrated empathy towards their soldier

In classroom conversations and the interviews it was apparent that at least some students had developed empathy with their soldier and had thought or discussed beyond the raw data. One student really felt for her soldier’s mother after reading her letters looking for her (missing in action) son. “He didn't have any illness or anything. His Mum's letters, she wrote heaps of letters, she cared for him a lot and yeah, and was trying to get a lot of information, she was quite emotional about it. She was quite distressed.... Yes, going back to the letters and the mother it takes it all on the family. Yeah, the soldiers thought it was going to be fun and everything as their mates all did, Yeah, but it wasn't as fun as they thought it was when they got there” (Student 2, Interview).

Other students reflected on the conditions that soldiers endured “Yes, (understanding of the experience of Australian soldiers in WW1) like what they went through and hospitals and how often they got sick, indicates how dirty it was. We think that
normally that heaps got shot but the conditions in the trenches also killed them” (Students 7&8, Interview).

The scaffold had some sections, which encouraged the students to reflect on what the soldiers and their families may have gone through. Even though students had thought about the soldiers, they found it quite difficult to put these reflections into written language. “I think the most difficult part was the question about what they think their person was like, and they were a bit stumped on that. They didn’t realise they didn’t have to think about the era and the person themself, and they didn’t really know what to write in that section” (Teacher, Interview). “I found the feelings on his family difficult; I couldn't find nothing (sic) on that” (Student 3, Interview). Other students thought that the empathy and reflection came with the task “The personal stuff was not too hard as after reading the documents you knew how you felt already” (Student 2, Interview).

6.3.1.4 Students stayed engaged over many lessons in a challenging and complex task

The task was both complex and challenging for students; and it continued over an extended period of time. Despite this and despite it not being an assessment task, the students stayed engaged and continued to work constructively right until the last lesson. The activity occupied 9 lessons, spread over a period of 7 weeks, and required students to find, analyse and piece together information from various sources.

Students had to seek information as it was not provided for them. They had to be engaged and concentrate in order to do this. It required active rather than passive learning. “This task got you more into concentrating. In a video you don't have to sit there and take every detail in. As you had to extract information yourself you had to concentrate more” (Students 7&8, Interview).

Students were most challenged by primary source documents as they found them hard to read and understand. Much of the information was handwritten and faint. “That's the first time I have seen a digital copy. It made it better as you are cutting out the middleman. It was difficult depending on the handwriting. I needed a bit of
help with the handwriting” (Student 9, Interview). The primary source documents also used abbreviations and unfamiliar terms. “Yeah some are difficult, some parts I didn't know what they meant and I didn't know what I was looking for. Like when they departed from Aust and his boat. But the stuff like his appearance and birthday, that was easy” (Student 5, Interview). “Reading the names or words of the soldiers was difficult as they were messy. The teacher helped me with that. And we got the abbreviations from the board” (Student 2, Interview).

The task was complex for students as they not only had to find relevant information in primary source documents, but also put the information in the right order so that it made sense. “Reading the handwriting and the date (were the most challenging). Once you got into the pages where they had written stuff, it was a bit scattered. Getting the dates in order was difficult” (Student 9, Interview). “It took a while to learn to read the documents and relate them to the information needed for the scaffold. ... Just the parts where it wasn't very clear on the documents and you had to go researching it somewhere else and you had to come back and look at a date” (Student 10, Interview).

6.3.1.5 Students gained a different perspective on the War, through their soldier’s experience

The task investigated history from a different perspective from that normally used in the classroom. Rather than learning history from a national perspective, it looked at history from the viewpoint of the individual soldier’s experience and that of their family and community. This was surprising for some students as they were not expecting soldiers to be sick in hospital. “My bloke was quite unwell. I didn't think it got to the point where some spent almost all their time in hospital. His brother spent a similar time in hospital but he returned home. I was not expecting all the sickness and disease” (Student 9, Interview).

In addition, as each student had their own soldier, there were many different individual experiences of war and the effect on families at home to be shared around the classroom. “The interesting fact was that he wasn't in the battalion he was meant to be in when he went missing. Yeah I got a connection ‘cos it was really sad about his Mum trying to find out where he was” (Student 2, Interview).
6.3.1.6 Each student worked on a different story promoting individual and group learning through a class community of stories.

It was a deliberate strategy to have each student with a different soldier’s name. A sheet of local soldier’s names was printed, the names were cut out and each student was given a different name. The names were chosen as their records could be easily found on the NAA website. The students could swap names or use a relative’s name, but all went with the name they were given. Each student worked on the story of a different soldier, which meant that each story was different.

Students reported that their learning and engagement was enhanced by having their own soldier. “Yeah it was useful to have more understanding of the War. Well, you're focusing on just one soldier and you're all doing different ones so you get to look at it more and like see what happened to him and stuff” (Student 2, Interview).

This diversity of outcome was seen as a positive by both the teacher and the students. It led to them sharing stories and developing a class community of learning. “I think it (each student having a different soldier) added to the task. They were often comparing stories with each other and seeing what was similar and different between each personality” (Teacher, Interview). The students saw their different stories as contributing to a class understanding of the effect of War on their community and collaborated rather than competed to produce those stories. Some students compared brothers’ stories. “I know that he was in France and something happened to him. Didn't say he died. Laura (another student) had one of the brothers Alexander. My soldier was Albert Thomas Nelson” (Students 7&8, Interview). (These students were talking about 2 of the 5 Nelson brothers that enlisted, Alexander Nelson and Albert Thomas Nelson)

6.3.1.7 Students were engaged in researching and independently putting together the pieces of their own soldier's ill-defined story

The task was ill-defined in that each soldier had a different story and much of that story was to be found in the soldier’s individual documents. The task was not prescriptive as the website resource suggested a range of locations where the students might find their information. The students had to locate a non-sequential jigsaw of
information that they had to put together in a way that made sense. The support of the scaffold was important in assisting them to do this. The students were initially quite challenged by this approach as they had not been given a task of this type before.

Students adapted to the challenge and quickly engaged in independently learning and putting together the pieces of their soldier’s story. “It was more interesting than other tasks and textbook work; as you've got to do it yourself. It’s not you have to read this or do these questions, you find what you can and do your own research” (Student 10, Interview). “We liked going through all the little documents, the personal documents, trying to read the writing” (Students 7&8, Interview).

The teacher considered the ill-defined nature of the task as a positive as students had to develop the skills of an historian. “I think it was good for their research methodology. They had a good opportunity to actually locate and then translating old texts and then the process of sitting down and going through documents to find answers. Some found this quite frustrating but it is a good skill to have. Some got to know some of the difficulties of using original documents” (Teacher, Interview).

6.3.2 Processes That Students Engage In (Research Question 2)

The following themes evident in iteration 2 relate to the processes that students engage in when completing an authentic historical task using a technology-based learning resource.

6.3.2.1 The novelty and challenge of using primary sources engaged students

There was a consistent theme in student responses indicating their interest and sense of achievement in making sense of the primary source documents. They provided students with a direct link to the past and an insight into the lives of those that experienced war. Student responses indicate this interest. “I quite liked it actually as it was primary sources and you got to know what was going on at that time and how they kind of felt about it” (Student 9, Interview). Students got a feeling of accomplishment when they managed to decipher the documents. “I reckon the interesting part was the writing and trying to work out what he is trying to say, it was
hard to understand it. I got a sense of achievement when I worked it out. More into it than second hand like a textbook” (Students 7&8, Interview). One student thought that primary source documents helped with learning “I think that you learn it a bit better as you actually have to find it yourself and read it for yourself. The writing and the abbreviations were hard, but I managed” (Student 4, Interview).

6.3.2.2 Students worked independently on their own individual task

Students appeared to take on and value the opportunity to work independently on their own research. “It was working by yourself so you did not have people talking and preventing you from hearing it; could work at your own pace. ... I found all of it quite interesting. It was good to do something no one else was doing and be one of the first people to view his file” (Student 1, Interview).

Some students noted that they preferred independent learning to other ‘traditional’ learning styles “It was more interesting than other tasks and textbook work as you've got to do it yourself, it’s not you have to read this or do these questions, you find what you can and do your own research” (Student 10, Interview). The students were taking responsibility for their own learning. “It was independent research. I like how the scaffold had the format for them. The students were working independently and taking some responsibility for their own learning, especially with the peer tutoring going on” (Teacher, Interview).

6.3.2.3 Some students followed the ‘Path-of-Least-Resistance’ (easiest path) and did not look or read documents carefully

A particular effort (in the revision of the prototype solution from iteration 1) had been made for this iteration to ensure that students could easily find the individual records of their particular soldier. This in theory meant that the ‘Path-of-Least-Resistance’ would lead to their involvement in the task. This was the case for most of the students. Typically “I went on to the Mapping our Anzacs site after going to the notjustanameonawall site and followed the links, downloaded the scaffold and found the person easily” (Student 1, Interview).

This was not the case for all students as some did not appear to listen or read instructions and initially had difficulty with the then unfamiliar interface of the
Students tended to follow the “Path-of-Least-Resistance” when doing their Internet research. They mostly used just one website to find all their information on the soldier, even though the Research page on the notjustanameonawall website resource had a range of website links that could give a more complete picture of a soldier’s involvement in WW1. “I only really used Mapping our Anzacs and this was very useful” (Student 9, Interview). “I suppose, Mapping our Anzacs and this is all I used” (Student 4, Interview). “Yes, I can't remember what links I used; I used Mapping our Anzacs as I could not find my soldier on any other links” (Student 2, Interview).

6.3.2.4 Students and teacher would prefer the task to be run exclusively in a block without interruptions to lessons

The task was disrupted by being run concurrently with another topic in History, the Yearly exams and teacher absences. The students and teacher were asked whether they thought this had affected their interest or concentration on the task. The student responses were mixed with some students saying that they thought it had not affected them and others saying that it would have been better to do it in one block. It appeared to the researcher that the task would have run more smoothly if run in a block without interruptions.

The teacher stated that he would have preferred to have all history lessons in a block devoted to the task “I think it would be better done as a one block and we do it I think towards the end of term 2, or term 1 next year as WW1, if we just blocked it in as one week activity and a formal assessment” (Teacher, Interview).

Some of the students interviewed said that it was more difficult doing two history topics at once and having some lessons each week devoted to each topic. “It did
confuse me initially, going from WW1 to WW2, but it was good to be working on both” (Student 1, Interview). “It was OK (doing two history topics at once)” (Student 6, Interview). “It worked all right (doing two history topics at once), but it might have made it a bit easier if it was just one topic” (Student 9, Interview). “It would have been better to have this task all in one hit, it would have helped concentration” (Student 4, Interview).

6.3.2.5 Most students did not find background noise in the classroom distracting
A feature of the task was the constant background noise of many students talking at once in the classroom. This constant level of active working noise did not appear to particularly bother or distract either the students or teacher. This issue was further explored during the teacher and student interviews and the classroom observations were confirmed. All but one of the students verified that they were not distracted by noise. A sample of their comments follows. “Most of the time it (classroom noise) was all right as everyone seemed pretty focussed. Towards the end of some lessons it got up a bit. I did like the subject so it was easy to stay focussed” (Student 9, Interview). “You sort of get used to it as other classes are noisy” (Students 7&8, Interview).

6.3.3 How teachers facilitate a complex and sustained technology-based task (Research Question 3)
These themes evident in iteration 2 relate to the way that teachers facilitate the use of a complex and sustained technology-based task in their history classes and their perception of improved learning outcomes for students.

6.3.3.1 The scaffold supported students and was an essential part of the activity
There was strong evidence from interviews and classroom observations that the scaffold was used by every student and had been significant to the success of the task. The scaffold was a Word document available for download or printing from the website resource (www.notjustanameonawall.com). It has a series of headings and questions that the students can use to assist them in searching for and arranging information (see Appendix E).
All the students interviewed had acknowledged that they had used and depended on the scaffold to identify and arrange relevant information from their research. They basically felt that it was one of the main things that enabled them to do the task. “I didn't know that there was going to be a scaffold and that we would have to do all the work ourselves, so I thought that it was going to be pretty hard, but then the scaffold came and I was pretty happy. It is really good. I needed the scaffold, if it wasn't for the scaffold I wouldn't know what to look for” (Student 10, Interview). “Yes, well it showed me what I needed with more clarity than the handout. I used the scaffold to know what information I needed or to arrange the information I had” (Student 1, Interview). “Yes, (I found the scaffold useful) ‘cos (sic) it’s all in the same order as it comes up on the Internet. Looking through the soldier's record it was easy to arrange information. Yes, I use it each lesson” (Student 4, Interview). “It was useful to look back and see your answers in the right place, as they aren't in the right place in the original documents” (Student 2, Interview).

The teacher felt that the scaffold was essential for students to make sense of an initially confusing and challenging task. “Yeah I think they liked the scaffold. It’s very structured for them and very step by step. They commented on how it made it easier for them and easy for them to monitor where they were up to” (Teacher, Interview).

6.3.3.2 The teacher’s active support in class was crucial to student engagement

The active involvement of the teacher in the classroom was crucial to the success of the task. The teacher introduced the task and actively assisted individual students in the classroom with issues or problems that they had with the task. This took the form of clarifying what was expected in the task, assisting in locating information, assisting with interpreting primary source documents and keeping students on task. The importance of the teacher was noted in classroom observations: “Every student with the slightest problem immediately has their hand up for the teacher to help... teacher very busy moving around classroom answering questions or tech difficulties or explaining how to navigate” (First lesson, Observations); by the teacher: “I think it was fairly important (help from the teacher), especially at the start when their hands were up every few seconds” (Teacher, Interview) and by the students: “I remember that the teachers gave a lot of help with this” (Student 9, Interview). “It made a big
difference getting help from the teacher” (Student 10, Interview). “I don't remember the task sheet; the teachers told us what to do” (Student 9, Interview).

6.3.3.3 Teacher planning was needed to facilitate a complex and sustained technology-based task

The teacher needed to thoroughly prepare before delivering the task to students. He had to: reserve computer rooms for the task; prepare documentation and resources for the students; and should have prepared himself and the students for the task.

Computers

Students needed to use computers and this affected the running of the task. The teacher was able to book computer rooms for 2 out of the 4 lessons each week. This meant that the students were doing two topics concurrently. The provision of personal laptops to students part-way through the task solved the computer access issue and appeared to motivate some students. “Yeah, it increased interest as it was your personal laptop; it made it easier as you didn't have to change rooms to use a computer” (Student 10, Interview). Others were unimpressed. “The laptop didn't make any difference except that I had to start again, slowed me down” (Student 5, Interview).

In each lesson there were still some computer issues that hindered students doing the task. These included minor computer issues such as not being able to log on and some websites being blocked by the DET for some students. The teacher was not aware of the problem before the lessons as students have different permissions. Some comments by students were “Blocked sites were annoying” (Student 2, Interview); and “Randomly blocked sites were a problem” (Students 7&8, Interview). This problem had also occurred in previous iterations so the website resource had links to alternate sites with similar information.

Student Preparation

The students were not given any prior warning of the task, and it came as a surprise to them. “I was there on the first day and we did not get any warning of the task. We had had one lesson on WW1” (Student 5, Interview). “We suddenly got the task and had not done much on this stuff before” (Student 2, Interview). “We were already
doing the war so it fitted in with what we were doing” (Student 10, Interview). In retrospect the teacher thought that it would have been better if he had prepared the students and himself for the task before starting it. “We could have talked about it beforehand, also could have gone through with the site on the Smart Board for them, so they were more familiar perhaps. ... If I had done it myself beforehand I could have helped them a lot better” (Teacher, Interview). The teacher chose to introduce the task in a difficult lesson; the last lesson of the day when the students had just come in from vigorous physical activity. He also added to that disruption by first asking students to copy out homework before introducing the task.

Documentation
The teacher prepared an instructional and descriptive task sheet to hand out to the students at the beginning of the task and introduced the task to the students using the sheet. The printed handout was written as if the task was an assessment and given out so students could refer back to it to know what they were expected to do. There was little evidence that the printed handout was ever used by the students after the first lesson. None of the students interviewed acknowledged that they had used the handout. “No, I did not use the handout. Looked at it and put into bag, did not use it as I did not think it necessary” (Student 10, Interview). “No, I didn't use the handout, I never used that and it is in my book” (Student 2, Interview). “I don't remember the task sheet; the teachers told us what to do” (Student 9, Interview). Some of them didn’t read the sheets properly, had to tell them what to do again” (Teacher, Interview).

A printed sheet of soldiers’ names was prepared and at the first lesson, the names were cut out and one was handed to each student so that the students would be responsible for researching a different local soldier. This strategy appeared to work well.

6.4 Refinement of the Draft Design Principles
The themes emerging from iteration 2 enabled the researcher to reflect on the draft design principles (DDPs) that emerged from iteration 1. The relevant themes emerging from the analysis of data in iteration 2 were allocated to the DDPs from
iteration 1 to see whether they provided evidence to support or justify changes to be made to the Principles. Some themes were considered relevant to more than one DDP and so were used multiple times. This is shown in Table 1.3. As a result of this process, no changes were made to the DDPs. They were all supported or partly supported by the themes.

Table 6.2 Support for DDPs in Iteration 2

<table>
<thead>
<tr>
<th>Draft Design Principles</th>
<th>Relevant Themes</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Authentic activities with real-world relevance, and involving personal aspects of real people, lead to student engagement.</td>
<td>The real-world relevance of investigating actual soldiers from their local area engaged and motivated students. Students demonstrated empathy towards their soldier. Students gained a different perspective on the War, through their soldier’s experience.</td>
<td>Supported.</td>
</tr>
<tr>
<td>2. Authentic activities are complex, ill defined tasks requiring investigation over a significant period of time.</td>
<td>Students were engaged in researching and independently putting together the pieces of their own soldier’s ill-defined story. Students stayed engaged over many lessons in a challenging and complex task. Teacher planning was needed to facilitate a complex and sustained technology-based task.</td>
<td>Supported.</td>
</tr>
<tr>
<td>3. “Authentic activities provide the opportunity for students to examine the task from different perspectives, using a variety of resources” (Reeves et al., 2002, p. 564).</td>
<td>Each student worked on a different story promoting individual and group learning through a class community of stories. Students were engaged in researching and independently putting together the pieces of their own soldier’s ill-defined story. The novelty and challenge of using primary sources engaged students.</td>
<td>Partly supported, students tended to mostly use the many documents in the soldier’s record from NAA.</td>
</tr>
<tr>
<td>4. Authentic activities provide the opportunity to collaborate with others, even when working on individual tasks.</td>
<td>There was much evidence of sharing and collaboration even though it was an individual task. Most students did not find background noise in the classroom distracting.</td>
<td>Supported.</td>
</tr>
<tr>
<td>5. “Authentic activities provide the opportunity to reflect” (Reeves et al., 2002, p. 564).</td>
<td>Students demonstrated empathy towards their soldier. Students gained a different perspective on the War, through their soldier’s experience.</td>
<td>Supported.</td>
</tr>
<tr>
<td>6. Authentic activities require students to</td>
<td>The novelty and challenge of using primary sources engaged students.</td>
<td>Supported.</td>
</tr>
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<tr>
<td><strong>employ a range of different skills.</strong></td>
<td>Students were engaged in researching and independently putting together the pieces of their own soldier’s ill-defined story.</td>
<td></td>
</tr>
<tr>
<td><strong>7.</strong> &quot;Authentic activities create polished products valuable in their own right rather than as preparation for something else” (Reeves et al., 2002, p. 564).</td>
<td>Each student worked on a different story promoting individual and group learning through a class community of stories.</td>
<td>Partly supported, as students were not required to complete the task.</td>
</tr>
<tr>
<td><strong>8.</strong> &quot;Authentic activities are seamlessly integrated with assessment” (Reeves et al., 2002, p. 564).</td>
<td>Not tested.</td>
<td>Retained.</td>
</tr>
<tr>
<td><strong>9.</strong> &quot;Authentic activities allow competing solutions and diversity of outcome” (Reeves et al., 2002, p. 564).</td>
<td>Students worked independently on their own individual task. Each student worked on a different story promoting individual and group learning through a class community of stories. Students were engaged in researching and independently putting together the pieces of their own soldier’s ill-defined story.</td>
<td>Supported.</td>
</tr>
<tr>
<td><strong>10.</strong> Students require structured and documented support to give clear direction to the activity.</td>
<td>Teacher planning was needed to facilitate a complex and sustained technology-based task. The scaffold supported students and was an essential part of the activity. Students and teacher would prefer the task to be run exclusively in a block without interruptions to lessons. Some students followed the ‘Path-of-Least-Resistance’ (easiest path) and did not look or read documents carefully.</td>
<td>Supported – planning required to anticipate the way that students go about their work in class.</td>
</tr>
<tr>
<td><strong>11.</strong> Access to in-time teacher support is crucial to student participation.</td>
<td>The teacher’s active support in class was crucial to student engagement. The scaffold supported students and was an essential part of the activity. Some students followed the ‘Path-of-Least-Resistance’ (easiest path) and did not look or read documents carefully.</td>
<td>Supported.</td>
</tr>
</tbody>
</table>

**6.5 Conclusion**

The second iteration, like the first iteration, demonstrated that students can be engaged in learning Australian History through an authentic task or activity. The
students mostly stayed on task and took responsibility for their learning even though learning conditions were less than ideal (interruptions and the time of the year).

