THE ENHANCED USE OF DIGITAL TECHNOLOGIES IN SCHOOL GUIDANCE COUNSELLOR AND STUDENT ACTIVITY

A Thesis submitted by

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The introduction of technology is extremely important to teenagers of today's society. The use of apps and websites, songs and videos should be used to engage the student and relax them however should never become more important than speaking one on one. The ideas of communicating via email or text in non-school times is good for those who may need constant support and encouragement. I think guidance officers should chat with each student as to what uses of technology they enjoy using and work that into their time together,

Student Year 11 (post-intervention survey comment)

Abstract

Digital technologies are constantly changing and school guidance counsellors (SGC) are challenged to keep up with the adolescents' use and acquisition of new technologies. There is limited research investigating the impact of providing practicing SGCs with professional development and support in implementing digital technologies. In a rural district in Queensland, Australia, nine secondary SGCs in public schools experienced a customised professional development program in the use of digital technologies. The aim of this face-to-face professional development was to enhance SGCs' use of digital technologies in their school guidance and counselling program. Following the professional development, the researcher and SGCs collaboratively designed nine activities incorporating digital technologies which were then used as an intervention in six schools. These activities were implemented with Year 11/12 students over 16 school weeks. The researcher used Activity Theory as a conceptual and methodological framework to help understand the changes that resulted from the activity generated by the use of digital technologies by SGCs and Year 11/12 students. Data were collected through mixed methods instruments using pre- and post- surveys, pre- and post- semi-structured focus group interviews, SGC diaries, SGC research meetings and the researcher's unstructured observations. A total of 123 students completed the pre- and post-surveys.

The following significant differences (p <.05 level) emerged from the study:

1) SGCs increased their use of the mobile phone in their guidance and counselling service delivery at school.

2) Students decreased their frequency of use of data projectors at school.

3) SGCs increased their frequency of use of apps in their guidance and counselling service delivery.

4) Students increased their frequency of use with eight of the eleven listed digital technologies.

5) There were some specific SGCs' technological duties and responsibilities that increased over the research period. These included, providing up to date information, providing information for the School Guidance and Counselling web page, organising an electronic newsletter, using apps that complemented SGC's interventions, and managing a School Guidance and Counselling blog.

6) There were increases in students' technological duties and responsibilities which included trying to apply new information to their lives that they had received from the SGCs' use of technologies, checking the School Guidance and Counselling webpage and regular checking of SGC emails.

7) Following the intervention, students' results demonstrated increases in them feeling part of the school guidance and counselling community, that SGCs' use of digital technologies had built a stronger relationship with them and that they had a good relationship with the SGC.

Additional quantitative findings emerged from the study:

1) A further quantitative finding of the study established that the majority of students (73%) agreed that the school guidance and counselling service had improved through the use of digital technologies. This was supported through student comments regarding improved accessibility to the SGC, improved quantity, access and application of information and enhanced communication with the SGC.

2) All SGCs affirmed that digital technologies had improved the service. This was supported through SGC comments of improved and increased communication with students and greater access and contact with students.

The following qualitative findings emerged from the study:

1) There was an increase in how SGCs used digital technologies in their school guidance and counselling service through: Data Management, Communication and Collaboration, the use of the World Wide Web, and the use of available Multimedia.

2) SGCs highlighted that digital technology rules fell into four themes: maintaining confidentiality, following policy requirements, ensuring safety, and work technology entering SGCs' private lives. SGCs viewed the technology rules to be appropriate and needed to protect both student and SGCs.

3) Students highlighted that digital technology rules also formed four rule groups: ensuring safety, using social media, respecting others, and using digital devices. Students viewed the technology rules to be appropriate and needed. Rules that constrained students included blocked websites.

Conclusions from this study

This short form customised face to face professional development program increased SGCs' knowledge, confidence and skills while using digital technologies in their service delivery. Results indicate that professional development in the use of digital technologies can result in changes in SGC behaviour and improve school guidance and counselling service delivery. In the main, students appear willing to engage in enhanced use of digital technologies by SGCs. Research results indicate that if SGCs are given the appropriate professional development in technology, access to appropriate technological devices, and support in implementation, the school guidance and counselling service will improve. SGCs are prepared to use digital technologies in their role however they appear wary of technology that increases workload for little perceived benefit.

CERTIFICATE OF THESIS

This thesis is entirely the work of Gary Hohn except where otherwise acknowledged. The work is original and has not previously been submitted for any other award, except where acknowledged.

Student and supervisors signatures of endorsement are held at USQ.
Principal supervisor: Professor Romina Jamieson-Proctor
Associate supervisor: Dr Patrick O'Brien

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Glossary

Learning Place is the Department of Education and Training's eLearning website providing secure and safe access to a range of digital tools, resources and online spaces for teaching and learning, collaboration and networking. It is an environment for both DET students and staff (Department of Education & Training, 2015).

OneSchool (Department of Education & Training, 2016) is software that is used by the Department of Education and Training (DET) to run flexible, sustainable and consistent teaching, learning and administrative processes. OneSchool is a transformational initiative for Queensland State Schools that supports teachers, administrators, students and their parents in student management, curriculum and learning management, finance and asset management, resource management, performance, reporting and analysis.

Pre-service school guidance counsellor is a student studying an under- or post-graduate qualification in school guidance and counselling.

School implementation refers to school guidance and counsellors using technologies in their school over a 16 week duration following the technology professional development program.

Short Messaging Service (SMS) is a term used interchangeably with *text messaging*, *texting* or just *text* (Rigby, 2008). A text message is a series of up to 180 characters typed on the keypad of the sender's mobile phone that travels through wireless networks and arrives on the screen of the recipient's mobile phone (Rigby, 2008).

Smart phones are mobile phones that perform many of the functions of a computer, typically having a touchscreen interface, Internet access, and an operating system capable of running downloaded apps (Oxford University Press, 2016).

Social Networking Technology refers to specific technologies that allow users to communicate quickly through the use of the technology (Grosshandler, 2012). The major components of a social networking site includes a profile page, network of friends, public commenting system, and a private messaging system, for example Facebook and Myspace… (Boyd, 2007).

Technology is the manner of accomplishing a task especially using technical processes, methods, or knowledge (Merriam-Webster Incorporated, 2016). For the purpose of this study, the terms technology, digital technology and Information Computer Technology (ICT) will be used interchangeably. The Queensland Government (2014) further explain that ICT facilities and devices incorporate computers (including palm and handheld devices); telephones (including mobiles); removable media; radios or other high frequency communication devices; television sets; digital or analogue recorders (including DVD and video); cameras; photocopiers; facsimile machines; printers (and other imaging equipment); electronic networks; Internet; email; web mail; and fee-based web.

Chapter 1.
Introduction

1.1 Background to Study

Technology is impacting on all dimensions of life: social, economic, political, and personal. Zhao and Zang (2013) have stated,

> Throughout history the development of technology has been affecting people's lives. Any kind of technological innovation may give a qualitative leap in human society. The impact of technology has penetrated into the study of various disciplines. (p.29)

The Internet has become the fastest growing technology in the world (Cartwright & McDermott, 2009). More recent studies (Tomovic, Pejanovic-Djurisic, & Radusinovic, 2014) show that the use of mobile technology will increase faster than the fixed Internet traffic in the near future. Albion, Jamieson-Proctor and Finger (2011) reported that the uptake of technologies was already widespread in Australian households in 2011. Harris, Straker and Pollock (2013) found that total computer exposure was greater at home than school, and that this increased with young peoples' age. The proportion of Australian families with Internet connected computers grew from 20% to 86% between 1998 and 2009 (Australian Bureau of Statistics, 2011b) and continues to increase. Harris et al. have stated that,

> Young people today are reported to live media saturated lives, with a recent review of ninety studies, across 539 independent samples, finding that youths are likely to use TV, computer and electronic games for on average 25% of their waking hours. Information technology (IT) use by young people includes reading and writing with paper based media, and interacting with electronic based media such as computers, television, electronic game devices and mobile (cell) phones. (p. 61)

Clearly technology is infiltrating our homes, schools, work and recreational environments. The world's adolescents (*Generation Z*) have lived their entire lives immersed in technology which has significantly impacted on their learning, work, and social and recreational way of life. Generation Z live in a "digital playground" (Brookes, 2009,"Watch out for Generation Z" para. 9) and are extremely familiar with technology (Rigby, 2008) where screens have been part of their daily lives. Technology has become an important component of teen culture (Li, Snow, & White, 2015). Renowned researchers of school guidance and counselling and the use of technology, Hayden, Poynton and Sabella further reinforce this point, "Children are surrounded by technology today and technology is a more integral part of their daily lives than it is for most adults" (2008, para. 9).

Australian and Queensland governments have recognised that technology is the way of the future for all generations and it is imperative to support, harness and capitalise on the use of technology (Australian Curriculum Assessment and Reporting Authority, 2014; Australian Government Department of Broadband Commonweath & Digital Economy, 2012; Department of Education Training Queensland, 2016). Major Australian government initiatives have included the National Broadband Network and an investment of over $2.4 billion in the Digital Education Revolution, providing each Year 9-12 student with access to a computer (Australian Government Department of Broadband Commonweath & Digital Economy, 2012). Furthermore the Australian Curriculum and Assessment and Reporting Authority (ACARA) prioritised information and communication technology as one of the seven general capabilities of Australian curriculum for students (Australian Curriculum Assessment and Reporting Authority, 2013). The Department of Education and Training (DET) in Queensland impresses on their schools that they must realise the potential of technologies as ICT grows internationally and school personnel have a responsibility to meet students' and parents' demands that the education system ardently adopts the use of technology (Department of Education Training Queensland, 2016):

> The current generation of students learn and speak ICT with ease. They thrive on its functionality, portability and adaptability. They use ICT to play and live. As the use of ICT continues to grow globally, students and their parents are increasingly demanding an education that embraces ICT.

> To help schools engage and motivate this new generation of students, they must realise the full educational potential of new technologies (para. 4).

1.2 Technology and School Guidance Counsellors

Internationally, governments have employed School Guidance Counsellors (SGC) to support students' academic, personal/social and career development (American School Counselor Association, 2016; Glasheen, Campbell, & Shochet, 2013; Paisley & McMahon, 2001). DET provides school guidance and counselling services to all public schools inclusive of secondary schools (Years 7-12 students). SGCs work closely with students, families, teachers, non-teaching professionals and departmental agencies and authorities (Department of Education Training & Employment Queensland, 2014). In Australia the ratio of SGCs, counsellors and school psychologists to students is approximately 1:850 (Australian Psychologists and Counsellors in Schools, 2013).

Glasheen et al. (2013) conducted a study of online counselling which indicated that Queensland SGCs continue to be challenged to keep pace with the rate of new technology acquisition by students, challenged to skill themselves with new technologies and challenged to support adolescents in mental health. The international literature also contends that SGCs ignoring, avoiding or lingering in their use of technology will impact adversely on client connection and work effectiveness (Cogoi, Barnes, & La Gro, 2009; Hayden et al., 2008; Paisley & McMahon, 2001). Cogoi et al. cautioned that there is a risk that clients will become disengaged as school and post-school guidance counsellor approaches no longer reflect their clients' preferences. Hayden et al. (2008) highlighted that avoiding or ignoring technology will diminish the SGC's ability to do work effectively and in a timely manner and students and parents will see them as out of touch with the world. As early as 2001, Paisley and McMahon advocated that counsellors must keep pace with technological change to be of value to their students. All of these studies emphasise that there is a need for SGCs to stay in tune with their clients' use of technology.