The prototype (solution modified from the first iteration) appeared to work well with no apparent flaws; the teacher and students were satisfied with its use, and it did not require further modification. However, the iteration identified the importance of the teacher being well prepared (such as attempting the task themselves) and spending time introducing the task to students before they start.

The DDPs taken from iteration 1 were tested and well supported by the themes that emerged from iteration 2. The DDPs were all retained without modification. DDP8 was retained (without support) as it had the potential to be a strong motivator and it had not been possible to test it in the first two iterations.
Chapter 7: Iteration 3

7.1 Introduction

This chapter examines the third and last of the three consecutive iterative cycles of testing and refinement conducted following the design of the prototype. This iteration utilised teacher initiated improvements and modifications made to the task and its classroom delivery resulting from informal teacher discussions and curriculum requirements. It was also, like the previous iterations, examined based on the data collected (described in Chapter 3), for answers to the research questions and to inform the development of Draft Design Principles. This iterative process, like that detailed in the previous two chapters (Chapters 5 and 6) corresponds to the third stage of design-based research (see Figure 7.1).

![Stage 3: Design-Based Research](image)

Figure 7.1 Stage 3 of DBR – the Iterative Cycles of Testing

Iteration 3 was conducted 3 to 5 months after iteration 2 in the next academic year (in March to May of 2010) at the same school as the previous iterations and involved different teachers and a different cohort of Year 9 History students. This instance of testing was, like the first and second iterations, scrutinised for answers to the research questions and reflected upon to identify themes. These resulting themes provided evidence to support the development of Design Principles.

This iteration was significantly different to the previous two iterations in that it was opportunistic and teacher and faculty initiated. This iteration was providential as it was not intended or planned by the researcher. The opportunity for the iteration was initiated by the practitioners (the HSIE faculty and teachers) without the prior knowledge or involvement of the researcher.
The HSIE faculty had decided to use the prototype developed for iteration 2 and utilise it as an important component of their Year 9 History teaching curriculum for all classes. They had decided to use it as an assessment task leading up to and preparing students for Anzac Day. This was a strong verification of the Developmental Research approach, where the prototype had been developed to the point where it had been accepted and adopted by the practitioners as a part of the teaching curriculum.

The researcher became aware that the solution was being used by the HSIE faculty when the task had almost been completed by the students. It was seen as a great opportunity to gain insight into what actually happens when the task was being delivered by the faculty and teachers as an assessment, which was a crucial component of the teaching curriculum.

Unlike the previous two iterations, the researcher was not involved in any preparation for the task, and did not assist the teacher in the classroom. The task was used with students in the classroom as a teaching activity, which was part of the curriculum. It had become a genuine part of the school teaching program rather than being a research activity.

It was not possible to observe students and teachers in the classroom. Data was collected from teacher and student interviews; student presentations; student written work and student assessment marks after the task had been completed. The interviews of the three teachers, the Head Teacher and the two classroom teacher who had used the authentic activity in their classrooms, provided rich data on its use in the classroom and why it had been made part of the Year 9 History curriculum. The acceptance and support of these teachers was crucial to the ongoing use of the activity in schools.

This chapter describes the setting for the iteration and the themes evident from analysis of the various sources of data collected for the third iteration.
7.2 Iteration 3 - 2010

7.2.1 Context

The third iteration was conducted at the same Australian rural high school as that of the first and second iterations, in the academic year following the second iteration. The iteration was providential and the researcher was not in any way involved with the planning or delivery of the task; and did not enter into any discussions with any of the HSIE faculty until after most students had completed the task.

In 2010 (unlike previous iterations) all Year 9 History classes at the school completed the task as an assessment with the resulting marks contributing towards their final grade in History and being reflected in grades and comments on their half-yearly and yearly reports. In addition to this they had the added incentive of knowing that the best stories would be selected to be read to the rest of the school at morning assemblies. The Year 9 History sequence of Topics was deliberately reorganised so that the Unit on WW1 and the task could be completed by students in March and April so that it could be associated with Anzac Day (25th April).

In 2010 (as in the previous two years) there were three Year 9 History classes with each student streamed into a class according to their academic performance in History, Geography and English in Year 8. All three classes completed the task; however data was only collected from the teachers and students from the top two streamed classes. The teacher from the bottom streamed class considered that her class was unsuitable to be included as she had used a modified version of the task with much lower expectations for her students.

The History classes and teachers were part of the HSIE (Human Society and its Environment) Faculty under the supervision of the Head Teacher of that faculty. The Head Teacher had made the decision to incorporate the task in the faculty curriculum. The researcher was still a teacher at the rural high school but not involved in the HSIE faculty. The school’s timetable in 2010 was still based on an 8 period (lesson) day with each period lasting 40 minutes. The Year Nine students had the equivalent of 4 periods of History each week.
The unit of work required each student to use a computer connected to the Internet. The Year 9 students would not be issued with a personal laptop until much later in the year so all the students had to use the school computers. This presented some difficulties for teachers as the school still had only 4 computer rooms, with 2 of these being quite small. As well as this, the authentic activity required all the three Year 9 History classes to be using computers at much the same time. This was not possible, so teachers had to have some flexibility in the timing of the task with their classes. The top class took priority so that it would be finished before the Easter holidays. The other classes did not finish the task in the set time and continued with it after the holidays.

The Head Teacher was aware of and had approved the running of iterations 1 and 2 in 2008 and 2009. He had received positive feedback and with his staff had independently made the decision to include the task as a formal assessment task and part of the Year 9 History curriculum.

7.2.2 Practitioner initiated changes

The teachers involved (mostly the male teacher of the top streamed class) made a number of small but significant changes in the way the authentic activity was presented to students as a consequence of it being an assessment task and from informal discussions with the teacher that had used it the previous year. The teacher initiated changes to the task from that of the second iteration included:

- The task using the website resource (www.notjustanameonawall.com) was incorporated into the HSIE Faculty as a unit of their teaching curriculum for Year 9 History.
- It was a History assessment task and contributed a percentage of the Yearly mark for each student.
- It was run at much the same time in all three streamed History classes in Year 9.
- The task was run in the weeks leading up to Anzac Day and formed part of each student’s awareness of the significance of Anzac Day.
• The two teachers prepared well by meeting one afternoon after school before running the task and spent several hours researching a soldier (as if they were students) and going through each of the links on the website resource. They became familiar with the progression of links before presenting the task to students.

• The task handout was changed to give a beginning date and due date for the assessment. It also required the students to hand in a biographical essay as well as give a short talk.

• The students were aware that the better efforts would be selected to give their talks to the whole school prior the Anzac Day and possibly to the special Anzac Assembly.

• The students relied on access to the computer rooms as the student laptops were not issued until later in the year. This created some difficulty for the second class and the due date had to be extended.

• The scaffold and website resource were unchanged from the second iteration.

• The teachers created a shared resource folder on the school server where they placed: a link to the research page (see Figure 5.4 and http://www.notjustanameonawall.com/research.htm); and a copy of the assessment task handout, marking rubric (Appendix H) and scaffold (Appendix E) so these documents would be always easily available to students.

• The students were allowed to choose their own soldier’s name. Most did this by choosing a name at random from the list of Coonabarabran names on the Mapping our Anzacs site. A few choose other names that had some significance to them or their families.

7.2.3 Participants

Three teachers and two Year 9 History classes participated in the third iteration. The Head Teacher was responsible for the decision to include the task in the teaching curriculum and supervised the teachers running the assessment task. The teacher of the top streamed class was a relatively recently graduated mature aged male who had not previously taught Year 9 History. He was enthusiastic about the task and keen to do it well. His class comprised 13 female students and 12 male students. The teacher
of the middle streamed class was a recently graduated mature aged female who also had not previously taught Year 9 History. She was also enthusiastic and keen to learn as much as she could. Her class comprised 9 female students and 10 male students. Both classes had a range of academic abilities and there was some overlap of academic ability between the classes.

7.2.4 Implementation of the unit of work

According to the interviewed teachers (the researcher did not observe any classes), the assessment task was given to Year 9 History students on Monday 15\textsuperscript{th} March 2010 and was due to be completed by Wednesday 31\textsuperscript{st} March 2010. It was planned for students to be given the equivalent of 8 (40 minute) lessons of class time to complete the assessment.

The teachers of both classes used the first lesson to prepare the students by going through each of the links on the website resource (www.notjustanameonawall.com) with the students using the interactive white board explaining their usefulness, before giving the task to students. The students then worked independently, choosing their own soldier’s name and researching their story.

The task was accelerated for the top class, and they were given priority with computer access so that it took only two weeks (or 8 x 40 minute lessons in a computer lab). The aim was to be finished before the Easter school holidays (April 2 to April 18) so that students could read out their story of their WW1 soldier to all school students at the regular morning assembly each day in the week after the holidays leading up to Anzac Day (Monday 25\textsuperscript{th} April 2010). This required the students that wanted to do well to complete at least part of their work at home.

The middle streamed class took longer to finish as they had had limited access to computers. The task for them continued for two weeks after the holidays.

The top class completed their task on time and from Monday 19\textsuperscript{th} April to Friday 23\textsuperscript{rd} April; two selected Year 9 History students came to the front of the whole school assembly, stood on the dais, and read their story to all the school students and
teachers. As well as that, another two students read their soldier’s stories to the special school Anzac ceremony that also included returned soldiers.

7.3 Emergent themes

The method used to analyse the data arising from iteration 3 has been described in Chapter 3: Methodology, section 3.6.3 Iteration 3. As for iterations 1 and 2, the common themes listed and described in the following sections are based on, or result from looking at the data through the original three research questions (see Chapter 1, section 1.5 The Research Questions) and the guiding draft design principles (see Chapter 4, section 4.2.3 Draft Design Principles).

As described in Chapter 3, the teacher interviews and student interviews were transcribed and ‘coded’ by themes using the tag and summary function in Microsoft OneNote. Each theme has been described in the following sections with illustrated quotations selected from the data. The themes have been sorted under headings corresponding to the Research Questions and are presented in order of dominance.

7.3.1 Critical principles applicable to design (Research Question 1)

The following themes evident in iteration 3 relate to the critical principles applicable to the design of a technology-based authentic task, which will interest, motivate and engage students in the study of Australian History.

7.3.1.1 Personal aspects of history provide empathy and connection, adding to motivation

The importance of personal aspects and details of individuals in drawing in and involving students in the study of history was very apparent in this iteration. The students were intrigued with all the personal details they could find out about the soldiers. “The personal information about the soldiers like, before and after the war, what they did was interesting. How long they had been at the war too. Some of them had been there since the start of the war and were there until after it ended” (Student 4, Interview).
Some of the interest in personal attributes was a source of frustration for one teacher. “And it was probably my fault and I didn’t realise they were going to get so caught up on it but they spent so much time worrying about the physical appearance of the person they didn’t get into the nitty gritty at the end and look at the battles they were in and start to cross reference as well as they could have. A lot of them were worried they couldn’t read eye colour or religion and spent hours trying to decipher that” (Teacher 1, Interview).

The students gained a strong personal connection to their soldier, which led them to wanting to find out more about what had happened to them. “And by the end of it they were really into it and they loved finding out what happened to their soldier. It became ‘my soldier’. They owned that person and their life story which was pretty cool” (Teacher 2, Interview). “I just sort of, had a bond with him. I could feel what he was feeling at the times from his writing” (Student 1, Interview). “Yeah I think half the class created a genuine personal connection. They thought of it as their soldier. They developed a bit of empathy like a relationship” (Teacher 1, Interview).

The feelings of empathy for the soldiers led them to a deeper understanding about how the War had impacted the lives of the soldiers and their families. “It wasn’t just a war that happened and nothing to do with them. They could see how it related to their lives and affected people” (Teacher 2, Interview). “He had 12 brothers and sisters. I thought that he had a big family and that it must have been hard for his mum and stuff because 2 of his brothers went to war as well. He was quite well educated“ (Student 3, Interview). “When he got back, his house burnt down and all his medals went with it. It was interesting” (Student 2, Interview). “I pictured how hard it would have been and we had learnt a lot about trench fever in class time so knew all the symptoms and how terrible it would have been and had empathy for him” (Student 4, Interview). “When they got to Anzac day they realised why they got a day off school. Whereas normally, I don’t think they quite understand. But seeing into what a soldier experienced and learning all about that beforehand really emphasised the point and yeah, I think it really helped. They all understood it a lot more and had more empathy” (Teacher 2, Interview).
7.3.1.2 Remembering a real person from the local area was a powerful motivator as it gave the task real-world relevance

Students used historical skills to research the story of a real person, which made the task relevant. The task was made even more meaningful by having the students find out about an individual that was a relative or had come from their local area. “Each student chose their own soldier from the names on the website on the National Archive of Australia (NAA). The only ones I gave extra free rein to were ones that had a grandfather they wanted to do who didn’t live in Coonabarabran and I was fine with that otherwise the rest picked a name from the list” (Teacher 1, Interview). “And I suppose, half of them, did one on a family member or a neighbour. I think they liked picking someone from Coonabarabran or Baradine or Binnaway. That gave them the connection if it wasn’t family” (Teacher 2, Interview).

Finding out about a soldier from their local area connected them to their community. “Apart from anything it gave them a bit of a sense of local history and a sense of the whole World War One experience... I think gave them a whole different perspective. And the local history content with it, you know, people they could identify, people from addresses or names they knew from around town. A couple of kids actually found out grandparents they didn’t know they had, or they went home and spoke to their parents about it” (Teacher 1, Interview). Some students found that they had connections to the soldier that they were not previously aware of. “It was interesting how he built my house and how he has been a farmer here for so long and he lived a long life after the War” (Student 4, Interview).

The connection to family and community provided a greater dimension to the relevance of the task. “It wasn’t just for the teacher. It was everyone and for the community as well when they took it home for their families. So it was a bit more real” (Teacher 2, Interview). “I think the local effect is very important because the names are part of the community and add to the relevance” (Teacher 1, Interview).

Some students researched a family member and this gave them the opportunity to discuss the task with their family and ask questions about their own family history. “Some did extra research out of class time. Some went home and got oral histories
from their families and found family research” (Teacher 1, Interview). “They felt they were doing something more important, especially those that were researching a family member. They could take that information home and piece together bits their parents may not have known and that sort of thing, put a bit of a picture together” (Teacher 2, Interview).

Students were particularly motivated when they found out about a family member. “They were the ones who probably got into it more because it was a relative and there was someone in their family who could talk about remembering that person” (Teacher 2, Interview). “Actually having a real soldier, instead of a made up prototype and having it as a family member made it pretty interesting. The fact he was related to me and we had a personal connection was more important than being an assessment task. Yeah, I rang my Nana and she has a whole big book on it and stuff. She has all these family records and stuff, but I didn’t think she would have that much stuff on it though” (Student 3, Interview).

The personal connection that the task provided between local history and world events was noted by the Head Teacher. “It’s different from other activities in the sense of its relevance through the fact it’s a local person they’ve investigated and the actual identification students can have with their local community” (Head Teacher, Interview).

7.3.1.3 Associating the task with Anzac Day motivated students through real-world relevance

The faculty arranged the sequence of units in Year 9 History specifically so that the topic on WW1 and the authentic task could be completed before Anzac Day. This was a deliberate strategy in order to incorporate the task and students into school Anzac Day commemorations. There was an expectation that some students would share their research with the school community through speeches leading to, and including school Anzac Day events.

This strategy had a particularly strong effect on the motivation of teachers and students as it added extra dimensions to the task. It gave an extra purpose to the task where they were not only doing something to complete an assessment task, but also
making a positive and worthwhile contribution to their school community and to the commemoration of Anzacs. “The bonus is having kids engaged both in work which is relevant to them – and they see that relevance through the fact it’s a local person they’re investigating and it has raised the profile also as a site benefit of Anzac day. I think to hear kids stand up on our assembly and talk about their particular soldier is an eye opener to all the students on the assembly. It has also raised the profile of the whole Anzac ceremony within our school and community” (Head Teacher, Interview).

The teachers saw this as a great and valuable conclusion to the students’ work. “I think it was really important that it leads up to an event like Anzac day. It was very important that it had a focus at the end. The work they did in class definitely influenced them to pay more attention this year (at Anzac day)” (Teacher 1, Interview). “They liked knowing they were going to present for Anzac day, it was actually for something. In the small teaching experience I have, kids like something if it’s for something” (Teacher 2, Interview).

Students also commented on the way that the association with Anzac Day had made the task much more relevant and motivating for them. “Yeah having it just before Anzac Day, it was much more interesting and we were motivated because we were told the best ones would be read out. It was for the memorial for the soldiers and remembering them” (Student 4, Interview). “Yeah I felt I was doing something important, because you had to read about your soldier at the end. Yeah the timing near Anzac Day affected my interest. It made you think about it more. So when it actually came around you thought more about it” (Student 2, Interview). “We had to read our speech out and that was good. The other speeches were good too and we learnt about other soldiers such as ones that didn’t return from the war” (Student 1, Interview).

The teachers perceived changes in the attitudes of the students as a result of the association of the task with Anzac Day. “Apart from the educational value it also gave them the relevance of the Anzac day ceremony. The students that were at
Anzac day, I observed a few of them go out and look for their names on the Clock Tower and it just I think it made it more relevant to them” (Teacher 1, Interview).

7.3.1.4 Students completed an ill-defined, complex and challenging task

Students found the task challenging in a number of ways. Some found using technology to complete a task and the amount of free choice they had confronting. “Um, just the set up to begin with such as getting onto the site and I needed a bit of help because I am not that good on computers, and then finding the right person to do, because there is so much variety in choice” (Student 4, Interview).

Students also found the ill-defined nature of the task initially difficult as they had to work independently and locate, identify and decide on the information to use. Every soldier was different so they could not necessarily follow exactly what their friends were doing. The primary source documents were often difficult for them to read and out of sequence. This type of work was new to them as they had not previously completed a task, which gave them such freedom of choice. “I think finding the information from what they have written on there, like the pictures of the information was hard to read and get information from it. But once you worked out how to do it, ‘cause there was (sic) a lot of pages to go through, you had to have 3 different pages open just to work out one thing. The difficulty was reading the primary sources, the original documents. Had difficulty with reading the writing because it was different and it was faint too. It wasn’t in sequence either. We had to go through the whole lot” (Students 2&3, Interview). “I think just finding the information was difficult because there was a lot and you had to look at more than one source. I didn’t have trouble picking a name – I just chose a random one” (Student 2, Interview).

The empathy part of the task was difficult for students to articulate as they had to put themselves in the position of the soldier and his family. “The personal part was most challenging, where it says “how do you think he would have felt?” and “how do you think his family have felt?” and how tall he was, and what he did for a living and was he educated? I managed to answer them. Talking to my Nana helped and hearing her stories about it. She also knew a little about his personality and could tell me a bit about what he was like” (Student 3, Interview).
The ill-defined, complex and challenging aspects of the task appealed to the teachers as they were using it as an assessment and they thought that it would give students an opportunity to display their full abilities. “And it was challenging, apart from anything else, it was challenging but do-able, was really relevant for them” (Teacher 1, Interview). “As a task, I think it is a challenging task to be able to follow links to war memorial sites and records etc. It is challenging” (Head Teacher, Interview). “And it definitely doesn’t need to be made easier for them because you suddenly come across those students who are much into being first finished, and not putting the quality in and if they have to work a bit harder it makes them not rush. The nature of the task allows good depth. Most of my history experience has been in Junior History and I think it is one of the more relevant ones I have dealt with as a class and one of the more enjoyable ones and also with enough challenge for the high up students. It has a good balance” (Teacher 1, Interview).

7.3.1.5 The students were motivated to do well as the task was part of their subject assessment

The authentic activity in this iteration was presented to students as a formal assessment task and given a grade by teachers. The marks gained contributed towards the student’s result in Year 9 History. This had a substantial impact on the way that teachers presented the task to students and on the level of student motivation to do as well as they could and gain a good mark. “We changed the way the task had to be written so instead of just a straight biography, it had to be written like a speech. The students filled in the scaffold then used this to write a speech. The students were then required to present this to the rest of the class and hand me the written material” (Teacher 1, Interview). “It will carry a substantial weight towards the student course” (Head Teacher, Interview).

Students commented that they wanted to do well because it was an assessment task and also because they felt that what they were doing was important to remember the Anzacs. “It was important because it was an assessment task” (Student 4, Interview). “Probably both - the type of task and it being an assessment task helped me to do well” (Student 2, Interview). “The type of task was important, the marks were important” (Student 1, Interview).
The teachers and Head Teacher were happy with the task that they had set for assessment. “An oral task is often a really hard one with to do with the class because they get caught up in what they’re speaking about rather than the content of their speech. So it was good to have the written and the oral at the same time because when it came for them to write a speech I think they missed a lot of the detailed information they had found because they would get too worried about giving you a physical description of the person they had investigated. It was good to have to second set of notes to compare back to and see what they had really done” (Teacher 1, Interview). “The standards that I saw and certainly the marking of those tasks that I observed my teachers undertaking suggests that, yes, they were done well and the ones that we had report back on school assemblies were quite outstanding in terms of the information they found” (Head Teacher, Interview).

7.3.1.6 Students were able to reflect on the experiences of their soldier

Students thought about the experiences of their soldier. They took ‘ownership’ of their soldier and could empathise with his and his family’s experiences. “At the end when they were able to give you a story of this person. When they took the research and could put it together in a sequence and they could talk you through the injuries and when they came home and some of them had information from after home. So it was really good for them to be able to put that together” (Teacher 2, Interview). “I think the bit which really captured them was when they could find the hospital records and could start to read about the injuries and then they would start to put 2 and 2 together and they would look at the dates and see a soldier was shot on this date and was back in the trenches 5 days later. Those sorts of things had the real wow factor to them like, really? That was tough! Little things like that would click for them” (Teacher 1, Interview). “I just sort of, had a bond with him. I could feel what he was feeling at the times from his writing” (Student 1, Interview).

Students were concerned mostly with the factual information and found it difficult to ‘read between the lines’ or infer additional information. “A couple of students made the observation that at the start of the war they were getting 6 or 8 months training, and then by the end of the war when they were getting desperate they may have only got 3 weeks training and then you were getting thrown on a boat because they were desperate. Those sorts of inferences were, they found that difficult to make” (Teacher
1, Interview). “It was hard to find out when they died because they were missing in action. We had a basic idea of what war was about so it wasn’t that hard to think about what it was like for them, but it was hard to think about what they would have thought personally” (Students 2&3, Interview). “I think the hardest bit (for students) was inferring from the information they got and drawing a conclusion from it; this could be a consequence of this” (Teacher 1, Interview).

7.3.1.7 Students applied a range of non-subject specific skills and were able to use what they had learnt in other subjects

The students had to use a range of skills in order to complete the task. In most cases these skills while satisfying History outcomes were also of a general nature and applicable to other subject areas e.g. computer skills, research skills, literacy skills. Teachers recognised that a large part of the value of the task was in it requiring students to use these skills. “So as a historian I think with the historical skills it is very beneficial. It also satisfies the requirements of site studies etc and the syllabus outcomes... its relevance to course work, its importance to research methods and its importance to literacy, so the ability to write up reports which is a strong part of the literacy focus of all schools and in particular our school and the outside benefit of raising awareness of why we commemorate Anzac day” (Head Teacher, Interview).

The task had been modified by the teachers to also include oral presentation skills. “We (teachers) had decided as a group to do this as an oral task. I did it with my class mainly because I wanted to see which were the best speeches to present to the school” (Teacher 1, Interview).

The teachers were satisfied with the range of skills the students had been exposed to through doing the task. “Computer literacy (improved) for sure, using those databases. Um, for most of them that was something new I think. I think they learnt some really good research skills, and I also think they developed their ability to empathise with individuals from history” (Teacher 1, Interview). “The fact that it has engaged students and brought other benefits to the faculty and to the students such as the literacy side of it meant it has been very beneficial” (Head Teacher, Interview). “The kids enjoyed it and I really had no trouble at all getting them all to complete it
and I think they learnt a lot from it. The skills that carry on from it will also be useful” (Teacher 1, Interview).

It was also possible to use the History content learnt in another subject. “One student in particular is using some of the information he has learnt doing this task for another task in English about Hope. There is a bit of cross curricula and extra learning happening that you don’t think is in there” (Teacher 1, Interview).

7.3.1.8 The students produced worthwhile complete products

The students all had to present a product at the end of the task to be assessed or marked. This product varied in quality depending on the abilities and effort of the student responsible. However the product was worthwhile (whether polished or not) as it represented the student’s work over about a 2 week period. The assessment task required students to present their completed scaffold and a written speech and to use the speech to give an oral presentation on their soldier to the rest of the class. They were graded using the marking rubric, which had been given to the students at the beginning of the task. The marks awarded in the ‘1’ class ranged from 95% to 45%, while in the ‘2’ class they varied between 95% and 55%. Both teachers were satisfied with what had been achieved by the students and that the range of marks fairly represented the achievement and effort of the students. “From my point of view, when I first read them (student assignments) I was a bit disappointed. I didn’t think they got enough depth into them. But having read them a couple of times and marked them I think they did do a pretty fair job” (Teacher 1, Interview).

7.3.1.9 Each student worked on a different individual soldier’s story resulting in competing solutions and diversity of outcome

Competing solutions and diversity of outcome were a natural and anticipated result of the task as each student investigated the story of a different soldier. “I prefer them to do an individual soldier as it gives them an individual ownership in terms of their ability to find information on them” (Head Teacher, Interview).

The teachers expected each student to present a different story, resulting in a richer learning experience for the students. They could share in a greater range of experiences of the War through sharing their stories. “It gave them a genuine, you
know, point of focus. Rather than you know we sit there and tell them stories about battles and where Australians fought and Gallipoli and all that sort of stuff, but actually having an individual they can track through parts of it” (Teacher 1, Interview).

From the students’ point of view, “It was pretty different to other activities. Actually seeing photos and stuff of the family is better than just seeing group photos from the textbook of people who don’t even come from Coona” (Student 3, Interview). “Learning about the experiences of soldiers in trenches was good and probably also about the fevers and trench foot and the illnesses. We shared information in class” (Student 4, Interview).

Some students found the task challenging as they had to actually work for themselves and come up with a different story from their friends. It forced them to work independently and “Well, they had to research and actually had to read. Being independent in the research was challenging for students because they weren’t all doing the same soldier so no one could copy. I think the ones that usually depend on their friends found that a bit harder” (Teacher 2, Interview). However they managed to adapt and cope as the task “gave them the structure to independently learn with a teacher with them” (Teacher 2, Interview).

7.3.1.10 A positive attitude at the beginning of the task helped student and teacher involvement

Both teachers’ enthusiasm for the task was notable from the tone of their language at each interview and in listening again to the interview recordings. This positive attitude would have positively influenced and encouraged the students at the beginning and throughout the task. This enthusiasm can be seen in a teacher’s comment: “Well, my initial thoughts were yeah, what was the task; it took me a long time to get my head around what was actually involved. And then I guess I was quite excited about it because I am a bit of a fan of independent learning and students getting the opportunity to almost steer where they go and what they do, within that, you know. Once I looked at it and how it worked and what they were first focused on was, you know, where they thought they had complete ownership of it but it was still
within certain boundaries. So I guess I was quite excited about it once I got my head around it” (Teacher 1, Interview).

Students were also keen to learn about the War and soldiers from their local area. “I thought it would be interesting since I didn’t know about the soldiers” (Student 2, Interview). “I was pretty interested from the start. I thought it would be pretty good to have a look at what they did and stuff and what their lives were like” (Student 3, Interview). “I was sort of like “this could be interesting” knowing about the war and everything. We hadn’t done much on the war before” (Student 1, Interview). “I thought that it would be good to learn about people in the War, and great that I could learn about my family” (Student 7, Interview).

7.3.2 Processes That Students Engage In (Research Question 2)

The following themes relate to the processes that students engage in when completing an authentic historical task using a technology-based learning resource.

7.3.2.1 Students were in charge of their own learning and worked independently on their own individual task

There was strong evidence from both teacher and student interviews to show that students took control of their own learning and worked independently to complete the task. The task was student centred and required students to construct their own information.

The independent learning aspects particularly appealed to the Head Teacher of HSIE and contributed to his strong support for it to be a part of the teaching curriculum. In talking about the task the Head Teacher voiced his support “Independence and self direction are also a key part of the student outcomes we’re looking for and students can show that they can work independently and collaboratively with the teacher and other students if required...It is about the students doing the research, finding the answers and doing the report with guidance from teachers... And I think each student can be individually engaged without distractions from others around them because they are doing individual work” (Head Teacher, Interview).
The teachers noted that the students had been working independently and that this was a great outcome of the task. “I think that working independently, and actually producing something from the research they gathered are the two most important things that students learned” (Teacher 2, Interview). “Year 9 students should be beginning to take responsibility for what they do and this sort of task gives the opportunity to do that and extend themselves a bit” (Teacher 1, Interview). “It was really good for higher ability kids and independent kids because they could take it further on their own in their own time” (Teacher 2, Interview). “The students were working independently and taking some responsibility for their own learning. Look, again, I am a fan of that” (Teacher 1, Interview).

Student comments were very positive showing that they had been motivated and prepared to put in extra effort as a result of being responsible for their own learning. This was articulated by Student 2 (Interview): “Independent work was good and much more satisfying when you finish. The more you did the more you got into it and the more you wanted to keep going. It dragged you in. It was very good in class if the bell rang when you were in the middle of something because it made you keen to get back into it next lesson.” “Yeah, they were very keen to go and do it, like they were pretty keen to go and work on it whenever they could” (Teacher 1, Interview).

Another indicator of student engagement and commitment to independent learning was that students continued to work on the task at home and in their own time. “A lot of them went home and liked that they could use it at home as well” (Teacher 2, Interview). “That’s where I looked up his battalion and I also asked my Nan about him. She had pictures and knew him when he came back, so she gave me oral information” (Student 7, Interview). “Some did extra research out of class time. Some went home and got oral histories from their families and found family research. And some definitely worked on it at home because you could see where they jumped from one week to the next when we got a computer room and could look at what they were doing” (Teacher 1, Interview). “Yeah I did some at home. I just finished off what I didn’t get done in class. I didn’t ask my parents for help” (Student 2, Interview).
Teacher 2, with the middle-level academic class stated that some of her students were reluctant or challenged in changing from a passive mode of learning to one which was more active. The students had difficulty in adapting to learning on their own. “They’re too structured, they need to write notes and be told what to think. Being taken out of their comfort zone and having to read on their own rather than being told by me what to do all the time was difficult for them. At the beginning it was more “aw, she’s making us do this”. By the end they were doing it on their own, some were at home doing it at night because they were just interested. A lot of them could already do that. But some of them that were really bad at it, but by the end they were getting pretty good at it and not so upset with it. But a lot of them fought it. Once they realised they were in charge of their learning they went with it a lot more – once they realised it wasn’t hard and they just had to flick back to the main bit and follow the steps. That was when it got easier for them. The majority would normally do work at home, but a few surprised me and came in with extra information. A few of those were relatives so they really got into it and looked at photos and things at home. Yep. A lot of them by the end were working independently” (Teacher 2, Interview).

7.3.2.2 Students collaborated by sharing information and comparing the experiences of their individual soldiers

Even though the students were each working on their own individual task they worked together. The task was perceived as non-competitive as the work that other students were doing was similar but different. Students talked to their neighbours and friends about what they were doing, how they located information and interesting details about their soldier. The classroom tended to be relaxed and noisy as they collaborated and exchanged information. “I think it is really important that they have different soldiers because they all had different experiences and so they could share those experiences and while some were related some were totally different and made it more interesting for them” (Teacher 1, Interview). “The students discussed and shared information, it wasn’t a silent classroom” (Teacher 2, Interview). “Oh yeah it was very noisy, there was lots of active chatter (helping each other) as they were working on the task” (Teacher 1, Interview).
The noisy exchange of information in the classroom was seen as important by teachers and an essential component of learning. It encouraged and motivated students in their work as they were all doing it together. “It is much easier compared to doing it in isolation and a lot more fun too. The discussion is part of their learning. One person’s idea links with another person’s idea and then it creates a third for them. I don’t think you would have got the quality that we got (with students doing the task on their own). I don’t think they would have got the understanding or probably put the effort on their own that they put in together” (Teacher 1, Interview).

The teachers liked the idea of students each having their own soldier, rather than groups of students working together on the one soldier. “It added to the value - each having a different soldier, especially when they talked at the end. They all had to get up and read a half page about their soldier ... and I think the kids really liked that because it gave them 20 different perspectives on the War” (Teacher 2, Interview).

The students acknowledged that they had worked with others but had not given it much thought as it happened seamlessly and was not structured into the task. “It was individual but if your mate was next to you and he was on the site you wanted to get on, you would ask for help. If you couldn’t read a word you would ask friends” (Student 4, Interview). “Oh yeah, when I was doing it I talked to friends. I learnt a little about their soldiers as well” (Student 2, Interview). “I shared my information with my parents and friends. I didn’t work with my friends but we helped each other. We talked and stuff” (Student 3, Interview). “They would help each other too. Once one had learnt what a symbol would mean, they would help those around them” (Teacher 1, Interview). ” I just talked to friends for help” (Student 2, Interview).

**7.3.2.3 Students enjoyed the challenge of using primary sources**

The teachers and students were amazed that the Internet could be used to access so many digitised primary source documents and that the personal records of all WW1 soldiers could be accessed. “I think it’s a fantastic resource (primary sources), but getting time to go and find them and learn about them first, as a non genuine History teacher it’s not something I’m aware of. I didn’t realise that that database existed with all those records and I thought it was fantastic” (Teacher 1, Interview).
The students liked the challenge of finding information on the original documents and finding out bits of the soldier’s personal lives. “I got to read the diary, and the dates saying what had happened that day, it was interesting. It was difficult reading some of the writing because it looked different and was faded” (Student 2, Interview). "It was good using primary sources; I could read the writing OK” (Student 1, Interview). “Primary sources gave you more of an insight of what they were like from their handwriting, such as if they were neat or educated. I think mine was educated” (Student 2, Interview). “I have never used primary sources before this task. It was really interesting, like you could tell a lot from their handwriting alone so that was very cool” (Student 4, Interview).

The teachers thought that being able to use primary source documents was a great history learning experience for students. “The use of primary sources (in the task) is very strong. It is something they need a strong understanding of and it is assessed regularly in school certificate exams and internal school examinations, so the opportunity to use a primary source and be able to recognise them as primary sources and review what primary sources are is very good” (Head Teacher, Interview).

7.3.2.4 Students do not always look at or read information on the computer screen carefully
Teacher 2 noted her continual frustration with students doing independent research. They would just click links but not read the computer screen, and then they needed the teacher’s support. “They would click on one the first time and another the next time and say “my soldier is not here”. That was probably the biggest one...They could see it was a link but didn’t read what the link was. And they wouldn’t know what to do and that was getting them to read the instructions and go back. ... Reading was a big thing. They would get a page up and they’d go “What do I do now? I clicked on it”... A lot of computer sites are just click but they had to read about what they were clicking, to find the information” (Teacher 2, Interview).

7.3.2.5 Students did not appear to find the background noise in class distracting
The classrooms tended to be noisy as a result of talking, active collaboration and sharing of information. This was not an issue for the teachers or the students as the noise was a consequence of active learning. “No, the classroom noise was not a
distraction. A silent classroom isn’t always a good classroom. They were busy. If they’re talking about the topic they’re sharing knowledge. It was a comfortable classroom” (Teacher 2, Interview). “It was pretty noisy in our class. It wasn’t too distracting” (Student 4, Interview). “No, the noise was not distracting. I was concentrating but it was probably noisy” (Student 1, Interview). “Sometimes it was good to just be able to block it out (the noise) but other times you wanted to go in the conversation and talk as well” (Student 3, Interview). “No, noise levels wouldn’t distract the students. I think they could work through anything” (Teacher 1, Interview).

7.3.3 How teachers facilitate a complex and sustained technology-based task (Research Question 3)

The following themes relate to the way that teachers facilitate the use of a complex and sustained technology-based task in their history classes and their perception of improved learning outcomes for students?

7.3.3.1 The teacher’s presence and assistance was crucial to student engagement

The contribution of the teacher in the classroom made a big difference in ensuring that students stayed engaged and completed the task successfully. “Yeah, he had to keep explaining in more detail what we had to do. And help us find our way through the database” (Student 2, Interview). “Yes (the teacher helped), once when we had to go onto the history archives for the first time. People were struggling with that so he put it up on the Smart Board so we could see how to search their names and get information” (Student 3, Interview). “I would make a point of being around the class and talk and not just talking to an individual student, but the 3 or 4 around them and we would have a chat about what they found out and what information they might find out next and where they would find it” (Teacher 1, Interview).

The teacher encouraged and motivated students through enthusiasm for the task and reminding students to stay focussed. “Well firstly it (presence of the teacher) keeps them on task when you are in the room. The ones who, when I was struggling with computers (computer access), and I would send half a dozen to other rooms, the amount they would get through in 40 minutes was not as much as those who were in the room with me, whether it was because they had problems and took longer to
figure them out or because they were more inclined to get a bit idle and chat to each other” (Teacher 1, Interview). “Yeah the presence of the teacher was helpful. He kept telling us about how to do it and helped us” (Student 2, Interview). “Yeah the teacher helped a lot” (Student 4, Interview).

The teacher moved around the room and assisted individuals and groups of students with problems and issues that they were having with their research. “And also because you (presence of the teacher) can clear little things up for them pretty quickly that it takes them a long time to work through or their friends to work them through” (Teacher 1, Interview). “I hope they would have got help from me” (Teacher 2, Interview). “Yeah, it was good to have someone there if you hit a dead end and needed help” (Student 4, Interview). “Students needed lots of help with basic reading of the writing” (Teacher 1, Interview).

Most of the students interviewed (one said that she completed the task entirely on her own without help) acknowledged that the help that they had received from the teacher was crucial in them completing the task. “No I could not have completed the task on my own” (Student 3, Interview). “No, I don’t think I could have completed this task on my own because it was a big task and we didn’t really know what to do until it was explained to us. Both teacher and friends were important” (Student 2, Interview). “Just getting started is hardest and needed the most help from the teacher” (Student 4, Interview). “The most help was with scanning through the archives because he was better at reading the writing and there were a lot of words we couldn’t understand and he helped us with them” (Student 3, Interview).

7.3.3.2 The scaffold was an essential part of the activity and assisted student involvement and independent learning

The scaffold was essential for students to transition to being independent researchers and independent learners. It provided them with a framework for identifying required information and a way to arrange it in a logical sequence. “The students struggle with independent learning, but it (the scaffold) gave them the structure to independently learn with a teacher with them. They all panicked a bit (at the beginning), but they do with any new topic. But once they realised they could follow the steps they got confidence in themselves so they didn’t need my help anymore. It gave them the
scaffolding, I suppose, for individual learners to go off on their own” (Teacher 2, Interview). “The scaffold was good, it gets them started and it gives everyone something they can do” (Teacher 1, Interview).

The scaffold was regarded by students as being essential to them completing the task. “The scaffold was useful because you knew what to find out. I did it step by step. It was the first thing I did. It wasn’t really that tricky. It showed you what information to find” (Student 2, Interview). “Yeah it was good. Probably couldn’t have done it without the scaffold because I wouldn’t have known what to find or anything” (Students 3, Interview). “Yes. Like again it (scaffold) helped them do that bit more independent learning rather than hold hand, spoon fed learning. They learnt to research properly and well and work at their own pace” (Teacher 2, Interview).

7.3.3.3 Teacher planning was crucial to facilitate and sustain the use of a complex and prolonged technology-based task

A considerable amount of planning and preparation was needed to successfully deliver a complex technology-based task occupying over 2 weeks of lessons. This planning mostly involved Teacher 1 as he was, as the teacher of the top class, given responsibility for this common (to all classes) faculty assessment task. The task had to meet faculty timing and Head Teacher expectations, involved consultation with other teachers, familiarisation with the task, and delivery of the task to students.

Faculty

The task was introduced prior to Anzac Day and about “half way through the WW1 topic so students have some knowledge of why we went to war and our involvement in the War” (Head Teacher, Interview).

The Head Teacher had particular expectations of how the task should be delivered to students. “I expect a preamble by the teacher to make sure that the students know what they are undertaking and the direction their task will go. And I would expect them to also give knowledge of how to access and work through the program. Also written documentation of the outline of the task would be provided. And even the
marking scale could be provided at that time so students know what criteria they are being assessed on” (Head Teacher, Interview).

The Head Teacher took responsibility for facilitating the task in his faculty. The task had been changed slightly as it had been incorporated as a part of formal assessment and it had a writing task as well as an oral task. “We have developed appropriate marking scales to go with that. I have overseen the actual tasks and the marking scales that have been developed. So this year Teacher 1 in particular did quite a bit of the work, with consultation with me” (Head Teacher, Interview).

Consultation
Teacher 1 had not previously taught a Year 9 History class or used the task before. He needed to work with other teachers and use their experience and the information previously documented about the task to develop the description and prepare to deliver the task to his class. “Well, I got as much information as I could from those who’d done it, so David had done it and Phil had had a little bit of a look at it and it gave me ideas that had worked for them and how easily it had run and that was about it” (Teacher 1, Interview).