The need for further professional development in the area of technology for SGCs has been stressed by many authors including Hayden, Poynton and Sabella (2010), Carlson, Portman and Bartlett (2006) and Carey and Carey (2004). More than a decade ago Granello (2001) contended that school counsellors worked in systems that were accustomed to providing professional development for teachers but not necessarily for other professionals in schools, such as school counsellors. Hayden et al. (2008) also referred to the lack of relevant SGC training in the use of technology in many school systems. A later study by Grosshandler (2012) reported that many school counsellors felt a need for technology training. Australian researchers, Glasheen et al. (2013) also endorsed this point and concluded from their literature review and study that "The findings imply the need for significant skill development of school counsellors in order to tap the potential benefits of using technology in their practices" (p. 230). Beidoğlu, Dinçyürek and Akıntuğ (2015) determined from a study in Cyprus that schools should provide technology training specifically for SGCs.

A number of researchers such as Bobek et al. (2005); Burt, Gonzalez, Swank, Ascher and Cunningham (2011); Carlson et al. (2006) have also advocated the ongoing need to train pre-service SGCs in technology. A study by Yusop, Sulaiman and Abdullah (2008) researched the impact of teaching pre-service counsellors in various competencies in technology as well as the need to assist their trainers in how to use technology in their courses.

An increase in SGC use of technology is evident in the literature. However there are still concerns of SGCs' abilities to integrate technology into their day to day service delivery (Carlson et al., 2006; Glasheen & Campbell, 2012; Glasheen et al., 2013; Hayden et al., 2008). Researchers in the area of school guidance technology, Hayden et al. (2008) and Baker and Gerler (2001) recognised that although the profession had developed exponentially in recent years there continues to be under-utilisation of technology as a tool to improve school counselling programs. An earlier study by Carlson et al. (2006) analysed 381 SGC surveys and concluded that the majority of SGCs were using technology to carry out their professional duties (emails and websites) however there were still challenges in transferring the skills and the use of specific software into school guidance and counselling practice. Furthermore,

Fernandez, Sanz and Murias (2009) concluded that SGCs were primarily using technology for professional duties where the skills most used were of a general nature, involving word processing, email and related to Internet/Intranet.

Despite there being five decades of studies of SGCs using technology, researchers identify many concerns with the research. These include research effectiveness (Barnes, 2008), patchiness of research (Cogoi et al., 2009), paucity of research (Hayden et al., 2008; Sabella, Poynton, & Isaacs, 2010; Sobrado, Ceinos, & Santiago de Compostela, 2010) and deficiency in the number of papers presented (Grosshandler, 2012; Masagca & Londerio, 2008). The deficiency of contemporary research was highlighted by Hayden et al. (2008) who conducted a literature review and found that the majority of studies in this area were conducted in the early 1980s to early 2000s. The authors contended that school guidance and counselling literature in the use technology had provided a sound base regarding the history of school counsellors and technology, however it was quite out-dated and a chasm existed in the literature (Hayden et al., 2008).

A more current review of the literature is essential. A review of the literature by the researcher found that the majority of literature pertained to how SGCs used technology, what forms of technology they were using and their perceptions of technology. There is a deficiency of literature investigating both the students' and SGCs' perceptions of the impact and effectiveness in the use of technology in the school guidance and counselling service. There are limited studies investigating the integration of technology into the guidance and counselling service in schools. Furthermore, there are no studies researching the impact of involving SGCs in a professional development in the use of technology and SGCs implementing these technology competencies and dispositions into the school context.

1.3 Research Problem

The increase in technology is evident in all aspects of life including school, home, work and recreation contexts. Technology is not only infiltrating adolescents' learning, their work and social and recreational way of life but also the homes in which they live. As a profession, SGCs' use of technology in their work is still evolving in terms of their technology competencies, dispositions towards the use of technologies and integration into their school guidance and counselling service. SGCs are constantly challenged to keep up with the adolescents' use and acquisition of technology. There is limited research investigating the impact of providing practicing SGCs with professional development in the use of technologies. Furthermore, there is an absence of research accessing both SGCs' and students' perceptions when technology is used in the school guidance and counselling service. Contemporary research is needed to investigate the impact on SGCs, students and the school guidance counselling service when SGCs are provided with professional development in the use of digital technologies and how to integrate this into their service.

1.4 Aims of the Study

This study used Activity Theory to investigate the impact on the school guidance and counselling service when SGCs enhanced their use of digital technologies in their work. SGCs were involved in a custom designed professional development program followed by a four month school implementation during which they used their new found technology competencies with students and within their role. The customised professional development program was designed by the researcher and two eLearning teachers. The technology competencies and dispositions acquired in the professional development program were used in nine school implementation activities: iPads, Microsoft Outlook 2010 (Mendelson, 2011, March), Microsoft OneNote 2010 (NZ Business, 2012), student emails, newsletters, student websites, school guidance and counselling web page, blog, Facebook and Twitter in the school setting. The school implementation intervention activities were designed by the

researcher and the SGCs involved in the study. This research examined the impact of the school implementation, during which the SGCs were encouraged to increase the integration of technology tools with their students, by comparing pre-intervention (Test 1) data with post-intervention (Test 2) data. The measured outcomes of the study were guided by the conceptual framework of Activity Theory. Outcomes measured included the type and frequency of use of technology and how SGCs and students were using technology that involved the school guidance and counselling service. Other research outcomes measured the SGC and student perceptions such as: what were the helpful and unhelpful school technology rules, what rules changed, what were the constraining and assisting technology duties and responsibilities, changes in the frequency of applying these duties and responsibilities, changes in the quality of the school guidance and counselling sense of community and relationships, changes that had resulted from the study that occurred within the participants and in the school guidance and counselling service as well as whether the service had improved.

The research was conducted in central Queensland, Australia. The participants included SGCs and Year 11/12 students from six DET secondary schools; three urban, and three rural. The aims of the study included:

- the intention that SGCs would:
    - increase their competencies with and dispositions towards the use of digital technology- including hardware and software;
    - increase their communication with students;
    - enhance their relationships with students;
    - decrease the *digital gap* between themselves and their students;
    - collaboratively design digital technology activities to use in the school implementation; and
    - experience ways to improve their school guidance counselling service through technology.

- the intention that students would:
    - increase their communication with the SGC;
    - enhance their relationships with the SGC;

- acquire knowledge relating to academics, mental health and careers; and
- gain a greater understanding of guidance and school counselling.

1.5 Activity Theory

In undertaking a study in the area of technology there are a range of methodologies that could be applied to investigate the use of technology. Activity Theory (Engeström, 1999a, 1999b) was used as a method of analysis that provides a rich description of the complex environment in which learning occurs (Barrett-Tatum, 2015). Activity theory has been used in a range of educational research (Bloomfield & Nguyen, 2015; Campbell, MacPherson, & Sawkins, 2014; Larkin & Finger, 2010). Activity theory emphasises the importance of studying real-life use of technology as a part of unfolding human interaction with the world (Kaptelinin & Nardi, 2006). Activity Theory provides a conceptual framework for analysing the impact of technologies on both the environment and humans involved in technological activity. The study has been guided by Engeström, a renowned writer on Activity Theory. Engeström (1999a) developed the third generation of Activity Theory (1999a, 1999b, 2001) based on six core elements: mediating artifacts (tools), object, subject, rules, division of labour, and community. These six core elements were integral in the formation of the research questions and guided the construction of all data gathering instruments and approaches.

1.6 Research Hypothesis

It was hypothesised that the implementation of a SGC customised professional development program in the use of technology to support student guidance and counselling activity and subsequent school implementation activities would result in changes within students and SGCs and in the school guidance and counselling service. The changes were examined, measured and analysed through the lens of Activity Theory and its six core focussing elements.

1.7 Research Questions

Activity Theory guided the design of the study's major and minor research questions. The major research question investigated in this study was:

> What changes occur to school guidance and counselling activity as a result of enhanced use of digital technologies?

In order to answer the major research question, six minor research questions were also developed:

1. What digital technology devices are SGCs and secondary students using a) at school, and b) away from school that involved the school guidance and counselling service? (Engeström: Mediating Tools)

2. In what ways and how often are SGCs and secondary students using digital technologies that involved the school guidance and counselling service? (Engeström: Mediating Tools)

3. How does an enhanced use of digital technologies affect SGCs' and secondary students' perception of school rules relating to the use of digital technologies? (Engeström: Rules)

4. How do secondary students' and SGCs' technological duties and responsibilities change through the use of enhanced digital technologies in the school guidance and counselling context? (Engeström: Division of Labour)

5. What changes occur in the secondary students' and SGCs' sense of community and relationships with one another from the enhanced use of digital technologies in the school guidance and counselling context? (Engeström: Community)

6. What changes in the school guidance and counselling service result from the enhanced use of digital technologies amongst SGCs and secondary students? (Engeström: Object)

1.8 Significance of the Study

The knowledge acquired through this study will contribute to school guidance and counselling research and will impact on SGC practice regionally, nationally and internationally. The study will provide SGC practitioners and researchers in the area of school guidance and counselling practice with findings that reflect both students' and SGCs' perceptions of the impact of technology. The research advocates the need for organisations such as DET to support customised professional development in technology that is specifically designed for SGCs. Lastly, the study highlights the need for pre-service programs in universities to train future SGCs using technology competencies outlined by professional bodies through a documented curriculum that focusses on the integration of technology into the school guidance and counselling role.

The study also has methodological significance as it is the first time that Activity Theory has been used as a methodology in a study of SGCs and technology. Activity Theory research methodology has been used to analyse the impact of using digital technology on both student and SGC activity while engaged in the use of technology.

This research has led to practical findings that will assist the school guidance and counselling profession. Practical findings include 1) increasing SGCs' confidence, knowledge and skills in the use of technology, 2) improving relationships with students, 3) identifying specific technology intervention activities that improve the service, 4) providing technological experiences that lead to greater knowledge for students in areas such as mental health and careers, 5) identifying which specific forms of technology activity are used by students and SGCs, 6) identifying technology rules that restrict or assist SGCs and students, and 7) promoting the

school guidance and counselling in the school community so that it is better understood by parents, students, staff and administration.

1.9 Structure of the Thesis

The following outline will be used to structure the thesis. Chapter one introduced the topic and provided the aims and research questions upon which the study is grounded. Chapter two reviews and synthesises the relevant literature relating to technology specifically in school guidance and counselling. Chapter three presents the methodology: a mixed method study guided by Activity Theory. Chapter four outlines the intervention including the SGC professional development program and the planning of nine school implementation intervention activities. Chapter five presents the study's quantitative and qualitative results. Chapter six examines and discusses the results that align to each research question. Finally, Chapter seven, presents the conclusions drawn from the study, outlines limitations of the study and makes recommendations for future research.

Chapter 2.
Literature Review

2.1 Introduction

This chapter reviews the literature significant to an investigation into the impact of enhanced digital technologies on school guidance and counselling practice. The literature review is divided into five sections: School Guidance Counsellors (SGCs) and their current use of technology, SGCs and training in the use of technology, SGC pre-service training in the use of technology and school students and their use of technology. A final section of the chapter will briefly discuss Activity Theory as the chosen methodological approach for this study.

2.2 SGCs and Technology

Over the past 15 years researchers in school guidance counselling (Baker & Gerler, 2001; Grosshandler, 2012; Hayden et al., 2008; Rainey, McGlothlin, & Guillott Miller, 2008) have endorsed that the school guidance and counselling profession has increased its day-to-day use of technology. Beidoğlu, Dinçyürek and Akıntuğ (2015) and Vinluan (2011) found that SGCs have a positive attitude to technology. Carlson et al. (2006) reported that most SGCs were comfortable using computers frequently in their work.

Historically, SGCs' most extensive use of computers has been in the area of career development (Hayden et al., 2008). The long history of the use of technology in careers within school guidance and counselling is noted by numerous authors (Bright, 2015; Hambley & Magnusson, 2001; Haring-Hidore, 1984; Harris-Bowlsbey, 2013; Harris-Bowlsbey & Sampson, 2005; Hayden et al., 2008; Kivilghan, Johnston, Hogan, & Mauer, 1994; Pyle, 1984).

2.2.1 Forms of technology used by SGCs.

Hayden et al. (2008) conducted a review of the relevant literature investigating how school counsellors have used technology. The authors contended that most if not all literature was dated. Grosshandler (2012, p. 13) and Holcomb-McCoy (2005) also identified a deficiency in the research around the use of technology in school counselling.

Glasheen et al. (2013) researched 210 SGCs, via a quantitative survey to determine the predictive factors that contributed to a school guidance counsellor's intention to use online counselling. One of the findings of the study was that half of the participants indicated that they would use online facilities in school if the school offered it. This study did highlight that SGCs were prepared to learn new technologies and use them in the school setting if they believed students would use it genuinely. SGCs said that they would use technology if schools provided the technology to undertake online counselling. Concerns expressed by SGCs were that ethical, legal and privacy factors needed to be addressed. The SGCs also noted that their demanding workload was another reason for their apprehension in the take up of online counselling (Glasheen, 2014). However 93% of the SGCs in the study would be interested in further training. This study aligns with Bastemur and Bastemur's (2015) Turkish study indicating that both SGCs and non-school based counsellors were interested in online counselling particularly if training was provided.

Grosshandler (2012, p. 13) conducted a quality study of school counsellors at Recognized American School Counselor Association Model Programs (RAMP). The research was a mixed methods study initially using quantitative research questions to address usage frequencies and purposes with respects to nine specific technologies (website, e-mail, internet, Microsoft word, Microsoft Excel, Microsoft PowerPoint, Student database systems, social networking platforms and EZ Analyse an Excel-based tool). Sixty-five SGCs completed the surveys. The second phase collected qualitative data from three case study interviews to investigate their significantly high use of technology. Although the study was limited by a restricted SGC group (only members of RAMP) and qualitative data were limited to three case

studies, the results were informative. RAMP SGCs used Microsoft Word most frequently in their work. The Internet, email and Microsoft PowerPoint were the other technologies found to rank within the top four technologies when usage frequency rate was compared for the nine technologies. Furthermore, Grosshandler's study and Glasheen's (2014) were among the few researchers to use a mixed method approach.

Despite Mullen, Griffith, Freene and Lambie (2014) reporting that social media had become a medium for all individuals of all ages and more and more schools had adopted and engaged in social media, Grosshandler (2012) reported the contrary when considering SGCs' use of social networking. Grosshandler's study revealed that social networking platforms had not been widely accepted by SGCs. Although Grosshandler did not provide reasons for this, Glasheen and Campbell (2012) contended that Australian schools were reluctant to implement educational processes that used adolescent social networking sites because schools were concerned about potential dangers for students. Glasheen, Campbell and Shochet (2010) also maintained from their work with SGC focus groups that SGCs valued more importantly the face-to-face presence of the student rather than online communication. Barnes (2008) and Cogoi et al. (2009) also reinforced that face-to-face communication was a vital component of the SGC role. Given that social networking is not a face-to-face interaction perhaps this is another reason why SGCs have been hesitant in using this technology. Furthermore it could be that that some education systems or specific schools allow only restricted use of social networking by school personnel or do not permit its use at all.

Vinluan (2011) conducted a survey of SGCs from public and private schools in Manila, in the Philippines, to determine their level of awareness, attitudes and extent of practice of ICT use in their work. A total of 240 participants completed the quantitative survey based on the Likert scales. The weaknesses in the study included that some of the surveys were self-completed whilst others were implemented as interviews by students from the Introduction to Guidance course at the University of the Philippines College of Education in Quezon City. Another concern was that some SGCs who participated in the study were undertaking a dual role as teachers in the schools and operating the use of technology as a teacher and as a SGC. The

study's survey enabled SGCs to select from a list of 20 different technology applications. ICT tools were found to be most frequently used for writing letters and reports (88% of respondents). The results also outlined the percentage of respondents' use of technologies in other core activities: calling parents (80%), record keeping (75%), following-up students (66%), testing (65%), and career guidance (61%). SGCs also reported the use of telephones (33%) and SMS text messaging (26%).

A European study investigating the state of technology skills of SGCs was conducted by Fernandez et al. (2009). The study was quite large and included 578 SGCs from five countries: Germany, Spain, Italy, United Kingdom and Romania. The research focussed on determining the general and specific ICT skills within the SGC's role. A detailed questionnaire asked SGCs to rate themselves on a five point Likert scale with reference to a range of ICT skills and processes; basic computer skills; word processing; spreadsheet skills; presentation skills; database skills; Internet/Intranet skills and; use of digital devices (video, mobile SMS and cameras). The results of the study reported that SGCs primarily used technology for administrative skills such as word processing and tasks related to the Internet/Intranet. The high use of word processing also aligned with Grosshandler's (2012) results. The study (Fernandez et al., 2009) reported that SGCs, in the main, failed to use technology that involved the development of their professional work through the use of spreadsheets, presentation skills and graphics.

Positive comfort levels with the use of email by SGCs were also reflected by Carlson et al. (2006) whose study comprised 381 SGCs from three American states. The return rate was 46%. Interestingly there was a closer balance of females (66%) to males (34%) compared to studies cited by Beidoğlu et al. (2015), Holcomb-McCoy (2005) and Vinluan (2011). Participants were not solely secondary SGCs but also included elementary and middle school SGCs. A limitation with the study was that there were parallel sampling procedures but not identical sampling procedures used in the three states which could have resulted in reliability implications when analysing and comparing the data by state. The data collection was purely through a single point in time quantitative survey. Although Carlson et al. (2006) reported positive comfort levels with the use of email by SGCs, another finding from their

study demonstrated that a majority of the SGCs indicated they were anxious about using a variety of software. Interestingly, the most common type of technology reportedly used by SGCs was the VCR and monitor (85%), desktop computer (83%) and laptop (21%). The study concluded that SGCs with higher comfort levels and more training were more likely to use a variety of software. SGCs' exposure and experience with specific technologies appeared to increase usage.

An earlier smaller study by Holcomb-McCoy (2005) researched quantitatively how SGCs (N=222) had made use of computer technology in Maryland, USA. The study was not solely directed at secondary SGCs and involved only suburban schools in two school districts in the same region and state. Given that this was a technology study, surprisingly the surveys were mailed to participants who also returned surveys via mail rather than the use of available technologies. However, the results do have pertinence to SGCs and technology. The results of the study indicated that SGCs primarily used computers in a restrictive manner for word processing (also noted by Grosshandler, 2012 and Fernandez et al. 2009), data organisation and contacting community resources. However, it was noted that school counsellors infrequently used email to contact students, particularly with high percentages of ethnic minority groups. This reticence to emailing students was also noted in a smaller study by Beidoğlu et al. (2015) who revealed that SGCs recorded that it was only somewhat useful to have email exchange with students. Holcomb-McCoy (2005) also reported that SGCs' use of web page development tended to be sparingly used by SGCs in computer technology however other research (Reynolds & Kitchens, 2007; Van Horn & Myrick, 2001) indicated that SGCs saw importance of school websites in promoting school guidance and counselling, This appears to suggest that SGCs see the importance of using school websites however SGCs are not using school websites optimally.

2.2.2 Needs and challenges of SGCs' use of technology.

The overwhelming increase in technology use and evolution in technology has highlighted the need for SGCs to keep in touch with their clientele and the need to continually upskill their technological competencies (Hayden et al., 2008; Rainey et al., 2008). Rainey et al. (2008)emphasised that, it was imperative that SGCs keep

pace with their changing clientele and expand their understanding, knowledge and interest about technology through tapping into the technology students were currently using in their home, school and recreational environments. Hayden et al. (2010) emphasised that SGCs needed to keep pace with evolving technologies in order to serve students and clients effectively. Earlier these authors (2008) had warned the school guidance counselling profession that avoiding technology could result in ethical issues by not maintaining the competencies expected within the profession.

The literature identifies many benefits of SGCs using technology in their role including 1) assisting SGCs to manage large caseloads (Hayden et al., 2008, 2010; Jellins, 2015), 2) making some aspects of the counsellor's role more efficient (Hayden et al., 2008; Jellins, 2015; Sabella et al., 2010), 3) a means to minimise costs (Howieson & Semple, 2013), 4) enabling increased productivity (Jellins, 2015; Sobrado et al., 2010), and 5) a means of building relationships with clients (Cogoi et al., 2009; Glasheen & Campbell, 2012; Sobrado et al., 2010). Sabella (2003) highlighted use of technology as a means to communicate with remote audiences and to help others understand the SGC role. Cogoi et al. (2009, p. 14) reported that ICT including mobile phones, blogging and social networking makes it possible to reach clients who have found it difficult to access and use traditional information, training resources and services. Harris-Bowlsbey (2013) also endorsed the use of smart phones in career education. Hayden et al. (2010) highlighted that technology facilitates more efficient means of communicating with students, parents and colleagues and Barnes (2008) also endorsed the communication benefits of technology for SGCs. A number of writers Jellins (2015); Carlson et al. (2006); Sears and Granello (2002); Kurantz (2002); Granello (2001) have advocated that the use of technology will improve SGCs' program and delivery of services. Technology also allows the information to be updated and received by all stakeholders synchronously (Sabella & Booker, 2003) and enables client access to information (Flood & Pelling, 2008; Patrick & Flanagan, 2008; Pyle, 1984; Sabella & Booker, 2003; Yonan, Bardick, & Willment, 2011). Finally, technology has enabled SGCs to access professional development in a practical, cost-effective and time efficient manner reducing travel which in turn increases the opportunity for face-to face-activities (Yates, 2014).

However there are also challenges for SGCs using technology in school guidance and counselling practice. Anderson (2002) and Paisley and McMahon (2001) stressed that technology is expensive. Other authors (Masagca & Londerio, 2008) have highlighted that the uptake of ICT for school counsellors was very much related to economic aspects, quality of information and the issue of commercialism. Some consultants associated with the Connexions program in the United Kingdom viewed the integration of ICT cautiously and were concerned that ICT infrastructure was inferior, difficult to work with and lacked realistic budgets (Barnes, 2008). The literature has also highlighted that SGCs are cautious with technology as face-to-face communication is a crucial part of their role (Barnes, 2008; Cogoi et al., 2009) and technology can be dehumanising (Bright, 2015). Some researchers perceive a dependence on technology in delivering counselling services may exacerbate the *digital divide* between families with internet access and those who cannot afford computers (Howieson & Semple, 2013; Paisley & McMahon, 2001). Studies by Barnes (2008) and Masagaca and Londerio (2008) highlighted that SGCs' managers' and supervisors' positive or negative interest in technology will positively or negatively influences the integration of technology by SGCs.