Familiarisation
The teachers were expected to fully familiarise themselves with the task before they gave it to the students. According to the Head Teacher “You shouldn’t be asking students to do things that you don’t feel reasonably confident with, and therefore I’d expect like with any task there should be a degree of pre-preparation done by the teacher to ensure that they can access sites and follow links and give student direction as to how to achieve that” (Head Teacher, Interview).

Teacher 1 put considerable time and effort into preparing and becoming familiar with the task. “In preparation I went through the whole thing. I picked a name off the wall and worked through his whole war career and read all his records. I probably spent 4 hours here one Sunday poking through it. I didn’t go to the trouble of writing it all up but I probably should have and now I would have a report to give” (Teacher 1, Interview). This time spent in preparation had benefits in the classroom. “I think it
made it a lot more relevant and a lot easier for me having run through it myself. I knew exactly where everything was and what to expect. And it made it easier for me to say, well you found that, now if you look at this, that will help’’ (Teacher 1, Interview).

Teacher 2 also went through the task in preparation for delivery to students. She said “I went over it beforehand with another teacher that was teaching the same topic at the same time, and we went through it and questioned each other if we didn’t know how to use a part or needed clarification” (Teacher 2, Interview). However she was not as confident that she fully understood what the task entailed. She said that she did not understand what students had to do until they had started. “But that probably comes down to my inexperience as a teacher. If I had more time to look at it and go through it myself I would have been able to talk off the top of my head about it, but now I can do it for next time” (Teacher 2, Interview).

Teacher 1 could see value in even more preparation and in having a sample report to show students what they had to do. “Hindsight makes it easy. I think I would change the way I used it. I would have a completed individuals report for them to look at” (Teacher 1, Interview).

Delivery
Teacher 1 used his familiarity with the task in the first lesson to deliver an overview of the task to students. He not only described the task but demonstrated how to use the links on the notjustanameonawall website resource to find information to add to the scaffold. “The first time we did it we actually just went through a little bit online. I had a lesson in this room with the Smart Board so I could open it up and show them a few of the features and show them the website and read through the task. Then I showed them a little bit of the website and the database. I probably didn’t show them enough in hindsight, but we got there eventually” (Teacher 1, Interview).

The students were quite happy with the teacher’s introductory lesson and felt confident in attempting the task. “The teacher told us what to do. I think we had it on the board. He showed us on the Smart Board and he showed us how to get into the
site. He went through the process with us. He handed us a sheet and he had the stuff on the board and he was walking through how to do it and stuff on the board. Yes, the teacher was clear. He went through it all step by step then let us go on the computers” (Student 3, Interview). “Yes, the teacher was very clear. We did a lot of explanation in class beforehand and he (the teacher) got it up on the Smart Board and showed us. He showed us where to click etc and the whole process so we were very prepared” (Student 4, Interview).

Path of Least Resistance
The assessment task had particular appeal for Teacher 2 as it provided her with an achievable unit of work pre-prepared for her class. She was happy to use it as it saved her considerable preparation time. “Oh, I thought it was good because I didn’t have to make an assessment myself as a beginning new teacher. It was structured and framed to fit the syllabus perfectly. It was step by step to follow to work through with the kids and I didn’t have to make it up by myself” (Teacher 2, Interview). She thought that the task was easy to follow and it gave her time for classroom management. “I knew what I was doing and the kids knew what they were doing so I could concentrate on behaviour management and that sort of thing. And reinforce all the stuff that I had been teaching them beforehand” (Teacher 2, Interview).

7.3.3.4 It was important for students to have ready access to the task description
The documentation related to the task (assessment description and requirements, scaffold and marking rubric) was given in paper form to each student as was expected by the Head Teacher. It was also made available in a digital form in a server folder that could be accessed by each student. “I gave them what was expected and prepared by Teacher 1 (handout and scaffold). It was also put on the student resources file. The students were happy with that. They liked that a copy was kept in the students resources file so they could refer back to it if they lost their sheet” (Teacher 2, Interview).

The students found the task documentation useful and referred to it often so that they covered the assessment requirements. “The students definitely found the hand out useful. It gave them a starting point and a focus to work through so even the students who weren’t as strong with the task had something to achieve every day. This was a
print out of the assessment task and the scaffold and I used them together” (Teacher 1, Interview). “I referred to the teacher handout. Not every lesson, but most” (Student 3, Interview). “I use the teacher handout each lesson, just so I knew what I had to research” (Student 1, Interview).

7.3.3.5 Student access to working computers and resource websites was sometimes a problem

Both teachers noted that the things which most hindered students doing the task were problematic access to working computers and occasionally blocked access to websites such as the notjustanameonawall website resource. Students had to use computers and the Internet to complete the task. There were insufficient school computers for both Year 9 History classes, only enough for one class provided that students were spread between rooms. The top class had priority so that they could be finished before Anzac Day and the other class had to have access later. “We did get access to computers, but I did have to run around and book whatever computers were available in the school” (Teacher 1, Interview). The teachers also complained about the computers being slow. “Difficulties were mostly associated with the computers. Once they got the computer working they could find their soldiers pretty easy” (Teacher 1, Interview). “Time and the computers spoiled the task a bit. I had to cram it into them in the end. And when you have a lesson with a computer that only works for twenty minutes the students get pretty frustrated and disheartened” (Teacher 2, Interview). The DET seemed to sometimes randomly block access to websites. “One day the links didn’t work on the website but we got around that pretty quickly and it was blocked for a while but they sorted that out pretty quickly” (Teacher 1, Interview).

The students did not mention that they had had any issues with computers. A typical comment was: “I had access to computers nearly every lesson and I had one at home. It made it easier” (Student 2, Interview).

7.4 Refinement of Draft Design Principles

The themes that emerged from iteration 3 were sorted according to their relevance to the DDPs carried over from iteration 2. In some instances the themes were deemed to
be relevant to more than one DDP. The support for DDPs by themes is shown in Table 7.1. All the DDPs were supported by the themes from iteration 3.

<table>
<thead>
<tr>
<th>Draft Design Principles It 3</th>
<th>Supporting Themes</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Authentic activities with real-world relevance, and/or involving personal aspects of real people, lead to student engagement.</td>
<td>Remembering a real person from the local area was a powerful motivator as it gave the task real-world relevance. Associating the task with Anzac Day motivated students and gave it real-world relevance. Personal aspects of history provide empathy and connection, adding to motivation.</td>
<td>Supported</td>
</tr>
<tr>
<td>2. Authentic activities are complex, ill defined tasks requiring investigation over a significant period of time.</td>
<td>Each student worked on a different individual soldier’s story resulting in competing solutions and diversity of outcome. Students completed an ill-defined, complex and challenging task. Students were in charge of their own learning and worked independently on their own individual task.</td>
<td>Supported</td>
</tr>
<tr>
<td>3. “Authentic activities provide the opportunity for students to examine the task from different perspectives, using a variety of resources” (Reeves et al., 2002, p. 564).</td>
<td>Students enjoyed the challenge of using primary sources. Each student worked on a different individual soldier’s story resulting in competing solutions and diversity of outcome.</td>
<td>Supported</td>
</tr>
<tr>
<td>4. Authentic activities provide the opportunity to collaborate with others, even when working on individual tasks.</td>
<td>Students collaborated by sharing information and comparing the experiences of their individual soldiers.</td>
<td>Supported</td>
</tr>
<tr>
<td>5. “Authentic activities provide the opportunity to reflect” (Reeves et al., 2002, p. 564).</td>
<td>Students were able to reflect on the experiences of their soldier. Personal aspects of history provide empathy and connection, adding to motivation.</td>
<td>Supported</td>
</tr>
</tbody>
</table>
6. **Authentic tasks require students to employ a range of different skills.**

   Students applied a range of non-subject specific skills and were able to use what they had learnt in other subjects.

   **Supported**

7. "**Authentic activities create polished products valuable in their own right rather than as preparation for something else (Reeves et al., 2002, p. 564).**

   The students produced worthwhile, complete products.

   **Supported and changed to “Authentic activities create worthwhile, complete products.”**

8. "**Authentic activities are seamlessly integrated with assessment.** (Reeves et al., 2002, p. 564).

   The students were motivated to do well as the task was part of their subject assessment. The students produced worthwhile, complete products.

   **Supported**

9. "**Authentic activities allow competing solutions and diversity of outcome** (Reeves et al., 2002, p. 564).

   Each student worked on a different individual soldier’s story resulting in competing solutions and diversity of outcome. Students were in charge of their own learning and worked independently on their own individual task.

   **Supported**

10. **Students require structured and documented support to give clear direction to the task.**

    It was important for students to have ready access to the task description. Teacher planning was crucial to facilitate and sustain the use of a complex and prolonged technology-based task. A positive attitude at the beginning of the task helped student and teacher involvement. Student access to working computers and resource websites was sometimes a problem. The scaffold was an essential part of the activity and assisted student involvement and independent learning.

    **Supported and changed to “Authentic activities require structured and documented support.”**

11. **Access to in-time teacher support is crucial to student participation.**

    Students did not appear to find the background noise in class distracting. Students do not always look at or read information on the computer screen carefully.

    **Supported and changed to “Authentic activities require access to teacher support.”**
The teacher’s presence and assistance was crucial to student engagement.

7.4.1 Final design principles (DPs) at the conclusion of iteration 3

1. Authentic activities with real-world relevance, and/or involving personal aspects of real people, lead to student engagement.
2. Authentic activities are complex, ill defined tasks requiring investigation over a significant period of time.
3. “Authentic activities provide the opportunity for students to examine the task from different perspectives, using a variety of resources” (Reeves et al., 2002, p. 564).
4. Authentic activities provide the opportunity to collaborate with others, even when working on individual tasks.
5. “Authentic activities provide the opportunity to reflect” (Reeves et al., 2002, p. 564).
6. Authentic activities require students to employ a range of different skills.
7. Authentic activities create worthwhile, complete products.
8. “Authentic activities are seamlessly integrated with assessment” (Reeves et al., 2002, p. 564).
10. Authentic activities require structured and documented support.
11. Authentic activities require access to teacher support.

7.5 Conclusion

The practitioner initiated iteration 3 was a crucial test of the maturity of the solution and the DDPs on which it was based as it worked in a classroom situation as a part of the school curriculum unsupported by the researcher. Its success could be gauged from the effusively positive comments from the practitioners when interviewed at the conclusion of the activity. They were keen for the authentic task to become a regular part of the Year 9 History teaching program and continue to be used in subsequent years.
The practitioner initiated changes to the authentic task, listed in section 7.2.2 of this chapter, put the final polish to the activity making it usable in the classroom as an important assessment task. The practitioners when interviewed thought that the authentic task was very usable and saw no need for further major changes.

All of the DDPs from iteration 2 were strongly supported by the themes that emerged from iteration 3. DDPs 7, 10 and 11 had their wording refined to better reflect the themes.
Chapter 8: Discussion and Conclusion

8.1 Introduction

This study employed a design-based research (DBR) approach where the solution, an authentic task requiring students to utilise web site resource: Not Just a Name on a Wall, to research the story of a WW1 soldier, was employed in an Australian classroom to investigate a pedagogical process that would engage and motivate History students. The investigation looked at the design principles, student processes and the teacher’s role in the delivery and completion of a student-centred, technology-based, authentic task. The study had three iterative cycles of investigation over a period of three academic years at the same school with different classes and teachers being involved each year. This chapter describes the outcomes of this investigation, what was learnt about implementing an authentic task in a classroom setting; and how principles derived from this can be used to design activities to support teaching and learning and to engage and motivate students in the study of History.

This concluding chapter corresponds to Stage 4 of Design-based Research where reflection is used to propose practical, evidence-based principles that can be applied to future design experiments (Reeves, 2006). Although this research concluded with Phase 4 through the reflection processes further research is suggested. Figure 8-1 illustrates Stage 4 of this study.

Figure 8.1: Stage 4 of DBR Reflection to Produce Design Principles (Reeves, 2006)
This DBR approach started with a prototype design solution intended to motivate and engage students in the study of Australian History through a student-centred learning approach and the use of information and communication technologies. It was developed or derived using existing design principles and refined through critical examination of its use in the classroom through successive iterations.

The prototype solution developed using the draft design principles was a student-centred activity that linked local history to world history by requiring students to piece together the individual story of a World War One soldier from their local area using mainly online primary and secondary sources. The students were able to locate these sources through the links and help provided through the associated web resource (http://www.notjustanameonawall.com). This solution was significantly modified for iteration two as a result of the data collected during iteration one. It was further refined by teacher initiated changes prior to iteration three to fit with it being incorporated into the teaching curriculum as an assessment task.

Each of the iterations was conducted in a different academic year and involved different teacher practitioners and different cohorts of Year 9 History students. Each teaching practitioner brought their own particular style and approach to the activity. The features of each of the three successive iterations are summarised in Table 8.1.

<table>
<thead>
<tr>
<th>Feature</th>
<th>Iteration 1</th>
<th>Iteration 2</th>
<th>Iteration 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date and School Term implemented</td>
<td>Nov/Dec 2008 Term 4</td>
<td>Nov/Dec 2009 Term 4</td>
<td>Mar/Apr 2010 to finish before Anzac Day Term 1</td>
</tr>
<tr>
<td>Number of classes</td>
<td>1</td>
<td>1</td>
<td>2 (3 did the task but the 3rd class was not used)</td>
</tr>
<tr>
<td>No of students</td>
<td>27 students (17 female, 10 male)</td>
<td>29 students (19 female, 10 male)</td>
<td>1 Class – 25 students (13 female, 12 male) 2 Class – 19 students (9 female, 10 male)</td>
</tr>
<tr>
<td>Part of Curriculum</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Assessment Task</td>
<td>No – students initially told that it was</td>
<td>No – students initially told that it was</td>
<td>Yes – marks counted towards grades</td>
</tr>
<tr>
<td>Computer technology used</td>
<td>School lab computers</td>
<td>School lab computers and personal DER laptops</td>
<td>School lab computers and computers at home</td>
</tr>
<tr>
<td>Researcher involved – planning, classroom, observations</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Planning and implementation of intervention</td>
<td>Researcher and teacher</td>
<td>Researcher and teacher</td>
<td>Teachers only, serendipitous, researcher unaware that task was being run</td>
</tr>
<tr>
<td>-------------------------------------------</td>
<td>------------------------</td>
<td>------------------------</td>
<td>---------------------------------------------------------------------</td>
</tr>
<tr>
<td>Teacher Interview</td>
<td>Yes – partway through task, informal interview</td>
<td>Yes – one – Standard questions based on thesis questions</td>
<td>Yes – two classroom teachers – Standard questions based on thesis questions; and Head Teacher even though not directly involved in task.</td>
</tr>
<tr>
<td>Age and experience of teacher</td>
<td>Female 30–40 yrs experience</td>
<td>Male 2-3 yrs experience</td>
<td>Male and Female – both mature age teachers with 1-2 yrs experience</td>
</tr>
<tr>
<td>Information sheet handed out to students at start of task</td>
<td>No task given orally</td>
<td>Yes</td>
<td>Yes prescriptive as run as assessment task</td>
</tr>
<tr>
<td>Time of interviews – student and teacher</td>
<td>Teacher Part way through task and students group interview at end</td>
<td>All at end of task</td>
<td>All at end of task but some delay between finish of task and interviews due to holidays</td>
</tr>
<tr>
<td>Continuity of task</td>
<td>Run for all history lessons each week</td>
<td>Half the history lessons each week, gap in middle while students did yearly exams</td>
<td>One class task run continuously, other class used part of lessons each week on task.</td>
</tr>
<tr>
<td>Teacher preparation</td>
<td>Minimal relied on researcher in lessons</td>
<td>Minimal relied on researcher in lessons</td>
<td>Went through and simulated task before presenting to students. Researcher not involved</td>
</tr>
<tr>
<td>Student introduction</td>
<td>Verbal</td>
<td>Verbal and printed handout</td>
<td>Demonstration using IWB of task and links, printed handout with attached scaffold.</td>
</tr>
<tr>
<td>Availability of information sheets</td>
<td>No handout, scaffold available from website</td>
<td>Handout, scaffold available from website</td>
<td>Handout with scaffold, scaffold available from website, Handout, scaffold, marking scale, and links available on shared folder on server.</td>
</tr>
</tbody>
</table>

A major refinement of the prototype solution resulted from critical evaluation of the first iteration. The suitability of these changes was verified by the second and third iterations. The teachers further refined the activity for the third iteration as it was being used as an assessment task.

The study was conducted using qualitative methods within a design-based research framework. The main sources of data were classroom observations and post-activity
structured interviews with teachers and representative samples of students. The data collected was analysed using a constant comparative method to determine themes and issues related to the implemented solution. The themes derived from each iteration were compared to the draft design principles (existing design principles used in the development of the prototype) to show evidence to support or modify these or justify the construction of new design principles. The modifications to design principles were cumulative through successive iterations. These final design principles are discussed in a later section of this chapter.

The Design-based Research approach used in this study meant that there were both practical and scientific outcomes (van den Akker, 1999) as it was conducted in a real context (the classroom) in collaboration with practitioners (teachers) (Reeves, 2006). These outcomes consisted of: the solution (the authentic task with the associated website resource) which is still being used as a part of the teaching curriculum in the study school (and possibly other schools); design principles that have been derived, refined or verified through the research; and the identification of important aspects of tasks and classroom practice that contribute to student motivation and engagement in History study.

8.2 Key findings

8.2.1 Eleven Design Principles emerged

Eleven Design Principles emerged from this study. These provide a useful guide for educators when designing classroom-based, student-centred authentic activities. Table 8.2 illustrates the evolution of Design Principles over the three iterations commencing with the 12 guiding Draft Design Principles (DDPs) that were refined to the final 11 Design Principles that emerged after iteration 3. These final Design Principles are discussed below.

<table>
<thead>
<tr>
<th>Guiding DDPs</th>
<th>DDPs After Iteration 1</th>
<th>DDPs After Iteration 2</th>
<th>Final DPs After Iteration 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. “Authentic activities have real-world relevance” (Reeves et al., 2002, p. 564).</td>
<td>Authentic activities with real-world relevance, and involving personal aspects of real people, lead to student</td>
<td>Authentic activities with real-world relevance, and/or involving personal aspects of real people, lead to student</td>
<td>Authentic activities with real-world relevance, and/or involving personal aspects of real people, lead to student</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>---</td>
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<td>---</td>
<td>---</td>
</tr>
<tr>
<td>2.</td>
<td>“Authentic activities are ill-defined, requiring students to define the tasks and sub-tasks needed to complete the activity” (Reeves et al., 2002, p. 564).</td>
<td>Authentic activities are complex, ill-defined tasks requiring investigation over a significant period of time. (modified – combined with DDP3)</td>
<td>Authentic activities are complex, ill-defined tasks requiring investigation over a significant period of time. (supported)</td>
</tr>
<tr>
<td></td>
<td>“Authentic activities comprise complex tasks to be investigated by students over a sustained period of time” (Reeves et al., 2002, p. 564).</td>
<td>Deleted and integrated with DDP2</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>“Authentic activities provide the opportunity for students to examine the task from different perspectives, using a variety of resources” (Reeves et al., 2002, p. 564).</td>
<td>“Authentic activities provide the opportunity for students to examine the task from different perspectives, using a variety of resources” (Reeves et al., 2002, p. 564). (Supported)</td>
<td>“Authentic activities provide the opportunity for students to examine the task from different perspectives, using a variety of resources” (Reeves et al., 2002, p. 564). (Supported)</td>
</tr>
<tr>
<td>4.</td>
<td>“Authentic activities provide the opportunity to collaborate” (Reeves et al., 2002, p. 564).</td>
<td>Authentic activities provide the opportunity to collaborate with others, even when working on individual tasks. (Modified)</td>
<td>Authentic activities provide the opportunity to collaborate with others, even when working on individual tasks. (Supported)</td>
</tr>
<tr>
<td>5.</td>
<td>“Authentic activities provide the opportunity to reflect” (Reeves et al., 2002, p. 564).</td>
<td>“Authentic activities provide the opportunity to reflect” (Reeves et al., 2002, p. 564). (Supported)</td>
<td>“Authentic activities provide the opportunity to reflect” (Reeves et al., 2002, p. 564). (Supported)</td>
</tr>
<tr>
<td>6.</td>
<td>“Authentic activities can be integrated and applied across different subject areas and lead beyond domain-specific outcomes” (Reeves et al., 2002, p. 564).</td>
<td>Authentic activities require students to employ a range of different skills. (Modified)</td>
<td>Authentic activities require students to employ a range of different skills. (Supported)</td>
</tr>
<tr>
<td>7.</td>
<td>“Authentic activities are seamlessly integrated with assessment” (Reeves et al., 2002, p. 564).</td>
<td>Not applicable</td>
<td>Not applicable</td>
</tr>
<tr>
<td></td>
<td>“Authentic activities create polished products valuable in their own right rather than as preparation for something else” (Reeves et al., 2002, p. 564).</td>
<td>“Authentic activities create polished products valuable in their own right rather than as preparation for something else” (Reeves et al., 2002, p. 564).</td>
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</tr>
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<td>---</td>
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</tr>
<tr>
<td>9.</td>
<td>“Coaching and scaffolding ... principally by the teacher” (Herrington, 2006, p. 2)</td>
<td>Students require structured and documented support to give clear direction to the activities. (Modified)</td>
<td>Students require structured and documented support to give clear direction to the activities. (Supported)</td>
</tr>
<tr>
<td>10.</td>
<td>“Access to expert performances and the modelling of processes” (Herrington, 2006, p. 2)</td>
<td>Access to in-time teacher support is crucial to student participation. (Modified)</td>
<td>Access to in-time teacher support is crucial to student participation. (Supported)</td>
</tr>
<tr>
<td>11.</td>
<td>DP1: Authentic activities with real-world relevance, and/or involving personal aspects of real people, lead to student engagement. Students in all three iterations were engaged by completing an activity that had real-world meaning and relevance. They felt that they were doing something important for the community to remember the Anzacs; they gained a connection with their soldier as they were finding out about real people from their local community; they were fascinated with all the personal details they could find out about their real people; and they were working independently in a real-world task as an historian.</td>
<td>DP2: Authentic activities are complex, ill-defined tasks requiring investigation over a significant period of time. The activity was challenging for students and required a number of distinct, connected steps where students had to make their own choices in the process of completing the activity. The complex, ill-defined nature was an essential quality of the activity as each student worked on a different, original soldier’s story, acting as an historian and going back to the original primary sources. No two stories or sources</td>
<td></td>
</tr>
</tbody>
</table>
of information were the same. This meant that the activity required application over a significant period of time: to adapt to a new style of independent learning; to complete complex research; to identify relevant information from the sources and to sequence this in an original story. The optimum length of the activity appeared to be approximately two to three weeks or around 12 x 40 minute lessons of school time with independent work completed out of school. This gave sufficient time for students to complete the activity without the task dragging on for too long.