Although researchers have reported positive attitudes towards technology by SGCs, some researchers continue to claim that there are still pre-service SGCs that are intimidated by technology (Pierce, 2012a). Thirteen years ago Sabella (2003) reported that some SGCs viewed computers as an evil force. Myrick and Sabella (1995) claimed that personality types are attracted to school guidance and counselling are wary of technology (Myrick & Sabella, 1995). Following the implementation of four Australian studies Glasheen (2014) found that school guidance counsellors were still mistrustful of technology. Furthermore, Glasheen and Campbell (2009) have also alluded to attitude, confidence and personality characteristics acting as barriers causing many SGCs to be reluctant to fully engage with the new technology of online counselling in schools. The importance of SGC attitude was highlighted by Hayden et al. (2008) whose research concluded that school guidance counsellor attitude is the second most concerning drawback in the proliferation of computer use among members of this profession. The study (2008) involved an open-ended electronic survey seeking how SGCs used technology in their professional work. The data from 49 SGCs were categorised into four

components of the ASCA National Model's Delivery System: School Guidance Curriculum, Individual Student Planning, Responsive Services and System Support.

A more recent study by Beidoğlu et al. (2015) explored North Cyprus SGCs' opinions with using ICTs in their role. The study involved 61 SGCs incorporating a high number of females (88%). The overall results of the study indicated that SGCs had a positive opinion of the use of ICT in their work particularly the use of web pages and computer-based programs. However it was found that SGCs had negative opinions of online counselling. Finally, these researchers found no significant differences according to gender, age, degree, work setting, seniority, or student/school counsellor ratio.

2.2.3 Challenges to integrate technology into the school guidance and counselling service.

The question of how to integrate technology in guidance and school counselling continues to be raised by researchers (Baker & Gerler, 2001; Grosshandler, 2012; Hayden et al., 2008). Technology integration concerns were further endorsed by Sabella et al. (2010, p. 615) who stated that "In all, school counsellors have not integrated technology into their daily work lives as a profession in any consistent way." The integration of technology into the guidance and school counselling programs is often considered complex and filled with uncertainty (Bimrose, Kettunen, & Goddard, 2015). Carlson et al. (2006) also highlighted the challenge of transferring technology knowledge into practice. Furthermore, the literature indicates there is a paucity of studies investigating the integration of technology into service delivery (Carlson et al., 2006; Grosshandler, 2012; Masagca & Londerio, 2008).

Yonan et al. (2011) recognised that social media and cellular phones had presented challenges for counsellors where clients and professionals were now able to access personal information about each other through the internet, blurring the ethical and legal boundaries and possibly leading to unhelpful relationships. This dilemma was also recognised by Mullen et al. (2014) who advocated that professional

development for SGCs was needed for them to acquire knowledge about, and appreciation of, ethical and legal issues regarding the use of social media technology.

However, a study in Turkey with 542 counsellors (both school and non-school based) concluded that counsellors positively viewed online counselling (Bastemur & Bastemur, 2015). There were a relatively similar percentage of males to females who replied to a survey. Although this study was not solely directed at SGCs the findings are applicable to school guidance and counselling highlighting that organisations needed to provide counsellors with professional development in this form of technology in order to integrate this into their counselling service.

Other aspects of technology integration have also brought challenges. The Queensland Teacher's Union conducted a survey about activities that added significantly to Department of Education and Training (DET) personnel's workload for limited educational benefit (Ruttiman, 2015). The response was relatively large (500 responses) and restricted purely to union members, inclusive of SGCs. The author of the union study indicated that administrative processes and record keeping was the second most nominated concern. Ruttiman reported that the requirements of using OneSchool (DET's state-wide portal to digitally upload and retrieve information for each student) were highlighted as a particular concern.

Although the use of technology in school guidance and counselling has evolved over five decades there still exists difficulties and challenges for professional associations, DET and SGCs in integrating technology into the school guidance and counselling service. Predominantly it appears that SGCs are uncertain of how to integrate technology into their role due to a deficiency of professional development that teaches and supports the SGC. It would appear that some forms of technology may actually result in increased workloads for school personnel including SGCs.

2.2.4 Summary.

Technology continues to present both benefits and challenges for the profession. The school guidance counselling profession has clearly increased its use of technology, a shift from earlier years when the profession appeared wary of technology. SGCs are

more positive and comfortable with certain aspects of technology such as word processing, email and the Internet. However, the literature reiterates an ongoing theme that the SGCs continue to struggle with integrating technology into the job, often using technology in a restrictive manner. Despite this, later studies indicate that if SGCs know how to use technology, they will use it. SGCs need to continue to enhance their use of technology to stay connected to all clientele.

2.3 SGC Technology Training

2.3.1 The need for SGC technology training.

As stated earlier the use of technology in school guidance has increased within the profession, however researchers have continued to highlight the need to provide SGC training in the use of technology (Beidoğlu et al., 2015; Carlson et al., 2006; Glasheen & Campbell, 2009; Glasheen et al., 2013; Grosshandler, 2012; Hayden et al., 2008; Holcomb-McCoy, 2005; Roddy, 2013; Sabella & Booker, 2003; Vinluan, 2011). Travis (2007) stressed that SGCs needed training to properly utilise technology both efficiently and effectively including the most current technology available. SGCs also appear interested in technology training. Glasheen et al. (2013) found that 93% of the SGC participants were interested in further professional development in online counselling.

Queensland SGCs work in schools as part of DET. Iacob (Institute of Educational Sciences, 2012) has contended that the training needs of practitioners varies according to the context in which they work. Iacob noted that some organisations expected their practitioners to use a standard set of technology tools and are not expected to engage with their client outside a well-defined framework. The Queensland DET system is aligned with this structure. Other organisations allow more autonomy enabling the practitioner to use their own approaches to integrate technology into their work (Institute of Educational Sciences, 2012).

2.3.2 SGC technology training.

A number of researchers have questioned the quality of SGC training in technology that has been conducted in schools (Beidoğlu et al., 2015; Hayden et al., 2008; Sears & Granello, 2002). Sears and Granello (2002) contended that SGC training in technology was directed at teachers not SGCs. Following a study conducted on school counsellors' use of technology to undertake their role, Hayden, et al. (2008, p. 24) also concluded that , "...the lack of research on this topic, coupled with the lack of relevant technology training in many school systems, calls for a reassessment of where schools are placing their limited resources for school counsellors." Furthermore Beidoğlu et al. (2015) recommended that schools needed to take more responsibility for providing SGCs with training in technology.

Researchers also questioned what technology training existed for SGCs (Beidoğlu et al., 2015; Hayden et al., 2010; Roddy, 2013). Roddy (2013) concluded that previous research had stated the need for training in technology but research had not, to date, explored the types of training that was taking place or was available. Hayden et al. (2010, p. 616) stated that further research was needed to determine "What types of professional development opportunities in the area of technology do school counsellors already have?" Beidoğlu et al. (2015) also questioned what professional development opportunities were available for school guidance counsellors.

Some researchers contend that the majority of SGC training in technology takes place off the school campus. Carlson, et al. (2006) found that the majority of practicing school counsellors reported that their computer training occurred outside of schools or in continuing education courses. The results also suggest that technology training arranged by schools for SGCs is infrequent. Half of the study's cohort (56%) had secondary school guidance counselling experience. This has relevance to the present study as all participants were working in secondary schools. However the study by Carlson et al. failed to capture the length or intensity of the training programs in technology but provided valuable information about SGCs' historical access to training in the use of technology.

Competencies in the use of technology have been highlighted in the examination of SGC training (Fernandez et al., 2009; Rainey et al., 2008; Roddy, 2013; Sabella et al., 2010; Sobrado et al., 2010). One of the latest and largest studies to focus on competencies in technology was a study by Sabella et al. (2010) of 2571 participants (SGCs, student SGCs and counsellor educators). The focus of this study was on the perceived importance of competencies in technology. Although this was a large study the data were partially compromised as a significant number of respondents failed to complete all online survey items and some terms used were unfamiliar to the respondents (Sabella et al., 2010). The participants' results rated competencies from most important to least important. The items rated were Ethical Standards, Data Management, Word Processing, World Wide Web, Communication and Collaboration, Operating Systems, Multimedia, and Web Development. The study concluded that the participant's age, level of practice or position didn't affect the perceived importance of technology competencies (2010). The results indicated that competencies in technology relating to Ethical Standards and Data Management practices were rated as the most important. Technological competencies rated lowest for level of importance related to Multimedia and Web Development. Four of the other subscales were very similar in overall average ratings and included Word Processing, World Wide Web, Communication and Collaboration, and Operating Systems. Despite this study targeting the necessary SGC competencies in technology there was no reference to other studies or conclusions drawn as to what was happening in terms of actual training in technology or program interventions in the field of school guidance counselling.

2.3.3 SGC training studies.

There have been limited studies reported in the literature that have used as part of their intervention the training of practicing SGCs in the use of technology within the school context. One study of note was an European study which was implemented in two stages (2005 and 2007) that involved guidance practitioners from the United Kingdom, Romania, Italy and Spain (Cogoi et al., 2009). The first stage *ICT and Guidance Officers ICT Skills Project* (Cogoi, 2005) identified ICT skills and competencies that guidance practitioners required for their role. This was followed by the second stage (2007-2009) of the project *ICT Skills 2: Tools and Training for*

E-practitioners (Sobrado et al., 2010) which trained guidance practitioners in technology competency skills. The study included a total of 80 guidance practitioners working in the vocational educational or professional areas, with students, workers, young people and physically or socially disadvantaged clients. The project pilot was implemented for durations of approximately eight to ten weeks in each of the four countries. The training program included a range of teaching approaches such as face-to-face classroom instruction, distance instruction and blended deliveries. The guidance practitioners participated in accessing some of the 30 training ICT modules that were provided online. Each module equated to 25 hours work. The training modules were designed to incorporate the following range of Web 2.0 technologies: websites, e-portfolios, email, fixed and mobile telephones, text messaging, chat rooms, forums, blogs, wikis, videoconferences, skype, digital television, google groups, virtual worlds, Linkedin (professional networking) and Xing (social software platform for small world networks). Each participant had their own E-Guidance portfolio.

The creators (Cogoi et al., 2009) of the project outlined a number of challenges in the study. Firstly, there were unresolved issues in some countries about the legal status and role of guidance practitioners which impacted on training and developmental issues (2009). These specific issues were not made clear in the report. The researchers also indicated that there was not a consistent standardisation of implementation of the study's interventions as it differed from country to country (2009). The project's results led to a revised version of the guidance ICT skills and competencies map and the further development of e-guidance services (2009). The project highlighted that there was a genuine desire to use more technology in guidance programs but intensive professional development of guidance practitioners required significant time and commitment (2009). The study was extremely large, was implemented across a variety of cultures and involved post-secondary students. Despite the service targeting post-secondary students, the outcomes provide relevance for SGC studies that involve training in technology.

The only reference to Queensland research that has some partial link to SGC and technology training involved the trial of computers for teachers in 2006. The following information is noted in the "Computers for Teachers trial" document

(Department of Education Training & Employment, 2006). The trial involved 1,532 personnel in selected DET schools (55 schools in Moreton West District, 1 school in the Sunshine Coast District and 5 schools in the Cairns District). Staff received laptop computers for their professional use. The trial was held over two semesters (one year) and focussed on personal productivity to build teachers' personal knowledge, confidence and competency in using computers. The report (2006) indicated that the findings of the trial evaluation conclusively demonstrated improved confidence, frequency of use and positive impact upon teachers' skill levels and on teaching. These results align with Paisley and McMahon's (2001) conclusions that increased efficiency and effectiveness of technology occurs for school counsellors when they are comfortable with its use. It is unknown whether any SGCs took part in the "Computers for Teachers" study. Training was provided for participants however it was very generic in nature and did not attempt to address the needs of SGCs and their unique relationship with students.

2.3.4 Paucity of research about implementing a professional development program in technology applied in the school setting for SGCs.

The existing research literature has to date focused primarily on the many uses of technology, particularly the use of computers in the school guidance and counselling role, familiarity by SGCs with technology, SGC perceptions of the importance of technology and SGCs' competencies in the use of technology. Furthermore the vast majority of studies have used quantitative methods alone. The researcher was unable to find any studies researching the implementation of a professional development program that was applied in the school setting specifically with SGCs accessing both SGCs' and students' perceptions of the impact on the school guidance and counselling service. Furthermore no studies were identified that also focussed on the effectiveness of training when applied in the school setting. Very few studies collected data from students about the effect on them following a technology intervention for SGCs. Furthermore, no published studies have used Activity Theory as a conceptual framework for analysing the impact of the SGC's use of technologies in both the school and home environment.

2.3.5 Summary.

Numerous researchers have identified the need for practicing SGCs to be trained in technology however there is a lack of mixed method research studying the implementation into the impact of training programs - particularly short-term training. The majority of studies have focussed on the competencies and skills needed by SGCs. Few studies have designed and implemented a training program in technology solely for SGCs in the school context based on the research literature about student's current use of technology. Later studies have indicated that SGCs are positive about technology however they are restricted in the knowledge and skills in how to use technology effectively. Furthermore later studies indicate that SGCs desire training in the integration and use of technologies.

2.4 SGC Pre-Service Training in the Use of Technology

The importance of SGCs pre-service training in technology is well supported in the literature (Carlson et al., 2006; Glasheen & Campbell, 2009; Glasheen et al., 2013; Grosshandler, 2012; Hayden et al., 2010; Hayes, 2008; Holcomb-McCoy, 2005; Rockinson-Szapkiw, Pritchard, McComb-Beverage, & Schellenberg, 2013; Vinluan, 2011). Roddy (2013) reported that there are limited studies in the provision of training in the use of technology within graduate pre-service programs in school guidance and counselling. Carlson et al. (2006) surveyed 381 SGCs quantitatively regarding their comfort and use of technology. The ongoing need for training in technology was highlighted in their findings. Of those surveyed 82.7% revealed they had never received any formal training in technology including during their pre-service training. The literature (Burt et al., 2011; Roddy, 2013; Sampson, 2000) highlights the need for further development of learning about technology within pre-service school guidance counselling programs. Holcomb-McCoy (2005) concluded from her study of 292 SGCs in Maryland that pre-service programs needed to incorporate ways in which computer technology could be utilised to enhance school guidance and counselling programs. These ways included outreach to communities, particularly for minority and urban communities. This study has pertinence for

Australian pre-service SGC training programs given there are many rural communities in the Australian context.

2.4.1 Integration of technology in pre-service SGC training.

Despite the limited studies specifically about the level of pre-service training in the use of technologies by SGCs, Hayes (2008) wrote that many pre-service programs integrated this medium into their delivery of instruction through lectures, supervision and skills training. In an earlier study, Hayes (1999) identified that technology was being used in some pre-service counselling programs in a variety of ways: interactive computer simulation, simulated counselling experiences, micro-skill development, video computer assistant supervision (live or delayed), cyber supervision where supervisors viewed counselling sessions and provide feedback via video conferencing, and web-based instruction (Berge, 1998; Gillani, 1998).

2.4.2 Integration of technology competencies and standards in pre-service SGC technology training.

In the past decade some researchers have investigated the use of competencies in technology and the standards in pre-service programs (Carlson & Yohon, 2008; Roddy, 2013; Yusop et al., 2008). Recent studies have used technology competencies and standards that have been accessed from school guidance and counselling professional organisations such as the American School Counselor Association (ASCA) (Grosshandler, 2012; Roddy, 2013) and Council for the Accreditation of Counselling and Related Educational Programs (Carlson & Yohon, 2008).

Roddy (2013) studied the effects of years of experience, technology training, gender and age on middle school counsellors' comfort with technology. This was solely a quantitative study focussing on technology competencies required by ASCA. The study focussed on three ASCA school counsellor competencies: 1) comfort with using technology effectively and efficiently to plan, organise, implement and evaluate their comprehensive school counselling program, 2) comfort with knowing, understanding and using a variety of technology in the delivery of guidance curriculum activities, and 3) using current and emerging technologies such as use of

the Internet, web-based resources and management information systems. The study included 160 South Carolina practicing SGCs of which there was a very high representation of females to males (seven to one) and was specifically targeted at middle school SGCs. Roddy's comprehensive analysis of the data indicated a significant association (p = .000) between participants' pre-service preparation programs and their comfort with using technology effectively and efficiently to plan, organise, implement and evaluate their comprehensive school counselling program. There was also a significant association (p = .000) between respondents' pre-service preparation programs their comfort with knowing, understanding and using a variety of technology in the delivery of guidance curriculum activities. Furthermore, there was a significant association (p = .022) between the participants' preparation programs and their comfort with using current and emerging technologies such as use of the Internet, web-based resources and management information systems. The results of the study showed that 56.9% of the participants reported that their graduate program did not adequately prepare them for the ASCA competency in technology expectations. Roddy (2013) concluded that the findings (p = .116) suggested that the lack of preparation of the ASCA competency in technology standards may be attributed partly to their lack of preparation as graduates.

Rainey et al. (2008) surveyed 640 SGCs investigating their attitudes to technology and found that school guidance counsellor preparation courses also influenced SGC use of technology. These authors determined that some SGCs were less comfortable using technology compared to those who had more recently received training in the use of technology in their preparation course. These researchers also found that SGCs' perceived competence increased with the more experience that they had with a specific aspect of technology. This finding by Rainey et al. was also endorsed in a larger earlier study *Computers for Teachers* (Department of Education Training & Employment, 2006). The project (2006) concluded that there was improved confidence in participants' use of technology through professional development and provision of computers to participants. Kurantz (2002) also emphasised that technology is intimidating for SGCs who have not received preparation in the use of technology in the school guidance counselling program, which may be attributed partly to their graduate program's lack of preparation in this area.

Roddy (2013) also contended that SGC pre-service training programs needed to consider formally providing a computer technology training course or component into their curriculum. The need for a technology curriculum in pre-service programs is also endorsed in other studies (Carlson et al., 2006; Edwards, Portman, & Bethea, 2002).

Yusop et al. (2008) investigated ICT competencies for 13 undergraduate students from the Bachelor of Education Psychology and Counselling program. As a result of the research Yusop et al. recommended that the trainers of pre-service counsellor programs also needed to boost their own technology skills (which was also noted by Jerome et al., 2002), revise their counselling curriculum and modify their instructional approaches. Even though this study was not specifically directed at pre-service SGCs it does have implications for institutions training pre-service SGCs.

Other studies in education such as Albion et al. (2011) highlighted the need for pre-service teaching courses to enhance undergraduate teachers' technology skills and confidence with new forms of ICT that students are using. These authors explain that as technology is changing, the ICT skills required by teachers will also continue to change. They further advocated that pre-service teaching courses need to go beyond the commonly used forms of ICT and extend the ICT skills that the undergraduate brings to the course.

2.4.3 Queensland pre-service SGC training.

Although the importance of including technology competencies in SGC pre-service training is evident in international studies, the researcher was unable to find any research studies related to Queensland or Australia. Four Queensland universities offer masters courses in pre-service SGC training: The Queensland University of Technology's *Master of Education (School Guidance and Counselling – Career),* The University of Southern Queensland *Master of Education (Guidance and Counselling), Master of Guidance and Counselling* James Cook University, and The University of Queensland *Master of Educational Studies (Guidance and Counselling).* Appendix 1 contains hyperlinks to each of these universities.

Following an audit of all four courses the researcher was unable to find a technology curriculum specifically designated for SGC competencies and literacy in the use of technology. There were a small number of subjects that made references to technologies in their subject outline however all of these are optional and not compulsory. The Queensland University of Technology's program makes reference in one subject's development of competencies to online learning. The University of Southern Queensland has a subject which outlines as one of its objectives: Collaborate with colleagues using digital technologies (assignment). The James Cook University has an optional subject ED5812 ICTs for Learning and Teaching. This subject involves the use of a range of Web 2.0 technologies as well as using technologies to learn and teach in settings such as schools. Various learning outcomes of the subject include demonstrating literacy skills with new ICTs, design, and producing and implementing a variety of new ICTs in educational and workplace contexts. Finally, The University of Queensland has an optional subject: Creating classrooms of the future with digital technologies across learning (EDUC7014). There is uncertainty to what extent this subject uses technology literacy and competencies of a practical nature. With respects to the remaining pre-service SGC subjects it is likely that SGC technology is dealt with incidentally, within the delivery of instruction or integrated informally.

2.4.4 Summary.

In summary, the importance of technology training for pre-service SGCs is supported by the available literature, however generally there continues to be a paucity of studies in this area. There is a need for pre-service SGC training programs to not only integrate technology into their teaching through modelling, but also to formally teach competencies in technologies that are required in the profession and that are clearly outlined in their documented preparation programs.

2. 5 School Student Use of Technology

Technology does not recognise boundaries, impacting on all dimensions of life: social, economic, political, and personal (Anton, Silberglitt, & Schneider, 2001). Technology is an integral part of adolescents' lives (Hayden et al., 2008) and part of their teen culture (Zhao & Zhang, 2013). Glasheen and Campbell (2009) stressed that the adoption of the mobile phones by young people is a global phenomenon and young people treat the mobile telephone as an essential necessity of life. Raco (2014) reported in December 2013 that 89% of Australian teenagers (14-17 years old) had a mobile phone (69% had a smartphone) and 56% used their mobile phone to go online with 72% of young people going online more than once a day.

Raco (2014) also reported that Australian teenagers are using their smart phone to download apps (applications). During December 2013, the number of Australian teenagers downloading apps to their smart phone increased by 79% to reach 454 000 apps (2014). This represented 40% of all apps downloaded by the Australian population. Given the popularity of apps, Bright (2015) has emphasised the use of apps by adolescents as a more usable interface. Pierce (2012b) also recognised the proliferation in the use of apps by schools.

Rainey et al. (2008) have reported that students had become more sophisticated in their use of various forms of technology, particularly cell phones and wireless devices. Rainey et al. have stressed the importance of SGCs becoming more sophisticated in the use of various forms of technology such as wireless devices. This also aligns with the study by Hayden et al. (2008, para. 8) who concluded that "school counsellors should be armed with the same technological resources to which their students often have access."

Adolescents' access of the Internet is also significantly increasing. Raco (2014) noted that nine in ten Australian adolescents have internet access in the home, 74% use a computer to go online, 23% go on line with a tablet, 60% went online for research and information, 55% for browsing and surfing, 85% for communication

and 50% used blogs and online communities. Additionally, 78% of 15-17 year olds continued to use the Internet for emails (Australian Bureau of Statistics, 2011b).