**DP3:** “Authentic activities provide the opportunity for students to examine the task from different perspectives, using a variety of resources” (Reeves et al., 2002, p. 564).

This design principle first expressed by Reeves et al. (2002) was an essential quality of the activity, was verified by the study and remained with its original wording. Each student was encouraged to use a range of primary and secondary sources in finding out about their soldier’s story. The viewpoint that emerged from this original research often differed from that given in textbooks e.g. they were surprised by the number of illnesses experienced by the soldiers. The nature of the activity also meant that a large number of different sources were used by the class of students and each student gained a different perspective of the War experience from the viewpoint of their soldier and his family. These perspectives were shared amongst other students both informally through student discussions and formally through presentations.

**DP4:** Authentic activities provide the opportunity to collaborate with others, even when working on individual tasks.

The high degree of student collaboration was an unexpected feature of all three iterations. It was unexpected as, on the surface, the activity appeared to be one where the students would work alone as they had their own soldier and were expected to independently complete their own research. However, this was consistently not the case as the students worked together in the classroom, helping each other and sharing with anyone listening, snippets of information about their soldier. The students viewed the activity as one where they collaborated with their friends and the rest of the class resulting in a consistently noisy classroom with many students talking at once. Students enjoyed the collaboration and it both motivated and encouraged them.
The study showed that students could and would work constructively together in unexpected ways while working independently on their own task.

**DP5: “Authentic activities provide the opportunity to reflect” (Reeves et al., 2002, p. 564).**

This design principle from Reeves et al. (2002) was verified in its original form by the research. The reflection was a consequence of the time spent on the task and the personal nature of much of the primary source material. The students took ownership of their own soldier and were able to empathise with his experiences and that of his family. This was displayed through informal discussions with friends (such as one student saying that their soldier could have been a class mate) and interviews, rather than written down as part of their story. They found it difficult to express their thoughts and feelings in a written form as part of their story.

**DP6: Authentic activities require students to employ a range of different skills.**

The use of different skills by students was an essential part of the complexity of the activity and in using the skills of an historian in an authentic activity. Students had to work independently using technology, locate and analyse primary and secondary sources, collate their findings and present it to the teacher and/or the class as a worthwhile product.

**DP7: “Authentic activities are seamlessly integrated with assessment” (Reeves et al., 2002, p. 564).**

This design principle was affirmed in the third iteration, where the activity was actually used as a genuine assessment task and a part of the school curriculum. Students were motivated by this as there was an academic purpose and importance to the activity and it was essential for them to perform as well as possible to enhance their grade in History. The first two iterations could only use the activity as a simulated assessment as the activity was not then a component in the school curriculum. Nevertheless some students were still motivated to do well in this even though it was just a simulated assessment.

**DP8: Authentic activities create worthwhile, complete products.**
This design principle was changed from ‘polished’ products to ‘worthwhile, complete’ products. The products that students came up with at the conclusion of the task may not have necessarily been polished but they were worthwhile and represented the culmination of their effort and skills in completing the task. It was important for students to finish with a product as it concluded or finished the task, gave them a way to share their story with others, gave them something to show for their effort and to take pride in; and where the task was an assessment task something concrete for the teacher to base the marks on.

DP9: “Authentic activities allow competing solutions and diversity of outcome” (Reeves et al., 2002, p. 564). This design principle was affirmed as competing solutions and diversity of outcomes were a natural consequence of the task. These had to result as each student was in effect doing a different task as they were finding out about a different soldier using different source material. Both teachers and students liked this as students had to work independently, could not borrow other’s work, and did not compete for the same source material. The marking rubric prepared by the teacher (iteration 3) and given to the students reflected this expected diversity of outcome.

DP10: Authentic activities require structured and documented support. The students in all iterations required clear guidelines on what they were expected to do and achieve. This was provided in the third iteration through printed documents handed out to students, and also made available in a digital form on the school network; and clear instruction and direction by the teacher at the introduction to the activity, taking students step by step through the activity. The structured and documented support included the website resource with a sequence of links and instructions to access online primary and secondary sources; and the scaffold available in both a printed and digital form (Word document). The scaffold provided crucial support as it gave a guide to the information that students should look for and a way to sequence the information to create a story. The scaffold was sequenced so that the first bits of information were easy to locate giving early success; with progressively more challenging sections as the student continued with the research. This design principle was extremely important for the success of the activity as each
cohort of students had not completed an activity like this before; everything was new to them and they needed support to give them confidence to independently attempt the student-centred activity.

**DP11: Authentic activities require teacher support.**
In student-centred activities the teacher’s role is seen as that of a facilitator with the students working independently. This is not a minor or unimportant role, as in all three iterations the role of the teacher in influencing and supporting students was crucial to their engagement and completion of the task. The teacher’s influence on student interest and engagement began with the enthusiastic introduction of the activity and their use of novelty or the ‘hook’ of the Remembrance theme to ‘draw in’ students. This influence was clearly evident in the first and third iterations where students felt that they were doing something of importance for the community and the Anzacs. The teacher should be familiar with the task in order to explain clearly what students needed to do to complete it. Classes were more on task where the teacher reintroduced expectations and settled students at the beginning of each lesson. The teacher in all iterations and every lesson needed to continually move around the classroom enthusiastically encouraging students, sharing in their discoveries, and helping with sections that they did not understand or know how to do. This individual support was most required in the first few lessons as the students familiarised with this (for them) new and novel way of learning.

8.2.2 DPs focused on motivating and engaging students

**The first research question was:**

*What are the critical principles applicable to the design of a technology-based authentic task, which will interest motivate and engage students in the study of Australian History?*

Of the final eleven design principles, seven design principles directly contributed to student interest, motivation and engagement in the study of Australian History and should be considered in the design of technology-based authentic tasks. These seven
design principles are inter-related and inter-dependent and are presented below in order of importance:

DP1 - Authentic activities with real-world relevance, and/or involving personal aspects of real people, lead to student engagement.

DP10 - Authentic activities require structured and documented support.

DP11 - Authentic activities require access to teacher support.

DP8 - Authentic activities create worthwhile, complete products.

DP7 - “Authentic activities are seamlessly integrated with assessment” (Reeves et al., 2002, p. 564).

DP9 - “Authentic activities allow competing solutions and diversity of outcome” (Reeves et al., 2002, p. 564).

DP2 - Authentic activities are complex, ill-defined tasks requiring investigation over a significant period of time.

Real relevance and the personal aspects of real people (DP1) were the most powerful motivators in engaging students in the study of History. There was overwhelming support for DP1 in all three iterations. This was the ‘hook’ (as described by the teacher in iteration 1) that engaged the students and kept them engaged throughout the task. The real world relevance had different aspects, which together or alone provided strong motivation and drew student in and engaged them in the activity. These were:

1. The Remembrance Theme: where the students felt by doing the authentic activity that they were doing something important for the community and for past servicemen which transcended the learning value of the activity. As one teacher from iteration 3, not so eloquently described it “Students are happy to do something if they know it is for something.” This was most apparent in iteration 1 where a student felt compelled to place virtual flowers on a grave and in iteration 3 where the students prepared talks to give to school Anzac Day assemblies to commemorate the Anzacs.

2. The local connection: where the student investigated a real soldier that had come from their family or local community. The soldier became more real as the student was familiar with where they had lived; there may be living relatives in the community and the student could relate to or imagine their local experiences. It brought the personal dimension to the War experience as students could see that the
soldiers were just ordinary people. It brought realism to the task as they could imagine that they could have been one of the soldiers if they had lived in a different time.

3. *The novelty* of being possibly one of the few people to look through the personal documents (primary sources) and see into the sometimes very personal life of a real person. They were able to discover new and fascinating details about the soldier’s experience.

4. *The feeling of ownership of their soldier* as each student had a different soldier. Students could share information that no other student had as that discovery belonged to their soldier.

5. *The fascination with the personal features and attributes of their soldier.* These personal features such as height, weight, eye colour, hair colour and family details enabled the students to visualise the soldier and compare him to members of their class. The features humanised the soldier and enabled the student to relate to and empathise with the soldier.

6. *Authentically working individually as an historian doing original research.* This made the task unusual as the students noticed that it was different to the work that they would normally do in History classes.

The provision of support (DP10 and DP11) to assist the students to complete the activity was critical to motivation and commitment. The students when first given the activity were excited but concerned about how they could complete the activity as it was really different to the class work they were familiar with. The structured and documented support gave the students the confidence to work independently in a student-centred research activity. They could see how they could accomplish what was expected of them.

The most crucial written supports (DP10) were the scaffold (Word document) and the links on the website resource research page. The scaffold was considered by students to be their most important document. It reassured them and gave a complex task an order that could they understand and use to make sense of the array of information in the primary sources. They relied on and used the scaffold in every lesson. A number of students expressed that they could not have completed the task
without the support of the scaffold. The website resource links assisted students to quickly achieve success in finding the personal documents and other resources relevant to their soldier, reducing student frustration and making the ‘path of least resistance’ work towards the success of the activity.

Most students at some stage of the task were dependent on individual assistance from either the teacher or classmates (DP11). Significant numbers of students at some time either did not understand instructions, or did not read the web page, or could not read the handwritten script or simply needed some reassurance. It was important to sort out their issues quickly so that they did not become frustrated, go off task and become a distraction to other students. The presence, assistance and enthusiastic encouragement from the teacher were particularly important in the first few lessons of the activity.

The expectation of the completion of a worthwhile, complete end product (DP8) was a significant student motivator. It gave students a purpose or reason for their effort and an endpoint to aim for. It provided them with a way to document and demonstrate their research effort, share their findings with others and be recognised for their achievements. The product concluded the task or activity. This was shown clearly in iterations one and three where the students all finished with a product to demonstrate their work effort. Iteration two did not have a definite endpoint as the students were not required to finish with a complete product due to the end of the academic year.

The integration of assessment (DP7) provided an extra level of extrinsic student motivation as students were keen to complete the activity to satisfy assessment requirements and achieve good grades. When the activity was integrated with assessment it also provided a purpose or reason for the activity; verification by the teacher of the work effort and achievement of the student; and a formalised way to provide feedback to each student. Assessment was a strong motivator for some students. This was clearly seen in iteration three where the activity was used as an assessment task.
The inherent completing solutions and diversity of outcome (DP9) in the way the activity was structured in each of the iterations, where each student researched a different individual soldier, appeared to engage and motivate the students. Each student’s work had value as it was different to that of other students, they were not competing with each other for the same information and could individually express their differences. The students valued the opportunity to work independently and take ownership of their soldier. Each student could make a valuable contribution to the overall class picture of the War experience.

The activity required student effort and engagement over a significant period of time as the activity was complex and ill-defined (DP2). It could not be completed in just a few lessons. The students were allocated sufficient time to work through a challenging task. This gave time to become immersed in the activity, solving problems, developing empathy and intellectual interest and being able to produce a worthwhile end product.

8.2.3 DPs focused on processes students engage in to complete an authentic task

The second research question was:

*What processes do students engage in when completing an authentic historical task using a technology-based learning resource?*

Four of the eleven design principles that emerged from this study relate to the processes that students engage in when completing an authentic historical task using a technology-based learning resource. These processes allowed students to achieve and demonstrate key syllabus competencies. The four design principles in order of dominance in the study are:

DP4 - Authentic activities provide the opportunity to collaborate with others, even when working on individual tasks.

DP5 - “Authentic activities provide the opportunity to reflect” (Reeves et al., 2002, p. 564).
DP3 - “Authentic activities provide the opportunity for students to examine the task from different perspectives, using a variety of resources” (Reeves et al., 2002, p. 564).

DP6 - Authentic tasks require students to employ a range of different skills.

An outstanding feature of all three iterations was the high degree of student collaboration (DP4) and the consequential noisy but actively working classrooms. The students did not have to work together as the activity expected individual effort. However, the students (in each classroom, in all iterations) worked together by helping each other, sharing stories, sharing the excitement of new discoveries and perhaps unintentionally motivating each other to find out more about their soldiers. The collaboration appeared to be a natural consequence of the non-competitive nature of the task (as each student had a different soldier) and the relaxed atmosphere with students working together in the classroom. Not all the banter and conversation in the classroom related to the activity and all teachers had a liberal attitude to classroom noise.

The consistent student collaboration observed in this study demonstrated that students can and will work together while completing an independent activity. The students were not and did not have to be separated into artificial groups in order to collaborate. Although in some classrooms separating students into groups may be desirable for class management. Some students (iteration 2) noted their appreciation in not being part of a group as others could not copy their work, they were not expected to perform all the work (of the group) and they were recognised for the work they had actually completed themselves. Conversely, other students were initially confused and challenged as they could not rely on another student to lead, show them what to do, or to complete the majority of the work, they had to actually carry out the activity themselves. The activity enabled students to demonstrate the syllabus broad learning outcome “work collaboratively with others to achieve individual and collective goals” (Board of Studies, 2003, p. 5)

Most students in all iterations appeared to reflect (DP5) to varying degrees on the individual experiences of their soldier and the soldier’s family. They had time during
the activity to develop a connection with their individual soldier. Students had to reflect to understand the significance of the primary sources and developed empathy with their soldier’s experience. Some students were affected by reading family letters and others when they realised that multiple members of the same family were negatively affected by the war. One student from iteration 1 claimed that she would never forget her soldier. Through this method of historical inquiry “Students learn to identify and empathise with the varying perspectives of individuals and groups throughout history” (Board of Studies, 2003, p. 18)

The activity enabled students to examine a period of history (WW1) from the perspectives of Australian soldiers from their local area (DP3) using primary sources accessed through an online database. A variety of resources (DP3) were used by each class as every student researched a different soldier. The students were able to achieve the ‘Working Historically’ key syllabus competencies for this unit of work. The historical skills enabled by the activity and accomplished by the students included: sequencing events; identifying perspectives of different individuals and groups; interpreting history within the context of past people; identifying, comprehending and using historical sources; using text forms to communicate effectively about the past; and ICT skills of identifying, comprehending and using historical sources, including a database/website, as part of a historical inquiry (Board of Studies, 2003, p. 32).

Students accomplished a range of skills in order to complete the authentic task as they were required to play the part of an historian, and employ skills appropriate to the work of an historian (DP6). The skills were an essential component of the authentic activity and each student was required to achieve these as they were for the most part working independently. The activity enabled students to achieve all the Stage 5 key competencies outlined in the History Years 7–10 Syllabus (Board of Studies, 2003, p. 19). These “reflect core processes of historical inquiry and are explicit in the objectives and outcomes of the syllabus”. They are: “collecting, analysing and organising information ..., communicating ideas and information ..., planning and organising activities ..., solving problems ..., using technology ...”
The skills required and practiced by students in accomplishing the activity also covered the literacy requirements of the *History Years 7–10 Syllabus* (Board of Studies, 2003, p. 19). The students utilised all the literacy skills relevant to Stage 5 Mandatory History. These include: “reading and comprehending historical texts, evaluating a range of sources and texts for the purposes of historical inquiry, using historical knowledge and understanding and relevant evidence to create appropriate historical texts, including ICT, for different audiences, and demonstrating an understanding of purpose for a variety of audiences”.

The achievement of syllabus requirements by students through the processes they engaged in while completing the historical activity was instrumental in the school used in this research adopting the activity into their teaching curriculum for all Year 9 History students. According to the Head Teacher HSIE (Interview iteration 3) the authentic activity was incorporated into the curriculum as: “we wanted to be able to give our history a local accent...; we saw how it related to the syllabus...; it satisfies a lot of the ICT skills our faculty are also required to undertake.” He stated that “The bonus is having kids engaged both in work which is relevant to them – and they see that relevance through the fact it’s a local person they’re investigating and it has raised the profile also as a side benefit of Anzac day.”

**8.2.4 DPs focused on teacher facilitation of an authentic task**

The third research question was:

*How do teachers facilitate the use of a complex and sustained technology-based task in their history classes and what is their perception of improved learning outcomes for students?*

The teacher has a crucial role in facilitating a complex and sustained technology-based task in history classes through relevant support materials, clear and detailed introductions at the beginning of the task and each lesson, and enthusiastic classroom support for students while they are carrying out the task. This role was recognised in two of the eleven design principles:
DP10 - Authentic activities require structured and documented support.
DP11 - Authentic activities require access to teacher support.

The value of thorough preparation, delivery and introduction of structured and documented support (DP10) was clearly shown in iteration 3 where the solution was used by the school as an assessment task. The teachers introduced the authentic activity with extensive classroom instructions and well prepared support materials. These included a task description and requirements, scaffold and marking rubric printed and online. The teachers both spent time familiarising themselves with the authentic activity in order to adequately introduce the activity to students and keep them on task at the beginning and throughout each lesson. One of the teachers in iteration 3 recommended that teachers complete the assessment task themselves before giving it to students so that they would have an example to demonstrate. The students made better use of support materials when the teachers had spent time going through them beforehand.

Students’ need for access to individual and group classroom support from the teacher (DP11) while completing the activity was apparent in all three iterations. The teachers were always busy, moving around as students put their hand up, answering questions and encouraging students. In iteration 1 the teacher’s enthusiastic encouragement sustained the task through initial difficulties, while in iteration 2 the demands on the teacher prompted him to ask students to put their hand up only after they had asked their friends for help.

All the teachers involved in the study were wholeheartedly vocal in their support for the value of the authentic activity in achieving syllabus outcomes. This was very apparent in the interviews with the two teachers from iteration 3. The teachers (interviewed separately) were very excited about the student engagement and the way that the task had allowed students to show achievement in so many syllabus outcomes. This response was genuine as the school has continued to use the authentic task each year with Year 9 History students.
8.3 Limitations of the study

The findings of this research provide strong support for the use of online, technology-based authentic tasks to interest, motivate and engage students in the study of Australian History. However, there were some limitations to the study.

The study focused on authentic activities as a means to engage and motivate students in the study of history and made no attempt to address other factors, models or theories that may be employed by teachers to motivate students. Thus further research is warranted to investigate the relationship between theories of motivation and the principles used to design and conduct authentic tasks.

The study was conducted over three years in just one relatively small school in Western NSW Australia with just one History Year group (Year 9). The attitude of students and staff to authentic tasks in History may have been peculiar to this situation and may not necessarily apply to other classes and other schools.

The topic chosen for the authentic task may have had a strong influence on the students’ positive responses to the study. The World War One topic may be one that the students already find interesting. However, in iterations 1 and 2, the students had already covered this topic earlier in the year and were still engaged in the authentic task. Some student interview comments compared the two approaches indicating that they preferred the authentic task approach as it was more relevant.

The data collected for this study focused on classroom observations and the perceptions of teachers and students. There was no detailed analysis of assessment items or artefacts produced by the students to make a judgement on the quality of the ‘learning’ that had occurred. Future studies could quantitatively compare student work against assessment rubrics to assess whether perceptions of student performance match reality.

This was a qualitative study and made no attempt to objectively compare the use of authentic tasks against other pedagogies used to motivate and engage students. There
may well be other methodologies that may prove to be equally effective in motivating and engaging students in the study of History.