2.5.1 Recent studies using technologies with adolescents.

Researcher, Ailsa Haxell (2015) studied the use of texting (SMS) as a therapeutic measure with youth on a youth 24-hour crisis helpline in New Zealand. Twenty-two counsellors and two youth clients provided their perspectives of using SMS through the service. The study was able to use the qualitative information from a reasonable number of counsellors (22) however the representation by young people was scant (2). The study was of a reasonable time period (one year) and accessed a significant number of young people's texts (64 000). Later data during 2013 indicated that young people continued to increase their access of this new technology with 385 000 text messages compared to 48 000 phone calls. Although this study was conducted outside of the school context, the study presents knowledge about the willingness of young people to use technology in the context of their mental health.

Another online counselling study was conducted in Ireland by Callahan and Inckle (2012). This was a mixed methods study targeting 12 to 17 year olds and the professionals who supported them through a children's helpline. The study used a range of data collection methods including individual practitioner interviews (nine participants), an adolescent focus-group (five participants) and phone transcripts (2012). Although the number of participants was quite small and the study is referring to services outside of the school context, the study's results have application for the school guidance and counselling profession. Results from the study indicated that when clients used the phone they were more likely to speak about everyday issues and less likely to request information or talk about their friends or about mental health (2012). The study also found that when young people used online chat, mobile phone and message/emails, they were more likely to speak about mental health issues, request information and talk about their friendships and less likely to speak about every day issues (2012). The interest in online counselling by adolescents was also confirmed by Glasheen, Shochet and Campbell (2016) who found that over 80% of students would definitely or might use online counselling if it was offered by the SGC.

Glasheen and Campbell (2008) conducted a pilot study in Queensland that also involved DET SGCs and DET secondary students. Their study used online counselling within one Australian secondary school. Using the school website students could book a text chat time with the school counsellor. The study was conducted over one school year with one SGC and a small percentage (1-2%) of the 1 200 students accessing the service. The results indicated that online text counselling served as an entry point for an interview with the SGC. Most students followed up the online contact with subsequent face-to-face consultations with the SGC. A diverse group of students used the online service and boys (90% of the users) appeared particularly interested in this technology medium. Students with more pressing issues and older students tended to opt for online text and all students who participated in the online chat indicated anecdotally that they found the process useful. These researchers also concluded in a later study that "it was surprising that Australian school counsellors had not embraced online counselling in their work" (2013, p. 224). Glasheen and Campbell hypothesised that some of the potential barriers could be a counsellor's personal use and comfort in using technology and their confidence levels about using technology in the counselling process. Although their first pilot study had quite a small number of participants and that the data obtained from students was purely anecdotal the study has broken new frontiers in SGCs use of new technology particularly in the context of Australian schools.

2.5.2 Limited intervention research of SGCs' use of technology and school students' perceptions of the technology intervention.

After conducting the literature review the researcher has found a scarcity of intervention research about school guidance and counsellors and their use of technology that has occurred in schools and that has also accessed adolescents' perceptions. The researcher located the following contemporary intervention studies that involved the use of technology by SGCs with students: career guidance (Howieson & Semple, 2013; Roman, 2014); on-line counselling (Glasheen & Campbell, 2009); and interventions supporting emotional development (Daily & Picard, 2007). Glasheen and Campbell's (2009) Australian pilot study of an on-line counselling intervention in a secondary school was one of the few technology related intervention studies to access student feedback (anecdotal).

2.5.3 Summary.

Each and every day adolescents are constant consumers of technology accessing a variety of technologies. Studies have looked at various technology interventions that impact on student knowledge and learning but the emphasis has always been on the SGCs', rather than the students' perception of the impact of changes in service delivery as a result of the use of technology. This researcher's study is informed by both SGCs and students.

2.6 Activity Theory

Mendez and Lacasa (2015) proposed that technology is a vehicle for transforming the teaching-learning process. This study used Activity Theory as a conceptual and methodological framework to assist in the identification and understanding of the transformations that might occur as a result of this research.

2.6.1 The history of Activity Theory.

Activity Theory has evolved over the past eighty years and it has been referred to as a research paradigm (Bakhurst, 2009), research framework (Nardi, 1996), conceptual framework (Larkin & Finger, 2011) and methodological framework (Larkin & Finger, 2011). Activity Theory originated in Soviet psychology in the 1920's and was seen as particularly pertinent in the study of human/computer interaction (Nardi, 1996).

Activity Theory is considered to consist of three generations of development. The first generation of activity was inaugurated in the late 1920s by Lev Vygotsky, who is ascribed with having established a "triangular model" of action (Engeström & Miettinen, 1999, p. 4), represented in Figure 2.1.

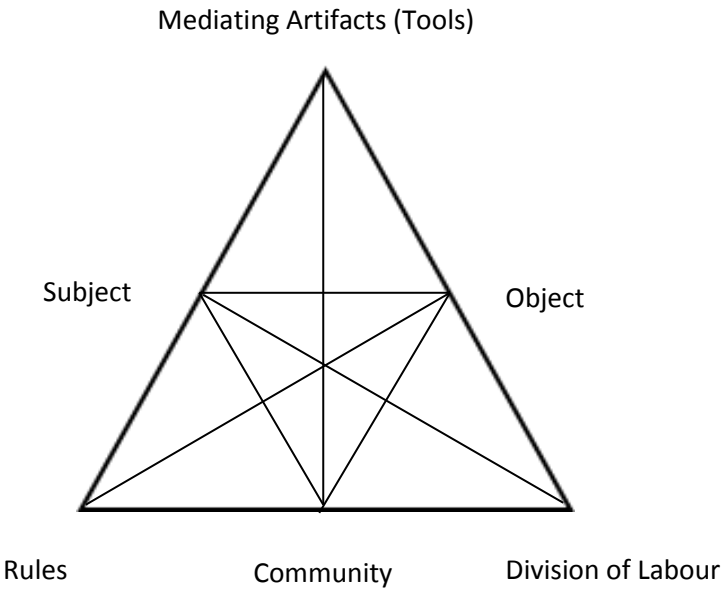


Figure 2.1 Lev Vygotsky's first generation of activity.

A second-generation emerged on the basis of the work of Vygotsky's student, Alexei Leontiev who distinguished between *action* and *activity* (Bakhurst, 2009). As Activity Theory further developed, Engeström (1999a, 1999b, 2001) developed the third generation encompassing two interacting activity systems (Figure 3.2).

2.6.2 Activity Theory overview.

The term *activity* has remained the central component of Activity Theory throughout its evolution (Kaptelinin & Nardi, 2006). Essentially the theory provides a set of perspectives on human activity and concepts for describing an activity (Nardi, 1996). Activity Theory initially derived its meaning from the Russian concept *deyatelnost* (Leontiev, 1974) referring to physical labour, facilitated by tools. In Activity Theory's earlier development *activity* initially focussed on physical tools of work, however this was further extended to include mental actions such as remembering and reflection (Gordon, 2006).

Activity Theory aims to understand human beings in their natural, daily circumstances (Larkin, 2010). Barthelmess and Anderson (2000) stressed that Activity Theory's central concept incorporates human activity. An activity as defined by Activity Theory provides enough contextual information to make an

analysis meaningful, while avoiding a narrow focus on an individual or too broad a focus on whole social systems (Kuutti, 1991). An activity is defined by an object - as in "object (goal) of the exercise" (Hasan, 1996, para. 33). Kuutti (1991) further explained that an object of an activity can be material in its form (for example, painting a house, making a website, developing a software game) or something less tangible where an outcome is achieved (development of relationships, increased communication, and greater use of technology). The central purpose of an activity is to transform an object of an activity into an outcome (Barthelmess & Anderson, 2000). The activity's object is instrumental in defining and guiding the activity. In some instances there will be collective activities, where a community of agents (subjects or groups) share an object and work collectively on its transformation (Barthelmess & Anderson, 2000). Some examples of collective activity could be multiple teams of tradesmen building a house, software specialist teams developing a digital game, and SGCs developing a School Guidance and Counselling webpage for the school website. If tension and contradictions occur during an activity it is likely to result in transformation and change of that activity and the resolutions that occur due to tensions and contradictions are the mechanisms for development within the activity system (Sweeney, 2010). Activities can change as a result of tensions and contradictions.

After studying the three generations of Activity Theory Larkin (2010) summarised six principles of Activity Theory from the work of Gordon (2006); Cole (1999); Kaptelinin (1996); Cole (1999); Kuutti, (1991); and Wertsch (1981). The following principles are central to Activity Theory, collectively providing a more holistic understanding of an activity. To comprehensively understand the impact of technology on an activity all principles must be viewed collectively, not in isolation:

1. Activity is historically, culturally and socially mediated.
2. Activity is mediated by tools, both physical and psychological.
3. Human goals and motives direct all activity and activity systems.
4. Knowledge is developmental at both the societal and individual level and its learning proceeds from the external to the internal.

5. Activity is the basic unit of human analysis. This activity occurs at different hierarchical levels.

6. Human consciousness is inseparable from activity.

These principles highlight that all activity involves some form of physical or mental tool (seen or unseen) which is used in a purposeful manner to achieve an outcome or goal. Activity is understood as a purposeful interaction of the subject with the world via the use of tools (Kaptelinin & Nardi, 2006). All activity has been influenced by its history. The activity has been shaped and moulded by individuals, groups, and community to its present form. The shaping of an activity has been influenced by the past, culture and social factors. Activity Theory helps to analyse activities which is a central means by which individuals, groups and communities can investigate, assess and understand an activity.

2.6.3 Activity Theory research.

Activity Theory has been used as a conceptual and methodological framework to investigate and inform educational research (Barthelmess & Anderson, 2000; Larkin & Finger, 2010; Latheef & Romeo, 2010; Zevenbergen & Lerman, 2007). Sweeny (2010) used Activity Theory to investigate the use of interactive whiteboards in schools and Larkin (2010) researched the use of netbooks in Year 7 classes. Ball Anthony's research (2012) utilised Activity Theory to examine how district and classroom systems interacted to influence teachers' use of technology and Gedera (2014) investigated students' experiences of learning in a virtual classroom. Gelatt (1984) contended that humans invent tools and design machines and in turn tools and machines shape and change humans. Tools and machines change our life-styles, our economics, our work life, our politics and the way we view ourselves and others (1984). Tools and machines continue to be modified and invented at a rapid pace and require analysis through a conceptual and methodological framework such as Activity Theory.

Activity Theory is not a highly structured formal framework offering specific graded and structured processes. Engeström (1993) noted that Activity Theory does not offer, "ready-made techniques and procedures" for research rather its conceptualised tools must be "concretised according to the specific nature of the object under

scrutiny," (Nardi, 1996, Chapter 1, p. 4). Activity Theory can appear to be quite unstructured, general and deficient of sequential functional steps to those who are new to the theory. Activity Theory as a methodology is flexible and evolving (Kaptelinin, 2005) which possibly gives the appearance that the theory is unstructured. Over the decades some Activity Theory writers have developed interventions to help assist followers of activity research and product design. Kaptelinin (1996) identified a range of questions that were applied to human interaction with computers but these could equally be applied within Activity Theory when analysing the use of technology. Engeström developed the third generation of Activity Theory which has provided researchers with a conceptual and methodological framework to follow while researching human activity.

2.6.4 Activity Theory reviews.

Activity Theory is a popular research paradigm and useful research design for undertaking research on the impact of technology in societal contexts including education (Kaptelinin & Nardi, 2006). There have been many supporters and advocates of Activity Theory including Barrett-Tatum (2015), Theodoraki and Plakitsi (2013), Bloomfield and Nguyen (2015), Larkin and Finger (2011), Nardi (2006), Barthelmess and Anderson, (2000) and Wertsch, (1998).

Conversely, there have also been critics of Activity Theory. One particular critic, Toomela (2000) directed a range of criticisms at Activity Theory which included 1) that the analysis of an activity through Activity Theory led to significant doubts as to whether it provides an explanation of mind or specific psychological function, 2) that Activity Theory may not be a suitable means for understanding relationships between individual minds and culture, and 3) Activity Theory is in essence developmental and "even though the development of internal mental characteristics is 'explained' by particular activities which 'determine' or 'constitute' those characteristics, it is not explained where those activities themselves come from and how they are formed" (2009, p. 360). Another author, Ruckriem (2009), was sceptical of the use of Activity Theory within digital technology contending that Activity Theory relies on book culture and has not been sufficiently developed to study discourse emerging from digital technologies.

However, there are always advocates and critics of any methodological framework. The important consideration for researchers is whether or not a specific methodological approach will yield data that is able to be used to provide insight into the research questions posed. Researchers need to be cognisant of the criticisms and strengths of the methodological approach they adopt and work to ensure they limit the impact of the weaknesses of the approach and maximise its strengths. The study described in this thesis has done this, and specific details will be provided in the next chapter.

2.6.5 Rationale for selection of Activity Theory for the study's methodology.

The researcher has sensed a technological divide in the Queensland SGCs' work context, particularly in the past five years between SGCs and their students; where students are more technologically capable and equipped than their SGCs. The gap is at risk of widening further, generating concerns that SGCs' connection with students is tenuous (Cogoi et al., 2009; Glasheen et al., 2013; Hayden et al., 2008; Paisley & McMahon, 2001; Rainey et al., 2008). It is essential as a Senior SGC that I understand the bigger picture of the use of technology by my colleagues and technology's impact on their service to students. I believe that Activity Theory, as described by Engeström (1999a, 1999b), provides an appropriate means of describing and understanding the use of technology in SGC and student activity. Activity Theory gives direction to the research and enhances the theoretical structure, research framework and methodology that is necessary to analyse the integration of technology within the school guidance counselling service. Activity Theory provides a conceptual and methodological framework to examine both the SGC and student activity. The theory provides an understanding of how SGCs and students are influenced, educated and informed through technology interactions during the intervention conducted in this research study. Furthermore, Activity Theory is ideally complemented by the use of a mixed methods approach allowing the researcher to gain a more complete understanding, using both quantitative and qualitative data, of the impact of technology on the school guidance and counselling service.

2.6.6 Studies using Activity Theory in school guidance and counselling.

A review of the literature was not able to find any studies that have used Activity Theory to investigate the enhanced use of technology in the context of the school guidance and counselling program.

2.7 Summary

SGCs have increased their use of technology and as a profession general attitudes towards technology are becoming more positive. The early literature provides a sound base regarding the history, SGCs' perceptions and the possibilities of using technology in school guidance and counselling, however it is now out-dated as there has been a rapid evolution of digital technologies. Later studies have tended to focus on SGC technology competencies as opposed to their use of technologies with students. The literature review revealed four empirical studies (Glasheen, 2014; Glasheen & Campbell, 2009; Glasheen et al., 2013; Glasheen et al., 2016) pertaining to SGC's use of technology in Australian schools. In general, studies have predominantly used quantitative approaches and often only sought data from SGCs and not their students. The researcher was unable to find any studies that focussed on a SGC professional development in technology that was followed by implementation of a structured intervention in the school setting.

Sabella et al. concluded that "Research in the area of counselling technology is in its infancy," (2010, p. 616). The importance of SGCs maintaining technological pace with their secondary students continues to be highlighted in the literature particularly in relation to not becoming disconnected from their clientele. Activity Theory will provide the necessary research framework and methodology to help guide the study and provide a detailed analysis that assists the researcher to truly understand the impact of using enhanced digital technologies between secondary SGCs and Year 11/12 students.

2.8 Research Questions

This study aims to investigate the enhanced use of digital technologies in school guidance officer and student activity. The following research questions have emerged from the literature review and guide the study's investigation.

Major Research Question

What changes occur to school guidance and counselling activity as a result of enhanced use of digital technologies?

Minor Research Questions

1. What digital technology devices are SGCs and secondary students using a) at school, and b) away from school that involved the school guidance and counselling service? (Engeström: Mediating Tools)

2. In what ways and how often are SGCs and secondary students using digital technologies that involved the school guidance and counselling service? (Engeström: Mediating Tools)

3. How does an enhanced use of digital technologies affect SGCs' and secondary students' perception of school rules relating to the use of digital technologies? (Engeström: Rules)

4. How do secondary students' and SGCs' technological duties and responsibilities change through the use of enhanced digital technologies in the school guidance and counselling context? (Engeström: Division of Labour)

5. What changes occur in the secondary students' and SGCs' sense of community and relationships with one another from the enhanced use of digital technologies in the school guidance and counselling context? (Engeström: Community)

6. What changes in the school guidance and counselling service result from the enhanced use of digital technologies amongst SGCs and secondary students? (Engeström: Object)

The study further aims to provide empirical evidence of best practice and insight into how systems might enhance guidance officer delivery service to students.

2.9 Conclusion

The next chapter will outline how Activity Theory was implemented as a research methodology and framework, the use of mixed methods to guide the design of the research instruments and the data analysis instruments processes.

Chapter 3.
Methodology

3.1 Introduction

Chapter three explains the way that Activity Theory as a methodology and the application of mixed methods research informed the design of this study. Activity Theory (Engeström, 1987, 1999b) recognises that technology plays a large part in the scope of human interaction. Activity Theory provided the conceptual and methodological framework to understand the interaction between the participants of this study and the digital technologies used. The participants included School Guidance Counsellors (SGCs) and Year 11/12 students in six state schools in regional Queensland, Australia. This chapter will also outline the SGC and student intervention program which was central to the research design. Throughout this chapter elements of the research schedule (Appendix 2) are outlined as well as the design of data gathering instruments, data analysis techniques, participant engagement and the timing of intervention phases. The chapter will also describe the quantitative and qualitative techniques (mixed methods) that were used to gather data. Finally, the chapter concludes with a discussion of the trustworthiness of qualitative approaches, reliability and validity of quantitative approaches and generalisability of the research and data analysis procedures.

3.2 Research Methodology

3.2.1 Activity Theory and digital technologies in school guidance and counselling model.

Activity Theory forms the conceptual and methodological framework for the study. Engeström's (1999a) six core elements of Activity Theory, namely, mediating artifacts (tools), object, subject, rules, division of labour, and community were

fundamental to this research. Figure 3.1 represents a model of the study based on Activity Theory's core elements.

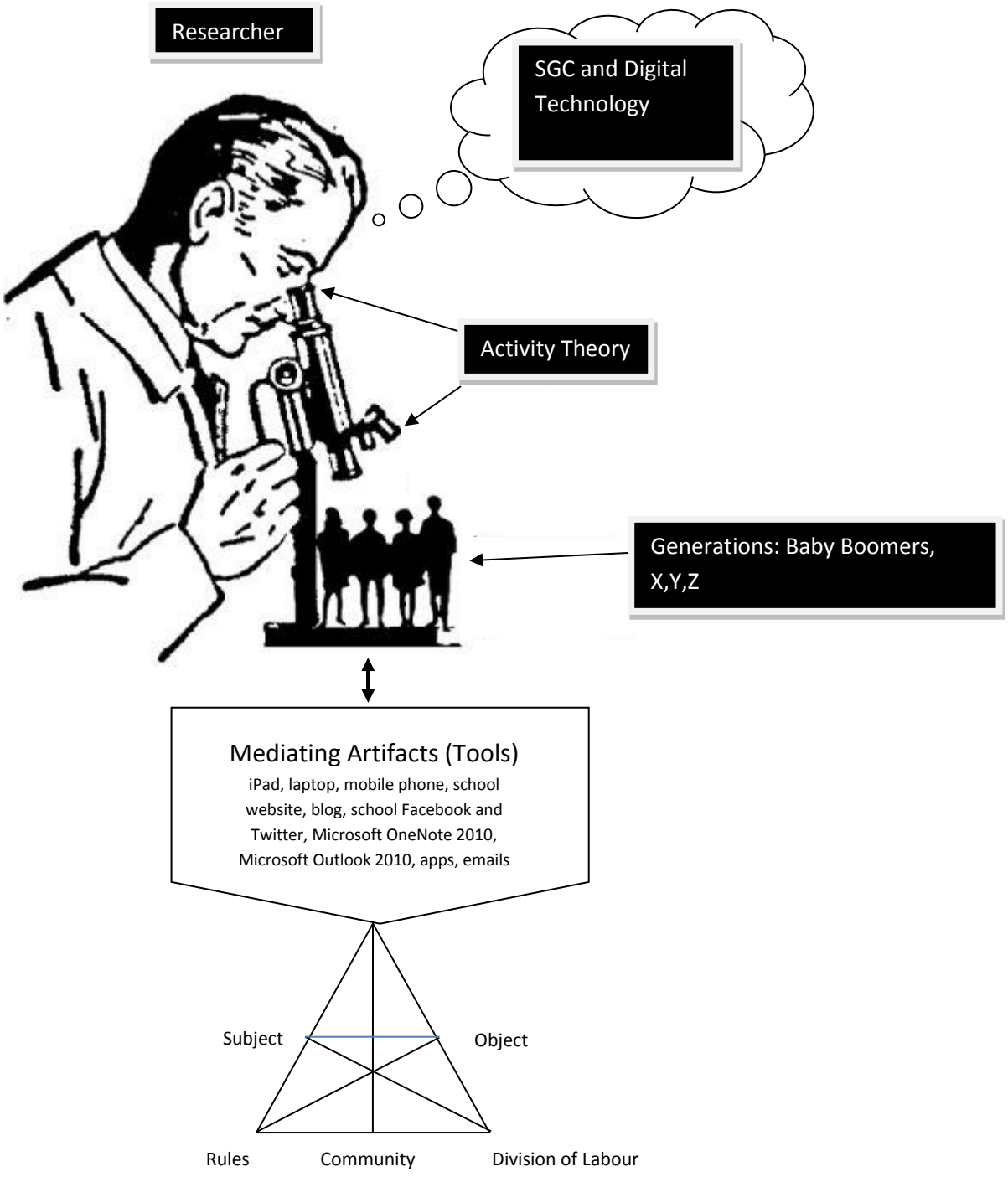


Figure 3.1 Overview model: Digital technologies in school guidance and counselling study.

The model provides a researcher's impression of how SGCs, Year 11/12 students and Activity Theory as a conceptual and methodological framework interrelate in the study. The researcher is prudently observing and analysing the research participants (representatives of generations Baby Boomers, X and Z) in their use of digital technologies with each other, in the school and home context. The researcher uses the lens to analyse the data that will help understand and identify what changes occur from the enhanced use of digital technologies in SGC and student activity. The study not only wants to inform readers of what measured changes resulted with the enhanced use of digital technology by SGCs in their interactions with students but also wants to intimately examine how the use of digital technology changed the six elements of activity of the subjects in their work and learning place.