8.4 Further research

Further research is required to test the effectiveness of this particular study. This research could evaluate whether the Design Principles resulting from this study can be applied to authentic activities in other contexts such as other content areas of History, in other subjects, or with other year groups. It would also be interesting for research to evaluate the relative values of each of the DPs in contributing to student engagement, for example, would an activity still be effective if only three of the design principles were able to be utilised in the design?

8.5 Conclusion

This study has shown that authentic tasks do motivate and engage students when learning about Australian History. The motivation and engagement of students was consistent across all three interventions (the implementations of the authentic activity in the classroom) despite the differing circumstances applying in each classroom situation. Eleven Design Principles to guide educators in planning authentic activities were derived from this research. These principles for the most part verify the applicability of the ten design characteristics of authentic activities identified from literature by Reeves, Herrington & Oliver (2002, p. 3). The Design Principles that appeared to have the greatest influence on student engagement were DP1, DP7, DP10 and DP11. Students responded and stayed engaged when the authentic activity had real-world relevance involving personal aspects of real people (DP1), allowed them to collaborate by choice with other students (DP7); and was supported by documentation (the scaffold and web resource) (DP10) and the active involvement of the teacher in the classroom (DP11).

Whilst future research is suggested to focus on testing the eleven Design Principles arising from this study with authentic activities in different educational situations, there have been immediate and ongoing practical benefits deriving from this DBR study to the school involved and the wider educational community. Such benefits include:
• The solution (authentic task and supporting web resource) developed from the study can potentially be used by History students around Australia as an authentic activity. The initial prototype was modified refined and matured through the classroom testing process of the three iterations and shown to work effectively with History students. As the solution (web resource with sample authentic task and supporting documents) is available online and can be accessed through the website www.notjustanameonawall.com it can be used by any teacher. Website traffic statistics (see Figures 8.2 and 8.3) indicate that it is currently being extensively used and possibly by more schools than the study school.

• A new and novel approach to studying History was experienced by teachers and students at the study school. Students commented that they had not previously been involved with an activity like this. The success of this may encourage those teachers involved to utilise a more student-centred and independent learning approach utilising technology in other topics and other subject areas.

• An ongoing change to the teaching curriculum for Year 9 History students at the study school so that every student experiences at least one student-centred authentic assessment activity.

• The promotion of this authentic task by History teachers from the study school to other teachers at meetings and conferences. The researcher has been informed of this by teachers at the school.

• The product developed from this study as a significant component of the design-based research process has already made and continues to make a significant contribution to change in the pedagogy of teaching History. It has given students and teachers an authentic student-centred activity through its adoption by schools and its use in the classroom.
The product as used in iteration 3 has from 2010 until the present, been accepted as an important component of the Year 9 History teaching curriculum and assessment schedule at the study school. This research has resulted in the study school making full use of a student-centred, independent learning, authentic task which encouraged students to act as historians to uncover an important part of Australia’s history. The HSIE faculty at the school has taken ownership of the product and promoted its use to other schools.

The hosting server of the website resource [http://www.notjustanameonawall.com](http://www.notjustanameonawall.com) collects usage statistics for the website resource. These statistics for both 2012 and 2013 (see Figures 8.2 and 8.3) show significant ongoing traffic throughout the year; indicating possible use of the website resource by a number of schools and students. As the website resource supports authentic activities and has downloadable samples, it is likely to have made a contribution to the use of authentic tasks and student-centred learning in schools other than the study school. Figures 8.2 and 8.3 show that the website usage peaks around March/April and September/October corresponding with the two significant events associated with World War 1 in Australia – Anzac Day 25th April and Armistice Day 11th November. This indicates that schools are likely to have associated a student activity around these events.
Detailed usage statistics are also available for each month and indicate deliberate rather than random use, most likely by students and teachers. For example, in March, April, May and October, the periods of greatest activity, the most popular search strings (used in search engines to find the site) were the phrases ‘not just a name on a wall’, ‘not just an name on the wall’ and ‘not just another name on a wall’. This shows that users were deliberately looking for the site and activity. The most popular pages were the home page, research page and task page in that order. All of these statistics provide evidence of the ongoing classroom use of the authentic activity in schools, as the web site includes instructions on how to implement the activity with the scaffold, and a sample assessment task with an assessment rubric.

In summary, this study has shown how middle-school (Year 9) history students can be motivated and engaged through a student-centred authentic task which required them to use online primary and secondary sources to tell the individual story of a World War 1 soldier. It also resulted in the development or refinement of 11 design principles which can be used by educators to design and develop their own engaging and motivating authentic tasks. A practical product derived from this research was an online website resource (www.notjustanameonawall.com) which continues to be used by schools and students in their pedagogical approach to teaching Australian history.
REFERENCES


Donnelly, K. (2007a, August 4-5). Education's terminal affliction. The Weekend Australian, p. 25,

Donnelly, K. (2007b, 13-14 October). Raking over the past. The Weekend Australian, p. 24,


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APPENDIX A: Original Prototype Solution

This is a portion of the original assessment task first used by the researcher in 2000 and subsequent years with senior students. It illustrates the concept of using technology and digitised primary and secondary sources to discover the story of a WW1 soldier from the student’s local area.

Information Processes and Technology

Preliminary Assessment 1 “Not Just a Name on a Wall” 2004

Due Date Friday 26th March 2004

Value 20%

Project Outcomes

This assessment task will allow students to show evidence of having achieved the following Preliminary Outcomes: P1.1, P1.2, P2.1, P2.2, P3.1, P5.1, P7.1

Introduction: In every village, town and city around Australia there are memorials to remember those who served Australia in times of War. These memorials have impersonal lists of names that have become unfamiliar with the passing generations. For example, the Coonabarabran Clock Tower has 256 names of soldiers from this district that served in World War I. Each ANZAC Day many go to the March and service at the Clock Tower, but very few would know anything about the people represented by the names.

Task:

As part of your studies, and as a community service, you are to collect information on one soldier whose name is on the Clock Tower (and has not been previously researched). You will individually use information technology to organise, store and display your findings to personalise the names.

To accomplish this you will:

- Plan how you will use your time with a Gantt chart. (Teacher to check)
- Collect information (using internet databases and literature searches) in note form sufficient to construct a probable story of the soldier,
- Input your information using at least two devices including keyboard and scanner and at least three software applications,
- Organise and display your information on a web page consistent with the Clock tower site so that the story of the soldier is clearly told, mostly using your own words.
- Acknowledge the sources for your information.
- Detail what you did for each of the steps in the system development cycle
- List the social and ethical issues associated with this task.
- List in detail the information processes you used to complete this task.
- Use the scaffolds provided where appropriate.
- Present your work in a portfolio folder.
APPENDIX B: UOW Ethics Approval

RENEWAL AND AMENDMENT APPROVAL
In reply please quote: HE08/152
Further Enquiries Phone: 4221 4437

8 October 2009

Mr Peter Morrissey
PO Box 428
Coonabarabran
NSW 2357

Dear Mr Morrissey,

I am pleased to advise that the renewal and amendment request dated 17 September 2009 to the following Human Research Ethics application has been approved. The University of Wollongong/SE Sydney and Illawarra Area Health Service Humanities, Social Science and Behavioural HREC is constituted and functions in accordance with the NHMRC National Statement on Ethical Conduct in Human Research.

Ethics Number: HE08/152

Project Title: An investigation into the use of authentic tasks to promote student engagement in the learning of Australian history.

Name of Researchers: Mr Peter Morrissey, A/Professor Shirley Agostinho, Professor Barry Harper, A/Professor Janice Herrington

Amendment/s: Change of principal supervisor from A/Professor Jan Herrington to A/Professor Shirley Agostinho and Professor Barry Harper.

Amendment Approval Date: 23 September 2009

Expiry Date: 13 August 2010

Please remember that in addition to reporting proposed changes to your research protocol the HREC requires that researchers immediately report:
• serious or unexpected adverse effects on participants
• unforseen events that might affect continued ethical acceptability of the project.

You are also required to complete monitoring reports annually and at the end of your project. These reports are sent out approximately 6 weeks prior to the date your ethics approval expires. The reports must be completed, signed by the appropriate Head of School, and returned to the Research Services Office prior to the expiry date.

Yours sincerely

A/Professor Steven Roofeys
Chair, Human Research Ethics Committee

Cc: A/Professor Shirley Agostinho, Faculty of Education
    Professor Barry Harper, Faculty of Education
## APPENDIX C: Table showing the process of identifying changes to be made to the prototype as a result of iteration one

<table>
<thead>
<tr>
<th>Data Suggesting Design Changes</th>
<th>Implications for Next Iteration</th>
<th>DDP and Suggested Change to Prototype</th>
</tr>
</thead>
<tbody>
<tr>
<td>In preplanning teacher said that the task needed some kind of ‘hook’ (her words) to draw in the students and create interest and motivation for them to complete the task. She would do this in other tasks through such strategies as: assessment, or diary making or model making or posters or similar.(observation)</td>
<td>Each task or student activity should have a reason or activity to motivate students. The theme of Remembrance generated a strong response from students and this should be continued.</td>
<td>“Authentic tasks have real-world relevance”. This theme should be included in the Introduction in the website and formal assessment documents given to the students. This should be reinforced by the teacher as the task is described to students in the introductory lesson.</td>
</tr>
<tr>
<td>Task was delivered verbally by the teacher and not assessed. (observation)</td>
<td>This was not ideal as the students were never quite sure what they are meant to do. Task should be given to students in a written form and form part of assessment.</td>
<td>“Authentic tasks are seamlessly integrated with assessment” The task should be described in written form and be part of their assessment.</td>
</tr>
<tr>
<td>Task was conducted at the end of the year after the formal assessment was finished, students were tired of school work, (observation)</td>
<td>The task should be given earlier and form part of their assessment.</td>
<td>“Authentic tasks are seamlessly integrated with assessment” Try to give students the task earlier in the year. It should be part of their assessment.</td>
</tr>
<tr>
<td>Initial confusion (students in 1st lesson) as to what they were expected to do and how they were to do it. (observation and notes, audio recording of lesson)</td>
<td>Planning and Preparation. The task description together with the web address of the resource and achievement expectations needs to be handed to students on a printed sheet prior to the task. The teacher should go through this sheet and the use of the website resource using an interactive whiteboard (or similar) so that students are clear as to what they are expected to do.</td>
<td>“Authentic tasks are seamlessly integrated with assessment” The task should be described in written form and be part of their assessment. Students should be made clear in the first lesson as to the scope and expectations of the task.</td>
</tr>
<tr>
<td>Full class access to computer lab and computers (not an issue with this iteration, but known by the researcher to be a common issue in schools)</td>
<td>Planning and Preparation. Make sure that computer rooms are available and booked for the task. Task may need to be spread over a time period and run in conjunction with another classroom activity.</td>
<td>“Coaching and scaffolding … principally by the teacher ” Teacher management issue Task run at a time of year when computers are available e.g. 4th term after yr 12 leave This may not be an issue once students have their personal laptops as part of the Digital Revolution?</td>
</tr>
<tr>
<td>Crucial Websites blocked (by DET) or temporarily unavailable with student access privileges.</td>
<td>Planning and Preparation. Check prior to task using a student password and take</td>
<td>“Coaching and scaffolding … principally by the teacher ” Need to check prior to the start of</td>
</tr>
<tr>
<td>Website resource – <a href="http://www.notjustanameonawall.com">www.notjustanameonawall.com</a> blocked (observation and notes, audio recording of 1st lesson)</td>
<td>steps to unblock if necessary Offer alternative pathways or websites in the Resource to find similar information.</td>
<td>the task. Teacher preparation.</td>
</tr>
<tr>
<td>---</td>
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<td>---</td>
</tr>
<tr>
<td>Unavailability of crucial websites due to them being temporarily offline such as NAA. (Observation and notes, audio recording of 2nd lesson, student interview e.g. Student 7 “Make sure that the websites are not blocked as it is hard to access some websites.”)</td>
<td>Website Resource Changes. Offer alternative pathways or websites in the Resource to find similar information.</td>
<td>“Authentic tasks provide the opportunity for students to examine the task from different perspectives, using a variety of resources” “Authentic tasks are ill-defined, requiring students to define the tasks and sub-tasks needed to complete the activity” “Coaching and scaffolding ... principally by the teacher” The website will be modified so that alternative pathways to information can be followed.</td>
</tr>
<tr>
<td>The Internet being temporarily unavailable. (not encountered in this iteration)</td>
<td>Planning and Preparation. Library research included as an alternative part of task.</td>
<td>“Coaching and scaffolding ... principally by the teacher” This task is dependent on the use of the Internet. The teacher should have on hand alternative activities such as videos or library research if the Internet is unavailable. (teacher management)</td>
</tr>
<tr>
<td>The “Remembrance” theme for a specific person was a powerful motivator. The perception that they are doing it for the soldier not for themselves. Students generally stayed on task in spite of this not being an assessed task. (Student 6 “That is a special feeling, of maybe being the first person to specifically remember this person.” (observation, audio recording of all lessons)</td>
<td>Motivators. The importance of individual remembrance should be emphasised in the website and student task notes.</td>
<td>“Authentic tasks have real-world relevance” The “Remembrance” theme is a strong motivator and will be emphasised in the Introduction to the Task</td>
</tr>
<tr>
<td>Students were keen to start after remembrance talk but did not know what to do or how to go about it. Instructions delivered verbally by teacher</td>
<td>Need better planning and preparation, students need to know what they are expected to do and how to go about it.</td>
<td>“Authentic tasks are ill-defined, requiring students to define the tasks and sub-tasks needed to complete the activity”</td>
</tr>
<tr>
<td>Students were allocated names by the teacher so that each had a unique name to research</td>
<td>Included in planning documents and student handouts. Important that each student has their own unique name to research – see data below</td>
<td>“Authentic tasks are ill-defined, requiring students to define the tasks and sub-tasks needed to complete the activity” Need strategies organised by the teacher so that each student will have a different name to research (such as names out of a hat) Each student will use different information to complete the task.</td>
</tr>
<tr>
<td>Issue</td>
<td>Suggested Change</td>
<td>Teacher Feedback</td>
</tr>
<tr>
<td>---------------------------------------------------------------------</td>
<td>---------------------------------------------------------------------------------</td>
<td>----------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>The teacher had difficulty in reading some names from images of the memorial on the website</td>
<td>Website resource changes – new photos and links to names for Coonabarabran</td>
<td>“Coaching and scaffolding ... principally by the teacher” Update website with links to the “Mapping our Anzacs” pathway to the NAA.</td>
</tr>
<tr>
<td>Some students could not easily find the records belonging to some names on the NAA or AWM sites.</td>
<td>Website resource changes – better links now on NAA. Offer alternative links</td>
<td>“Coaching and scaffolding ... principally by the teacher” Update website with links to the “Mapping our Anzacs” pathway to the NAA. Only use the names already listed on these sites</td>
</tr>
<tr>
<td>Confusion as there may be multiple soldiers, all with the same surname and initials. Confusion due to inconsistency of spelling of names on various documents. Teacher says “We should have had a look at the clock tower first so that we could get the spelling of the names correct”</td>
<td>Need to use names that are known to have information available on them</td>
<td>“Coaching and scaffolding ... principally by the teacher” Using the “Mapping our Anzacs” site will eliminate this issue.</td>
</tr>
<tr>
<td>Scaffold needs to be modified to include more individual characteristics to make information more real and personal for the students. “Students are more interested in personality rather than battles” (teacher interview)</td>
<td>Website resource changes Update scaffold with changes.</td>
<td>“Coaching and scaffolding ... principally by the teacher” Update the scaffold on the website with more personal information.</td>
</tr>
<tr>
<td>Students appear to initially have little knowledge of Australian involvement in the events of WW1 (observation)</td>
<td>Website resource changes Overview, Timeline, links to resources</td>
<td>“Coaching and scaffolding ... principally by the teacher” Change website to add links to a Timeline of WW1 and/or add a printed sheet to the Task notes</td>
</tr>
<tr>
<td>The teacher appears to have very minimal knowledge of the Australian involvement in WW1, in particular the events of the Western Front (observation)</td>
<td>Website resource changes Overview, Timeline, links to resources</td>
<td>“Coaching and scaffolding ... principally by the teacher” Change website to add links to a Timeline of WW1 and/or add a printed sheet to the Task notes</td>
</tr>
<tr>
<td>Need a Timeline of events so students can put events in soldiers record in perspective (teacher interview)</td>
<td>Website resource changes Overview, Timeline, links to resources</td>
<td>“Coaching and scaffolding ... principally by the teacher” Change website to add links to a Timeline of WW1 and/or add a printed sheet to the Task notes</td>
</tr>
<tr>
<td>Handy to have a Map of gravesites as students were asking where to find the cemetery of their soldier. (teacher interview)</td>
<td>Add link if available on website</td>
<td>Change website – suggest that students use Google maps to find cemetery</td>
</tr>
<tr>
<td>Handy to have list of battalions and divisions so students can place their soldier in events (teacher interview)</td>
<td>Overview on website plus links</td>
<td>“Coaching and scaffolding ... principally by the teacher” Change website to add a page on battalions and divisions or link to suitable site and/or include in handouts.</td>
</tr>
<tr>
<td>Positive attitude of all students</td>
<td>Emphasise the personal on</td>
<td>“Authentic tasks have real-world</td>
</tr>
</tbody>
</table>
| Interviewed to the individual nature of the task e.g. “Yes (I got a different view of soldiers in the War), because this time you were actually researching one guy and you knew about their life and when you were doing the diary it was basically on the war and not the person. It wasn’t about them it was about the war. This personalised it.” (Student interview) | Website and in introductory documents | “Authentic tasks provide the opportunity for students to examine the task from different perspectives, using a variety of resources”

Need strategies organised by the teacher so that each student will have a different name to research (such as names out of a hat). Each student will use different information to complete the task. |
|---|---|---|
| The teacher asked all students to verbally share their information with the rest of the class, by talking about it “Hopefully, Monday we will start asking you one by one to get up just to read out a little bit about your soldier - where he went to fought at, died at, and if you found any interesting stuff, if you found any interesting documents and photos add these as well. Don’t be restricted by the profile, just add anything interesting that you find.” | Students should be given a printed sheet with task expectations at the beginning of the task. | “Authentic tasks provide the opportunity to collaborate”

“Authentic activities create polished products valuable in their own right”

The task should include a short talk by the students so that they can share what they have found. |
| The teacher asked each student to digitally record information, by downloading a Word document and adding to it. “Type your information into this and for you to add anything interesting that you find, e.g. that he was married with children or that he looked much younger than he said he was. If you get information on his battalion, can you copy and paste this to the scaffold.” | Students should download the scaffold at the beginning of the task – this directive should be included in the introductory notes or task requirements. | “Coaching and scaffolding ... principally by the teacher”

The scaffold should be available on the website for students to download and modify if required. |
| Individual ordinary aspects to personalisation the soldier to build a 'relationship' are a powerful motivator (teacher interview, student interview e.g. Student 5 “Found out what he looked like, mine had a monobrow” Student 4 “Mine had a mole on his right butt”… Student 1 “Doing this is kind of special as they are, you know, a part of you now. I don’t think I will ever forget my person, like a family member or something.”) | Make sure that individual aspects are included on website and student handouts. | “Coaching and scaffolding ... principally by the teacher”

The scaffold should include personal aspects and also sections where there is an opportunity to reflect. |
<p>| Students follow instructions given by the teacher | Involvement of teacher crucial to success | “Coaching and scaffolding ... principally by the teacher” |</p>
<table>
<thead>
<tr>
<th>Students looked, shared and learnt from other students eg “How did you find that?” (observation)</th>
<th>The students can share, as each is finding out about a different soldier they are not competing for information.</th>
<th>The teacher should be involved in the setting of the task and be familiar with what it involves.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students look for quick and easy ways to find information and quickly become frustrated and demanding of teacher attention when unsuccessful (observation, teacher interview) (also result in pilot study)</td>
<td>MOST IMPORTANT and crucial for success. Students expect quick results when using Internet. Task ‘rules’ and website links, supports and alternatives must make the desired way also appear the ‘easiest’ way.</td>
<td>Task and website links need to be structured for success, that there are alternative pathways to follow for information. The use of the “Mapping our Anzacs” site should eliminate some of these issues. The teacher could make sure that each name that he gives the students has info in the NAA and comes from the district.</td>
</tr>
<tr>
<td>Students want to swap a name if they cannot easily find information, and they see other students that have been successful</td>
<td>MOST IMPORTANT and crucial for success. Students expect quick results when using Internet. Task ‘rules’ and website links, supports and alternatives must make the desired way also appear the ‘easiest’ way.</td>
<td>Task and website links need to be structured for success, that there are alternative pathways to follow for information. The use of the “Mapping our Anzacs” site should eliminate some of these issues. The teacher could make sure that each name that he gives the students has info in the NAA and comes from the district.</td>
</tr>
<tr>
<td>Sharing of discoveries. Students want to loudly share any interesting thing they find with their friends and/or the teacher. Just like a treasure hunt.</td>
<td>MOST IMPORTANT and crucial for success. Students expect quick results when using Internet. Task ‘rules’ and website links, supports and alternatives must make the desired way also appear the ‘easiest’ way.</td>
<td>Task and website links need to be structured for success, that there are alternative pathways to follow for information. The use of the “Mapping our Anzacs” site should eliminate some of these issues. The teacher could make sure that each name that he gives the students has info in the NAA and comes from the district.</td>
</tr>
<tr>
<td>Some students towards the end of the lesson wander around the room chatting and looking at what others are doing (observation)</td>
<td>MOST IMPORTANT and crucial for success. Students expect quick results when using Internet. Task ‘rules’ and website links, supports and alternatives must make the desired way also appear the ‘easiest’ way. Students not achieving success quickly become disillusioned and bored.</td>
<td>Task and website links need to be structured for success, that there are alternative pathways to follow for information. The use of the “Mapping our Anzacs” site should eliminate some of these issues. The teacher could make sure that each name that he gives the students has info in the NAA and comes from the district.</td>
</tr>
<tr>
<td>Students found it difficult initially to make sense or order of the confusing array of information available on each soldier. This situation changed once they had downloaded the scaffold and</td>
<td>Website resource changes and student handouts. Need to know at the beginning of the task that they can download a copy of the scaffold and modify it for</td>
<td>The scaffold should be available on the website for students to download and modify if required. Students should download the scaffold at the beginning of the task – this directive should be</td>
</tr>
<tr>
<td>Observation/Interview</td>
<td>Suggested Action</td>
<td></td>
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<tr>
<td>-----------------------</td>
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<td></td>
</tr>
<tr>
<td>Students had difficulty in making sense of the content and the handwritten running writing used in primary documents from the NAA.</td>
<td>Students had difficulty in making sense of the abbreviations used in primary documents.</td>
<td>Students have difficulty in making sense of primary documents.</td>
</tr>
<tr>
<td>Students were fascinated by the personal and moving information they uncovered eg “It was interesting that I could look at letters that parents had sent to the war people. They had no clue where he was during the war and didn’t know if or when he died, it was really confusing. They were distraught and I thought it was really bad that he was so easily forgotten. The telegrams were a bit vague. The army didn’t seem to care, he was only a private.” (student interview)</td>
<td>Motivation – discovering history</td>
<td>Scaffold should include an opportunity to reflect on primary documents.</td>
</tr>
<tr>
<td>Motivation – discovering history</td>
<td>Website changes and supports</td>
<td>The task should include extension activities for the faster students eg information on specific activities related to the soldier – battles, living conditions, recreation, diseases, on this day.</td>
</tr>
<tr>
<td>Finding a picture helps a student make connections eg “I had a picture. Having a picture I suppose helped form a connection, but it was mainly other information, he was much shorter than me, if he was alive today he would probably be in our class about our age and going to school with us.” (student interview)</td>
<td>Motivation – discovering history?</td>
<td>Scaffold should include an opportunity to reflect on primary documents.</td>
</tr>
<tr>
<td>The online research part of the task only took the students around two weeks (8 lessons) to complete</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Teacher explained scope and expectations of the task initially. At the beginning of each lesson she made clear what she expected each student to have done. “Monday we will start asking you one by one to get up just to read out a little bit about your soldier - where he went to fought at, died at, and if you found any interesting stuff, if you found any interesting documents and photos add these as well. Don’t be restricted by the profile (scaffold), just add anything interesting that you find.” (observation and audio recording)

If this was an assessment task this should be made clear at the beginning in the documents handed out to students. Teacher encouragement at the beginning of each lesson may have helped student motivation. Authentic tasks are seamlessly integrated with assessment.

The task will be described in written form and be part of their assessment. Students should be made clear in the first lesson as to the scope and expectations of the task.

Teacher walked around the room, as students put their hand up with problems, encouraging them (observation)

May be the teacher should have a trial run at doing the task before giving it to the students so that they are very familiar with it.

The teacher should be involved in the setting of the task and be familiar with what it involves.

Teacher dealt with any individual issues (including technical issues eg “I can’t log on to the Internet”) as they arose in the classroom. (observation and audio recording)

Issues other than technical should be reduced by updates to the website.

Management issues beyond the scope of the task

Teacher gave loud positive encouragement as individual student found information. (observation and audio recording)

Teacher involvement crucial

Teacher support, interest and encouragement assist student motivation.

Teacher uses an incentive to make sure that each student has a unique and appropriate name to research. “Can you all write your names down next to the person and grab a lolly.” (observation and audio recording)

Teacher involvement crucial

Discuss with the teacher strategies for making sure that each student has an individual name.

Teacher was quite relaxed about background talking noise in the classroom; she did not raise her voice at any stage to reprimand. (observation). Students work well with minimal supervision and stay interested (teacher interview)

Evidence of student motivation

Positive outcome

The teacher’s involvement and enthusiasm is encouraging and a great motivator for the students. “That he must be a relative of mine or my husband”. Later she says isn’t that interesting and reads out to the class his record from the
<table>
<thead>
<tr>
<th>Roll of Honour at the AWM site</th>
<th>Evidence of student motivation</th>
<th>Positive outcome indicating active learning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teacher is amazed by the constant interest of students and how proud they are of the information they have found. (teacher interview)</td>
<td>Evidence of student motivation and change in knowledge and attitude.</td>
<td>Positive outcome indicating active learning Provide opportunity for reflection in task.</td>
</tr>
<tr>
<td>Students feeling empathy and attachment to their soldier eg one said to another “He’s my brother, (ie your soldier is the brother of my soldier) isn’t it sad they both died” (teacher interview)</td>
<td>Evidence of student motivation and change in knowledge and attitude.</td>
<td></td>
</tr>
<tr>
<td>Generating Interest in family history eg one says my great grandfather was reported missing and turned up 6 months later. (teacher interview)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>“Students are dealing with primary sources and in all reality probably the first and only primary source they have used” (teacher interview) No we have never used primary documents before in history (student interview)</td>
<td>ditto</td>
<td>Positive outcome indicating active learning Provide opportunity for reflection in task. Satisfying syllabus requirements</td>
</tr>
<tr>
<td>This task includes the community as many people with these names still live in the district (teacher interview)</td>
<td>Links the local community to international events</td>
<td>“Authentic tasks have real-world relevance”</td>
</tr>
<tr>
<td>Researcher notes from observations that students gain a view of the soldier’s involvement (the soldier is made real to them) but they still have little understanding of Australian involvement in the war – battles and so on. Perhaps this is too ambitious for this task.</td>
<td>Use of the timeline to follow soldier through the War.</td>
<td>The task should include extension activities for the faster students eg information on specific activities related to the soldier – battles, living conditions, recreation, diseases, on this day.</td>
</tr>
</tbody>
</table>
APPENDIX D: Screen print of scaffold used by students in first iteration

Scaffold
Not Just a Name on a Wall (of the Memorial Clock Tower)

Name .......................................................... served in the Great War 1914 to 1918
Full Name ................................................................
Date and place of birth ...........................................
Parents ....................................................................
Other family ................................................................
Education and early life ...........................................
Date and place of enlistment ...................................
Unit and rank ..........................................................
Date of departure from Aust ...................................
Name of Boat ..........................................................
Brigade and Division details ....................................
Battles participated in .............................................

..............................................................................

Details of the battles ..............................................
..............................................................................

..............................................................................

Date and cause of death ........................................
Other events that occurred on date of death ..............
Place and details of burial ......................................
Date of return to Aust ............................................
Life after the war ..................................................
Any other information .............................................
..............................................................................

References ................................................................
APPENDIX E: Screen print of modified scaffold used by students in second and third iterations

An Australian Soldier of the Great War (1914 to 1918)

Full name: Service number:
Date and place of birth: Age (at enlistment):
Next of kin:
Address, education and occupation:

Personal characteristics (height, weight, chest, complexion, eyes, hair, religion, distinctive marks):

What sort of person do you think your soldier was on enlistment? What does his writing style indicate?

Date and place of enlistment:
Unit and rank (battalion, division — these can be used to follow him through the war):

Date of departure from Aust:
Name of Boat:
What places would he have travelled to?

What were the dates of his active service in the field (and where)?

What was his division doing at this time?

What is he likely to have experienced?

Did anything happen to him (e.g. sickness, wounding, killed, AWOL) — give details:
Do you get any indication of his family's feelings? Give details:

Was there anything else special about this soldier? Give details:

Date and cause of death:
Other events that occurred on date of death:

Place and details of burial:
Or Date of return to Aust
Life after the war:

What are your feelings about this soldier?

EXTENSION ACTIVITY:
Describe one specific thing that would have affected this soldier e.g. a battle, disease, living conditions, trench warfare, and recreation activity:

References (copy and paste web addresses):
APPENDIX F: Questions for Individual Students (Iterations 2 and 3)

A. What are the critical principles applicable to the design of a web-based authentic task which will interest motivate and engage students in the study of Australian History?

Can you remember what you thought when you were first given this task?
How did you find out what you were expected to do?
Can you remember the first things that you did when you started the task?
Did you have any initial difficulties when you first started the task? If so, what were they?

Did the teacher give you a handout? Did you use the handout from the teacher to start? Did you refer to it each lesson? Why or why not?

Have you found the scaffold from the website useful to help you look for and arrange information? Are there any sections that you found difficult to complete? Explain?
Can you suggest any ways that the scaffold might be improved?

Could you navigate the notjustanameonawall website with ease? Did you use the research page? Which links have you used from this page?

Which website have you found the most useful? Did you get useful information from any other website?

Did you complete this task in the time allowed? Why or why not? Did you do any research outside of class time?

You were doing two topics in History and had some long breaks between class times on this task. Do you think that this affected your interest or concentration on the task?

You were issued with a student notebook about half way through the task. What affect did this have on your interest or ability to complete the task? Did it make it easier for you or did you have more difficulties?

Which aspects of the task did you find the most interesting? Did you get to feel any ‘connection’ with your soldier?

Have you used primary sources such as the soldier’s record before? What are your thoughts on using primary sources? Did you have any difficulties in using Primary Sources.

Did you encounter any interesting personal information about the soldier? What did you think when you were reading this?
Do you feel now that you have a greater understanding of the experience of Australian soldiers in WW1? Expand?
Is there anything that you think may have spoiled this task for you?
Do you think that this was a good or useful task? Expand? How does it compare to other learning activities?
What things did you learn from this task?

B. What processes do students engage in when completing an authentic historical task using a technology-based learning resource; and to what extent does this method of historical enquiry enable them to achieve key syllabus competencies?
Which aspects of this task did you find the most challenging?
Did you get any help or reassurance from your friends or the teacher? Did you work with any of your friends?
Did you find the level of noise or talking in the classroom distracting?
Do you think that you could have completed this task on your own?
How was the experience of your soldier the same or different from the experiences of your friends’ soldiers?
Did you find out any interesting things unrelated to War?
Did you come across any other interesting websites apart from those listed on the Research page?
Do you think that your soldier was a good one to research? Was he typical of soldiers from this area?
What was the most interesting thing that you found out about your soldier?

C. How do teachers facilitate the use of a complex and sustained technology-based task in their history classes and what is their perception of improved learning outcomes for students?
Do you think that the presence of the teacher was helpful in completing the task?
Did you need much help from the teacher to do this task? What did you need most help with?
What more do you think he could have done to make the task easier or more interesting for you?
APPENDIX G: Questions for Teacher (Iteration 2)

A. What are the critical principles applicable to the design of a web-based authentic task which will interest motivate and engage students in the study of Australian History?

Can you remember your initial thoughts the researcher first asked you about running the task in your class?

Did it look like a useful task suitable for your students?

Can you remember what happened when you started the task? Can you think of any ways to improve on this?

Did you observe the students having any initial difficulties when you first started the task? If so, what were they?

Did you have any technical difficulties with the computers or the Internet? How did you deal with these?

Were you happy with the handout that started the task? Do you think the students found it useful? Why or why not?

Way the scaffold from the website useful for students to look for and arrange information? Are there any sections that the students found difficult to complete? Explain?

Can you suggest any ways that the scaffold might be improved?

Did many students use the research page from the notjustanameonawall website?

Which links do you think they would have used?

Which website would the students have found the most useful?

Did most students complete this task in the time allowed? Why or why not? Do you think they did any research outside of class time?

You were doing two topics in History and had some long breaks between class times on this task. Do you think that this would have affected student interest or concentration on the task?

Students were issued with a notebook about half way through the task. What affect did this have on their interest or ability to complete the task?

Which aspects of the task do you think the students found the most interesting? Did many get to feel any ‘connection’ with their soldier?

Have you used primary sources such as the soldier’s record in class before? What are your thoughts on how the students used primary sources?
Do you feel now that students have a greater understanding of the experience of Australian soldiers in WW1? Expand?
Is there anything that you think may have spoiled this task for any student?
Do you think that this was a good or useful task? Expand? How does it compare to other learning activities?

B. What processes do students engage in when completing an authentic historical task using a technology-based learning resource; and to what extent does this method of historical enquiry enable them to achieve key syllabus competencies?
Which aspects of this task did students find the most challenging?
Did they get any help or reassurance from their friends or the teacher? Did they work with their friends?
Did you find the level of noise or talking in the classroom distracted the students?
Do you think that students could have completed this task on their own?
Do you think that the students each having a different soldier detracted or added to the value of the task?
Did students find out any interesting things unrelated to War?
Did they come across any other interesting websites apart from those listed on the Research page?
Do you think that students did the task well? Why?

C. How do teachers facilitate the use of a complex and sustained technology-based task in their history classes and what is their perception of improved learning outcomes for students?
Do you think that the presence of the teacher was helpful in students completing the task? How?
What more do you think you could have done to make the task easier or more interesting for the students?
Would teachers be able to facilitate this task without any prior preparation or skills?
What do you perceive as the value of this task? What skills, experience or knowledge would they have gained from this compared to the normal classroom activities?
Do you think that the students were working independently and taking some responsibility for their own learning?
In what ways was the task worthwhile and would you run it with future Year 9 classes?
APPENDIX H: Iteration three assessment notification and marking rubric

ASSESSMENT NOTIFICATION

Subject: Year 9 History
Teacher: Mr. D Graham
Topic: Australia and World War One
Date of Notification: 15/3/10
Due Date: 31/3/10.

Remembrance
This task will enable you to put the saying “Lest we forget” into practical action. You will remember and reconstruct part of the life of an individual soldier from this area that served his country in the Great War. This will be done through online primary and secondary sources.

After the War parents, wives and family had almost no understanding of what had happened to the soldiers and what they experienced. If they had died they had no opportunity to grieve properly and for closure as they had no body or grave to visit. Many soldiers had changed dramatically and the families did not understand why. These days many soldiers would not have family here to remember them.

You will remember a soldier by seeing part of their personal life and coming to know them through original documents. They will ‘live again’ for a short time in your life.

The Task
1. You will be given a soldier’s name from this area by your teacher. You may negotiate another name if you know of someone of significance to you that served in WW1.
2. You will download the scaffold from the http://www.notjustanameonawall.com/index.htm website and save it to the history folder on your home drive. You will fill in as much of the scaffold as you can by adding information and answering questions using historical sources. The information can be found by following the links on the http://www.notjustanameonawall.com/research.htm web page.
3. Prepare and give a short talk to the class to share your soldier’s story.
4. Present a 300 word biographical article about your solider. Plus appropriate images of battles, memorials etc.
5. Keep a diary of your research process.
6. Place a tribute to your soldier on the Mapping our Anzacs website.
### Year 9 2010 World War One Research Assessment Task Marking Criteria:

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Score Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comprehensively researched and written with demonstrated quality of language use and conventions appropriate to this style of writing.</td>
<td>15-20</td>
</tr>
<tr>
<td>Uses resources to develop an insightful picture of chosen soldiers involvement in WW1 including descriptions of conditions experienced at different times in the war.</td>
<td></td>
</tr>
<tr>
<td>Displays use of multiple data bases to describe individual and group involvement in WW1 battles including locations and actions.</td>
<td></td>
</tr>
<tr>
<td>Demonstrated empathy for soldier and their experiences during WW1 within the writing task.</td>
<td></td>
</tr>
<tr>
<td>Includes correctly referenced information sources.</td>
<td></td>
</tr>
<tr>
<td>Soundly researched and written with good use of language and most grammatical conventions correct.</td>
<td>10-14</td>
</tr>
<tr>
<td>Demonstrated use of resources to describe individual’s involvement in WW1.</td>
<td></td>
</tr>
<tr>
<td>Some evidence of use of more than one source of information to develop a picture of individuals and units involvement in part of WW1.</td>
<td></td>
</tr>
<tr>
<td>Shows some understanding of conditions and experiences of individual soldier.</td>
<td></td>
</tr>
<tr>
<td>Includes references.</td>
<td></td>
</tr>
<tr>
<td>Demonstrated basic level of research and limited use of correct grammar and writing conventions.</td>
<td>5-9</td>
</tr>
<tr>
<td>Basic description of individual’s involvement in WW1.</td>
<td></td>
</tr>
<tr>
<td>Limited evidence of use of varied sources of research.</td>
<td></td>
</tr>
<tr>
<td>No evidence of empathy or understanding of experiences or conditions during WW1.</td>
<td></td>
</tr>
<tr>
<td>No references given.</td>
<td></td>
</tr>
<tr>
<td>Little of no evidence of research, poorly written with little or no evidence of language or grammatical conventions.</td>
<td>0-5</td>
</tr>
<tr>
<td>Simple description of some elements of individual or war involvement.</td>
<td></td>
</tr>
<tr>
<td>No evidence of use of more than one source of information.</td>
<td></td>
</tr>
<tr>
<td>No understanding of individual’s experiences or experiences displayed in writing.</td>
<td></td>
</tr>
<tr>
<td>No references given.</td>
<td></td>
</tr>
</tbody>
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APPENDIX I: Iteration 1 lesson descriptions

Detailed descriptions of the lessons of the first intervention (iteration1) are provided below. A summary of the lessons was given in Chapter 5.

Lessons 1 and 2: Introduction, name choosing and research

These two lessons focused on introducing the authentic activity to students, helping each student to choose a name to research, and getting started with the links on the website resource (www.notjustanameonawall.com). The teacher spent the first 15 minutes talking to the class (with the researchers help and participation) to introduce the importance of the task and motivate the students. She used the theme of remembrance to honour the soldiers involved in World War One. The teacher introduced the task in this way:

“We are going to use that (the website ) to research some of the names that appear on the Clock tower in Coonabarabran, and the best thing that comes out of this is that … we will take something to put on their gravesite or on the clock tower… A name conjures up an image … (as in ancient Egypt) by saying a name it in a way brings that person back to life. … When you go in and look at and read that name you are bringing that person back to life … when they have been dead ... since 1918.”

She continued and mentioned such aspects of remembrance as:

- Placing something on the soldier’s grave when some school students visit France (school trip planned for April 2009, or doing something special for them on ANZAC Day.
- The ancient Egyptian concept that the person lives if their name is remembered.
- The relatives at home during WW1 not knowing what had happened to their loved ones and not having a body to bury or bring closure.
- The relatives not being able to visit the grave after the War due to the distance involved.
- The age of many of the soldiers being similar to that of the students.

The task was delivered verbally by the teacher to the students. The teacher said that the researcher was doing research on the ways that students learn and use a website
learning resource. She said simply that “We are going to use the notjustnameonawall website to research some of the names on the (Memorial) clock Tower and find out things about them that their relatives may not have known through looking at their records.”

The website was displayed on the whiteboard using a projector and the students were shown the names on the pictures of plaques from the clock tower. The names with stars next to them died during the war.

After this the students were keen to start. The students were told to choose a name from the clock tower that had a star next to it. Each student was asked to choose a different name. The teacher then asked the students to log on to the website and wrote the address on the board. This presented the first problem. The website was available to teachers but was blocked by the DET for students!

A workaround was quickly devised by using the names displayed on the whiteboard. The teacher read out each name and each student in turn around the room wrote down one name to research. This brought the second problem. Some names were not clear enough to be read. “Is that Ridley? I can’t read that”… “We need a list of names” The teacher said “We should have had a look at the clock tower first so that we could get the spelling of the names correct”

Eventually all the students had a name written down. They then had to find and identify that particular person using the Commonwealth War Graves (CWG) site. This site should have basic details on each named soldier as all the chosen soldiers died during the war. This presented the third problem. It was difficult for a number of students to find their soldier’s name on this site and verify that they are the same as the person whose name is on the clock tower. There were issues such as multiple soldiers with the same surname and initials (the first names were not known) and nothing to show that they came from Coonabarabran; or differences between the spellings of their surname on different documents, or simply that that name was not listed.
When the students were not able to quickly find information on their name (or soldier), they wanted to swap to another name, where they hoped for better luck. They could see their friends nearby finding information on their soldiers and they quickly became frustrated. (Researcher’s observation)

As the website (www.notjustanameonawall.com) was blocked and unavailable for students, the researcher used a projector to display the site on a whiteboard. The students were able to type the website addresses displayed into their browsers and hope that they were not blocked.

The students looked at the Commonwealth War Graves (CWG) site, then the Australian War Memorial (AWM) site, then did a record search at the National Archives of Australia (NAA) site to try to find information on their soldier. As the students worked, the teacher and researcher moved around the room assisting and encouraging individual students. When she saw a student with information, the teacher loudly and excitedly called out “Who’s this one, the first one we did? Good on you! Good on you! James has been lucky, he has found heaps.” As another student found something, he excitedly called “Miss, Miss” to proudly show what he had found. It was like an exciting chase where some were “winners” and others were still trying. There was an excited murmur around the classroom as each student talked to others about what they had found, interspersed with “Aw, I can’t find mine” This lesson involved negotiation and talking as students tried to find another name that no one else was already using as they had been unsuccessful with their other names.

The researcher printed off the scaffold from the website and handed it out to each student so that they could start to record details of their soldier.

At the end of the 80 min lesson, some students were still frustrated and could not find information on a soldier, even after swapping to a different name several times. At about 20 minutes from the end, a few students started to wander around the room and chat to each other. This did not appear to bother the teacher as she continued to work around encouraging and assisting the students still at the computers. The researcher
Lesson 3: Name choosing, research and recording information

The focus of this lesson was for each student to finalise a name and commence their research. Each student had to research a different name. This time the website resource (www.notjustanameonawall.com) was not blocked and students were able to access the links. The teacher made sure that each student had a different name to research by asking them to put their name next to the name of the soldier on a list of names from the Memorial Clock Tower. She used a mild incentive to encourage them. “Can you please write your name down next to the person and grab a lolly.” At the beginning some students asked the researcher for help in understanding what the information on the soldier from the NAA meant.

Lesson 4: Research and recording using scaffold

This lesson was not observed or recorded by the researcher, but the teacher was interviewed later in the day and this is her account of the lesson. The lesson focused on students continuing with their research and filling in the scaffold sheets (handed out in an earlier lesson) so they could share with the rest of class.

“First of all today we started with an overview of what they have done so far; we put up on the board the websites we have looked at so far: reviewed what we are up to and gave some direction of what needs to be completed by x amount of time and an expectation of what they need to do (scaffold completed and a short talk prepared to share with class); and display of web addresses where they may get more information (CWG site) and went again into the notjustanameonawall website. We talked about each giving a one or two minute speech and the students were keen on this... Most have found a person; some have not been able to locate details in NAA of multiple soldiers. (Students need to locate the individual soldier’s records in the NAA site for original source documents.) Students are filling in scaffold sheets. One person found a picture of a soldier and said “Miss he’s supposed to be 18, but he’s not 18. Look at him.” And that was a local fellow. Some are putting their information into a Word document. What amazes me is the constant interest, apart from a couple of boys that are always sidelined; everyone is very interested and very proud of what they have
found. Particularly today, one of my poorer students was very proud of the grave that he had found where he could post a tribute, and it has sparked his curiosity. As he was talking about it the girl behind him piped up “He’s my brother, (i.e. your soldier is the brother of my soldier) isn’t it sad they both died”. So there’s empathy going in there. Another said “My great grandfather was presumed dead and turned up alive six months later.” He wants to find out what happened to him in the archives.” The little girl that found the photo of her soldier and says that he looks much younger than his recorded age opened a can of worms about enlistment. She said “Miss, he has no known grave, just a Memorial plaque. Isn’t that sad”

**Lesson 5 and 6: Research and recording using digital scaffold**

This lesson focused on research and completion of the scaffold sheets. The teacher carried the audio recording device with her. Up until now the students had been using a printed scaffold sheet to record their information. In this lesson the teacher asks the students to download a copy of the scaffold (from the server, the researcher had downloaded a copy from the website and placed it in a common student folder on the server) to their computer and to record their information digitally and asked students to record some information about their soldier such as if they were single or married, if they had any children etc.

Students were trying to use the NAA site to find the individual records of the soldiers. The site was not letting them access the digital records through the normal record search. There appeared to be a problem with the website. Students had found much of their information for their scaffolds in previous lessons from the records in NAA. They were trying to find other places for information. One student used the honour roll from the AWM site. The teacher talked constantly – helping students find information, and sorting out computer issues.

In September 2008 the researcher contacted Margaret Fleming (Education Manager) and Dr Kate Bagnall (Websites Content Developer) at the National Archives of Australia (NAA) to ask about the best way to link to and use the resources at the NAA. They replied with suitable links and details about the use of copyrighted material. In late November, 2008; Margaret Fleming emailed (28/11/2008) about a
new Flash-based interface for accessing WW1 records that transformed the way students accessed information (http://mappingouranzacs.naa.gov.au/). This was “Mapping our Anzacs – a place based browser that uses maps and places to list place of birth and enlistment of the entire 376,000 WW1 service records as well as provides a home page for each service person that gives a link directly to the service record and allows ease of print out” (M. Fleming, personal communication, November 28, 2008). The site also offered easy access to several other ways of searching records.

The researcher showed some students the ‘Mapping our Anzacs’ site. When the teacher sees students using the ‘Mapping our Anzacs’ site she says “Oh, this is interesting, no seriously, this is interesting”. A student shows her how to use it and she announces the site to the rest of the class.

The teacher starts to get quite involved as she finds that one student is researching A.J Harper. She says that he must be a relative of her or her husband. Later she says isn’t that interesting and reads out to the class his record from the roll of honour at the AWM site. This site also includes a photo of him. He died of Spanish Flu in Belgium in 1919 after having survived the War.

The teacher says “Who had a soldier that died of gonorrhoea?” A student says “No Miss, he had it but he did not die from it.” There is some discussion of sexual diseases. The students are also fascinated that some of their soldiers had sexual diseases. (Just like in the movie ‘Gallipoli’).

One student has swapped to try to find a new soldier in every lesson and so has nothing to show for his efforts so far. The teacher says “You are a naughty boy. Everyone ‘student’s name’ is a naughty boy”. The boy is not concerned by this gentle chiding.

The teacher’s involvement and enthusiasm is encouraging and a great motivator for the students. She is constantly talking to the students about what they have found. For example, she announces to the class “Excellent, (student name) who is incredibly
smart at the moment, I am very impressed with your ability at the moment, has found the colour stripe of his battalion.” Even though they are each working on an individual soldier, students are constantly talking to classmates and sharing what they have found.

**Lesson 7: Student talks**

This lesson focused on students giving their short talks on their soldier to the rest of the class. The teacher notes that some students are away and says that today we are going to listen to some talks so could everyone please get that out. The class waits while some students go to print off their information. While they are waiting a group of students and the teacher discuss their soldiers. Their interest is apparent as they talk about information that they were or were not able to find out. For example, one conversation between two girls went:

“These people if they were alive today would be going to school with you, like they would...”

“Yeah”

“You know, you’d probably know them”

“Yeah”

The students start to give their talks to the class. The first three girls have quite detailed stories on their soldiers and it is obvious that they have put a great deal of time and interest into finding out the stories. The next boy has only a brief story and has not found out as much about his soldier.

The story of Peter van der Lubbe had an impact on the students and the teacher because this soldier had lived near to their school and town. The student researching this soldier had some initial difficulty finding information as his name had various spellings in different documents. She also found information in a local history and a picture of him. Peter was born in Holland and his family immigrated to Australia and worked as timber workers at a nearby town. Peter enlisted in 1917 and was killed or lost in early 1918. His photograph had an impact on the class as it showed his apparent youth and vulnerability. As one said, “It says here that he is 18. There is no
way he is 18, he looks no older than the boys in this class.” It brought home the tragedy of war and its effect on that generation.

**Lesson 8: More student talks**

This last lesson focused on the students continuing to give their talks where they share what have found out with the rest of the class. Some of the talks from the previous day are repeated for the benefit of those students that were absent the day before. The teacher asks questions or comments after each talk. For example, a student shows a picture of a grave and the teacher exclaims “Oh! How did you find that? Student “findagrave.com” Teacher “That’s interesting.”

The teacher concludes the lesson after all the talks have been given by asking the students to comment on the task. One says that you can leave a tribute and flowers for the soldier at findagrave.com. Another student says that she was amazed at the amount of information that could be found on the soldiers and some of it quite personal “letters and stuff that his sister had written to the army and to each other” The class said that they had learnt more about the World War One than they had in the previous task (where they created a fictitious diary) as it was more real and more personal.
APPENDIX J: Iteration 2 lesson descriptions

Detailed descriptions of the lessons of the second intervention (iteration2) are provided below. A summary of the lessons was given in chapter 6.

Lesson 1 Monday 2/11/09 Period 8 (2:50-3:30pm) – Students are introduced to the task/activity

This lesson focused on introducing the authentic task, making sure each student had a different name and starting the research. It was the last lesson of day, and the students were hot, tired and noisy as they came into the computer room. They had just had a practical Physical Education (PE) lesson and the weather was hot. The class was a bit rowdy, and the small room was crowded.

The teacher did not introduce the task immediately but first asked the students to “Please copy the homework from the board before we start”. He then said “Please turn off your screens and pay attention to the front”.

The teacher then introduced the task by handing out the assessment sheet and reading through it while explaining sections and talking about Remembrance. Each student was handed a name cut from a printed sheet made from names from the Memorial Clock Tower matched to names from the Mapping our Anzacs website. In this way each student had an individual name that had an easily found record on the Mapping our Anzacs site, part of the National Archives of Australia (NAA) site. The students were instructed to first go to the website resource (www.notjustanameonawall.com) and download the scaffold, save it to their home drive (personal share on the network) and start the task following the directions on the task sheet.

The teacher and researcher were immediately busy assisting individual students. “Sir, my computer does not work”. “Sir, I can’t log on”. Some students went directly to the website resource (www.notjustanameonawall.com) and started downloading the scaffold. Others had problems finding the website. “Sir, this website does not work”. A number typed the address into Google and did not use the address bar, while others typed the name incorrectly. They were helped by peers that have been successful. “See it’s notjustanameonawall, you’ve got notjustanameonthewall!” Some had
difficulty in finding the link to the scaffold. Eventually everyone downloaded the scaffold.

Students then looked for the link to the research page and *Mapping our Anzacs*. Several students appeared to be randomly clicking on anything that looked like a link. They just ‘get into the task’ and try as quickly as possible to get to an endpoint by ‘intuitively’ clicking on links. They were not patient. They seemed to give a cursory glance and use ‘trial and error’; relying on ‘luck’ or assistance from the teacher or near neighbours rather than written material or instructions. “Sir, I’m lost.” “How did you get there?” Perhaps the competitive presence of the next door screens prompted their hurried actions. Others were more methodical and must have read some of the text as they quickly found their way through the webpages. Unsuccessful students watched and learnt from the successful ones.

Students found the graphical interface of *Mapping our Anzacs* initially unfamiliar and tricky “What do I do now?” they tended to find their way by experimentation rather than by reading instructions. When one was successful, it encouraged others; they copied and learnt from each other how to do it. Many students put their hands up asking for help, but they tended to work it out themselves or ask their mates if they did not get help. The teacher and researcher were very busy moving around the classroom answering questions or technical difficulties or explaining how to navigate. The students generally had difficulty in reading the hand-written script from primary documents “What does this say? Sir, I need help”. The writing was faint and unfamiliar, but it helped if it was enlarged.

The students were encouraged to work independently with a minimum of direct teacher direction. It was apparent that the students had not been given this type of task before as even though they were quite enthusiastic, they had little idea or confidence in what they were expected to do. This led to many students requiring individual assistance from the teacher or researcher so that they could start the task.

**Lesson 2 Friday 6/11/09 Period 5 (12:10-12:50pm) – Students in the computer room start to research their soldier**
This lesson focused on every student having a soldier’s name and starting their research. The computer room was very full, with 29 students and only 21 computers. Some students were sent to other computer rooms to work. The teacher did not introduce the lesson or actively direct the students.

Some students were initially quite confused. “What do we do?” “Continue on from Monday’s lesson using the sheets.” “I have lost my sheet, can I have another”. The students that were away on Monday have returned and need an assessment sheet and a soldier’s name. Other students called out “I have lost my name”. There were many things happening at once.

The teacher went off to photocopy more sheets, while the researcher issued new students with a soldier’s name from the printed sheet. Many students appeared to be working independently, talking to each other, while others demanded the teacher’s attention: “What does this mean. How do I do this?” They needed reassurance that they were doing it the ‘right’ way. Most students were looking through the soldier’s record from NAA, although some had difficulty and needed help in reading the writing and interpreting the abbreviations.

Lesson 3 Monday 9/11/09 Period 8 (2:50-3:30pm) – Student interest and engagement with their soldier is evident

The lesson focused on students completing their research using the scaffold as a Word document. This was the last lesson of the day and the students were hot, tired and noisy. There were a number away as the classroom was not completely full.

This time the teacher introduced the lesson by saying “Last week Mr Morrissey and I spent a lot of time going around the classroom answering simple questions. You need to read the page properly before you ask, if you can’t find the answer, then ask your neighbour for help, then put your hand up if you need to. You need to have your assignment sheet out if you are forgetting what you really need to do.” Only one or two students (out of about 21) actually had their assignment sheet with them. Several students came back with “Can’t we just answer the questions?” (Meaning fill in the
scaffold) “Wasn’t it on the computer?” Again some students find the website resource by typing ‘notjustanameonawall’ into Google.

Most of the students were working effectively while looking at their soldier’s personal records. It was obvious that they were getting more involved and interested in the task as the research progressed. This was shown by the active background noise as they asked questions, answered questions and shared the information they had found. There was evidence of students actively learning, collaborating and helping each other as shown by some example conversations:

“They were short.” “About our height and age” while talking about height and chest Imperial measurements.

“What’s mumps?” “What does D O mean?”

“What does that say?” Some students (or all) had trouble deciphering the running writing and understanding the abbreviations.

“Sir, what does ex nuptial mean?” Later, “Sir, it just means that the parents were not married when the child was born.”

“Sir there are no personal characteristics on the site.” The student did not realise that the record had more than one page, and did not read the page carefully. (Another student also had the same question later.)

Students were talking to each other about their soldier and the information they found. “This says that my soldier was killed in action.”

They are methodically working through information “See it says here ..........” to each other.

Asking each other questions. “My guy gets killed later.” “What does EMP mean?” “Give us a look?” “What does that say?” “What’s a battalion?”

“Sir, I know what bronchial pneumonia is now.” “Hey, he had mumps!”

Some students, mostly girls, work quietly, hardly talking to others, while other students talk to each other almost constantly while working.

One girl has a soldier that is discharged before leaving Australia because he was ‘his mother’s only support’.

Most students work well and are keen to learn (or keen to complete their scaffold) as shown by the number of questions and the conversations. They follow the teacher’s
introductory instructions and mostly try to work out questions by collaborating amongst their peers.

However, not all the students are working actively on the task. Two of the students (and the teacher) are working on speeches they will give at the Armistice Day assembly. Another two students are caught briefly playing computer games.

Lesson 4 Wednesday 25/11/09 Period 5 (12:10-12:50pm) - Students enthusiastic and engaged in finding out about their soldier; and using the new laptops
The focus of this lesson was continuing with research and completing the digital scaffold. The students had had a long break away from the task and were using the newly issued DER laptops for the first time. The new personal computers were a novelty and all the students were keen to use them in class. This lesson gave them the opportunity to use the laptops so the students were quite enthusiastic.

All the students’ previous work was saved on the school computers so they first tried to catch up to where they were before and load their previous information on the new computers. Only one person in the class still had the original handout sheet. They were very keen to use the new computers and ignored the other computers in the computer room. Some used the desks but others sat in groups on the aisle carpet with their laptops on their knees. The students were quite relaxed and there was a hubbub of noise as they talked, most of which was related to their work. The teacher moved around the classroom assisting students with questions and problems. Most students were actively learning as shown by the snippets of sometimes unrelated conversation that could be heard amongst the noise.

“What does it mean by Division?” “What are mumps?” “Sir, I can’t download the scaffold.”
“That’s really interesting.” “Why did he sign up at Capertee?” ”I don’t know his education”.
“This guy was always sick.” “I think he gets appendicitis.” “He got measles and pneumonia.” “What’s odium foot?” “At least he survived. He spent all that time in hospital.” “My guy didn’t do anything.” “I can’t find his education.” “He got killed but he was missing. Like, the place got bombed but he was never found.” “Listen to
this. He had something wrong with his feet and he was taken by ambulance to the hospital and what? He had all these things done two days apart.”

Lesson 5 Friday 27/11/09 Period 5 (12:10-12:50pm) - Students were involved and actively engaged in trying to find out more information about their soldier.

This lesson focused on completing research mostly using the student laptops. Some students were still transferring information across to the new DER laptops and needed assistance with this. In the computer room, some were using the desktop computers, but most preferred to use their personal DER laptops. There were a range of computer issues that the teacher had to deal with at the beginning of the lesson such as starting computers, logon, finding sites, sending emails, randomly blocked sites – by DET. The teacher needed to move around the classroom assisting individual students. “Sir, yesterday everything was blocked.” Some students were becoming frustrated at blocked sites preventing them accessing information.

There was a lower level of noise and most students were involved and actively engaged in trying to find out more information. Students were going through the soldier’s record and trying to make sense of it. The teacher was actively helping individual students decipher records. Students were keenly sharing information and helping each other.

“What does officiating chaplain mean?” “Was he married?” “No he died.” “Oh, then that is the person that conducted the funeral.”

“Sir, I can’t find the complexion.” Teacher “Go to the next page. Look there are 105 pages of records on him.”

“I think he got killed in action, he’s got malaria now.” “It says what boat he went on”

“Sir, it’s all too hard to read.” “Sir, my guy was sick all the time.” “Does that mean he was a commanding officer?” “Look, mole on his left groin” “Is that corporal?”

Lesson 6 Friday 4/12/09 Period 5 (12.10-12:50pm) – Students were still actively engaged and sharing information about their soldier.

This lesson focused on students completing their research and scaffold. The teacher was aware that the school year would soon finish and was keen that the students complete the task. At the beginning of this lesson he addressed the class: “So, I want
you to work as hard as you can this period and next Monday to get as much of it finished as possible before the holidays. Put your hand up if you need help, no calling out.”

The teacher was moving about the classroom helping individual students, looking at details of their records, interpreting and making sense of dates. Some websites were still blocked. Students were actively working and there was a low buzz of students talking to each other about what they had found in their research:
“Mine was the luckiest person.” “But he was killed!” “Yeah, but he had malaria, pneumonia and had his appendix removed ... and he was wounded.”
“You go to the War memorial and put his name in.”
“I always imagined my guy with blonde hair and blue eyes.”
“Do I have an interesting guy?”
“I know my guy went to France, but I can’t find out what he did.”

Lesson 7 Monday 7/12/09 Period 8 (2:50-3:30pm) – Students were still working on the task but not as actively engaged as previously.

The lesson again focused on students completing their research and scaffold. The lesson was noticeably much noisier than that of the previous Friday. Students were speaking much louder in class. Most students appeared to be still working with their research, but a number of students were quite boisterous and rowdy. This did not appear to bother the teacher. Some students were laughing and calling out in class, while another disrupted a working student by turning off his computer.

Students were still being frustrated by some websites being blocked or unavailable. Overall, students were not concentrating or working as effectively in this lesson. They were still using the website information mainly from the soldier’s record to complete sections of the scaffold.

Lesson 8 Tuesday 8/12/09 Period 8 (2:50-3:30) – Most students are still engaged and working to complete the scaffold on the soldier

The lesson focused on students completing their scaffolds. This lesson was noticeably quieter than the previous lesson even though both were the last lessons of
the day, period 8. On Monday the students have PE (physical education) class in period 7 and come back to class after physical activity.

The students were still working on completing their scaffolds. Some students say that they have finished getting information from the soldier’s record. The teacher encouraged students to look at other websites to see if they could find photographs. One student commented that their soldier was interesting as he must have visited a prostitute as he had gonorrhoea. Two girls nearby join in and comment: “I had gonorrhoea.” “I did too.”-meaning that their soldiers also contracted the disease. The conversation indicated a strong association with their soldier as in their language they had become the soldier. This prompted discussion about how records were restricted until after the soldiers had died.

All students appeared to be working quite well on the task completing their scaffolds, despite this being the last lesson of the day and being almost at the end of the school year. The teacher, as in previous lessons, moved around the classroom assisting individual students. Students still needed help in making sense of the records in putting the soldier’s story together. “Sir, what does ‘do’ mean? Does it mean ‘as above’?”

**Lesson 9 Tuesday 15/12/09 Period 8 (2:50-3:30pm) – Only some students are still engaged and completing the task**

This lesson focused on finishing the task. It was the last week of school and this was the second last history lesson for the year. The students started off looking for additional information such as a photograph and grave details. The students and teacher were quite relaxed and it was apparent to the students that they would not be required to hand anything in or present what they had found. The task just seemed to peter out and the teacher did not finalise it. Some students continued to look for information on their soldier while the rest used their computers to play games.