3.2.2 Activity Theory.

For the past five decades in numerous countries throughout the world, Activity Theory has become a fundamental methodology in understanding and analysing how technology is a part of human activities (Kaptelinin & Nardi, 2006). Activity Theory is based upon the work of Vygotski and his student Leontiev who were influenced by cultural-historical psychology in the 1920s (Verenikina, 2001). The theory's fundamental concept is that of *activity* referring to activity in general, not only human activity but activity of any subject which is understood as a purposeful interaction of the subject (participant) with the world, a process in which mutual transformations between the participant and the goal of the activity are accomplished (Leontiev, 1978). Essential to the activity process are digital artifacts (Kaptelinin & Nardi, 2006) including technology devices such as computers, technology language, technology text and technology symbols. Activity theory can help understand how the use of technology through human activity has influenced, educated and informed individuals, groups, organisations, communities and nations. Activity Theory stresses that technology history, culture and human behaviour shape the present use of technology in the world.

Technology is changing peoples' working and life practices (Siemens, 2006) and Activity Theory provides a conceptual and methodological framework that can help researchers understand these changes. Activity Theory is a useful framework for

analysing the integration, engagement and evolution of digital technology between the SGCs and Year 11/12 students. This theory has also informed the formation of the research questions and the analysis of the research data in this project. The researcher particularly used Engeström's work in the research design to provide structure to uniquely meet the aims of this study.

Engeström (Kaptelinin & Nardi, 2006) has been a significant advocate and writer in the field of Activity Theory. He created the *third generation* of Activity Theory (Engeström, 1999a, 1999b, 2001) an approach that stressed the need to develop conceptual tools to help understand dialogue and multiple perspectives of interacting activity systems (Engeström, 2001). Many of these activity systems are initiated, maintained and changed through numerous networks and activities including school, friendship, sport, religion, work, study and recreation. The third generation of Activity Theory is conceptualised in Figure 3.2 (Engeström, 1999a) and demonstrates that when two interacting human activity systems meet, this meeting influences the overall learning and mental development outcomes.

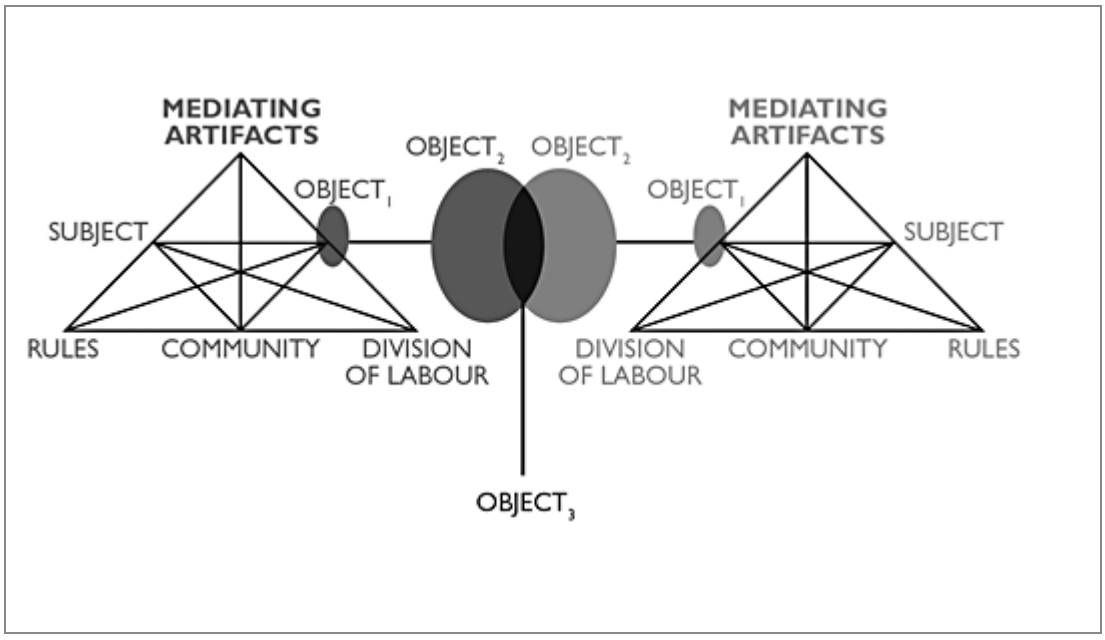


Figure 3.2 Engeström's third generation, interacting activity systems. From "Innovative Learning in Work Teams: Analysing Cycles of Knowledge Creation in Practice" by Y. Engeström, 1999, *Perspectives on Activity Theory*, Cambridge University Press.

The researcher's study consisted of three major interacting activity systems. The first interacting activity system involved SGCs enhancing their digital technology competencies with and dispositions towards the use of technologies through a professional development program. This formed the SGC Object 1. The second interacting activity system incorporated SGCs using enhanced digital technologies in their school guidance and counselling service delivery with Year 11/12 students (school implementation). This resulted in SGC Object 2 and student Object 1 (students receiving opportunities to view digital technologies which the SGC had developed that involved the school guidance and counselling service). Object 2 for Year 11/12 students occurred when students interacted with the digital technology processes that had been used by the SGCs in their school guidance and counselling service. The final phase of the interacting activity systems resulted in overall learning and mental development outcomes (Object 3) for SGCs and students, reflecting the impact on the school guidance and counselling service. Engeström's model highlights that to truly understand how technology is a part of human activities it is imperative to focus not just on the mediation of technology (the use of technology devices and software) but also to focus on the relationship with the core elements of that activity system (Engeström, 1999a).

3.2.3 Engeström's six elements of Activity Theory.

Activity Theory according to Engeström (1999a) has six core elements, as shown in Figures 3.1 and 3.2 which have been integral in analysing and understanding how the use of enhanced digital technologies historically and presently interfaces with school guidance and counselling. Activity Theory provided the framework to help understand change brought about by the intervention in this study. A change in any of the six elements of an activity system has the potential to directly and/or indirectly impact on one or a number of the other elements of an activity.

3.2.4 Engeström's six elements of Activity Theory applied to this study.

Engeström's model has been applied to this study in the following ways:

3.2.4.1 *Object.*

The study will identify and measure the changes that occur within the school guidance and counselling service as a result of the intervention leading to specific outcomes and learnings that could be applied within the SGC role. Activity Theory refers to *object* as the objective of the activity system (Engeström, 1987). In Activity Theory technologies are used by people with intentions and desires (Kaptelinin & Nardi, 2006). The activity of enhanced use of digital technologies within the school guidance and counselling service is goal-directed, intentional and motive driven. The object of the study was to identify changes to the school guidance and counselling activity as a result of enhanced use of digital technologies. It is the object of Activity Theory that forms the major research question of this study. It is expected that the research participants will explicitly or implicitly experience ambiguity, surprise, interpretation, sense-making and change as a result of the object of activity (Engeström, 1999b).

3.2.4.2 *Mediating artifacts (tools).*

The use of digital technology tools by SGCs and students has formed the central focus of the research. Engeström highlights three evolutionary models of Activity Theory. At the apex of each model is mediating artefacts (tools), an integral component of human activity. Students and SGCs in this study were encouraged to purposely use digital technology tools such as iPads, desk top computers, laptop computers, mobile phones, Internet (websites inclusive of school websites), social media and computer software (email, Microsoft 2010, apps, blog). Participants also used signs such as SMS text, written text and language with their use of digital technology.

Kaptelinin and Nardi (2006) stressed that tools are instrumental in helping to facilitate, build and change the relationship between the research participants and the object of the study. The technological devices are a means of achieving the goals of the participants and of the research project. The purposeful use of tools and signs in

an activity provide a meaningful interaction that will occur between that person and/or group of people and the world (Kaptelinin & Nardi, 2006). It is quite clear that mediating tools have and do become a part of human culture and society such as the ever increasing use of desk top computers, laptops, iPads and mobile phones in home, organisation and business environments.

With the ongoing use of technology devices, Activity Theory refers to the resulting relationship between people and tools, as one of mediation (Kaptelinin & Nardi, 2006). Mediating artifacts incorporate the tools or concepts used by the subjects in the activity system (Engeström, 1987). Artifacts carry with them a particular culture and history (Kuutti, 1991) and are persistent structures that stretch across activities through time and space (Kaptelinin, 1996). An overall summary of the digital technology tools used in this research is outlined in Table 3.01.

Table 3.01

Digital Technology Tools and Software Used in the Study

Mediating tools (technology)	Technology software	Participants
		SGC (Baby Boomers and X generations) Year 11/12 student (Z generation)
iPad	Apps (careers, mental health, calming, general)	SGC Year 11/12 students
Desktop computer/ laptop/iPad/Year11/12 mobile phone	Email, Microsoft Office 2010 (computer software)	SGC Year 11/12 students
Desktop computer/ laptop/iPad/Year11/12 mobile phone	Internet websites (mental health, careers, academic,	SGC Year 11/12 students
Desktop computer/ Laptop/iPad/mobile phone	"Year 11/12 SGC blog"	Year 11/12 students SGC
Desktop computer/ laptop/iPad/mobile phone	School website school guidance and counselling page (topics: careers, mental health, study tips, newsletters, upcoming events and other minor topics)	Year 11/12 students SGC school administration
Mobile phone and SMS texting	iDAttend (ability to bulk text to a parent's mobile phone who then was requested to forward to his/her Year 11/12 son/daughter's mobile)	SGC Year 11/12 parents Year 11/12 students

3.2.4.3 *Subject(s).*

The subjects (actors) in Activity Theory refer to those participating in the activity (Engeström, 1987). In Activity Theory people act as subjects in the world constructing and acting on their intentions (Kaptelinin & Nardi, 2006). The subjects in this study included 123 Year 11 and 12 students and 9 SGCs. Each of these participants comprised of individuals from a range of generations; Baby Boomers, X and Z (see Figure 3.1) living in regional Australia.

3.2.4.4 *Division of labour.*

Activity Theory views division of labour as the social strata, hierarchical structure of activity and the division of activities amongst the actors (subjects) in the system (Engeström, 1987). Ball-Anthony (2012) viewed the division of labour to be the tasks and responsibilities of the subjects in the activity. Within any activity individuals have certain responsibilities and duties to perform. In this study it was expected the participants' responsibilities and duties with digital technologies would include maintaining communication, caring for their digital technology devices, providing quality current information and accessing and applying this information to their academic, working and personal lives.

The traditional divisions of labour with digital technology were likely to change. Firstly, it was likely that the SGCs would be undertaking more frequent communication with Year 11/12 students through emailing students, participating in blogs, providing electronic newsletters and content on the school website and using SMS texts. Secondly, there was likely to be faster sharing of information with students through emails, newsletters and the blog. Thirdly, SGCs were likely to communicate to a larger number of students beyond face-to-face communication and announcements at assemblies and on notice boards. Fourthly, the intervention was likely to increase SGCs' technology skills and confidence, which could positively impact on the SGCs' sense of control and independence potentially leading to new work routines and undertaking some technology duties that other personnel may have formally done for the SGC.

Additionally, the Year 11/12 students' division of labour could also change through the intervention. Changes could result from the increased access of school guidance and counselling information (for example careers, employment, mental health, and study habits), a stronger desire to be responsible for their own learning, and a greater understanding of the SGC role.

Finally, the changes in the division of labour that occur as a result of the study were considered likely to lead to impact on other parts of the school and local community. Changes within the division of labour would help to mediate the relationship

between the research participants and the community of the study (Kaptelinin & Nardi, 2006). Other people such as other year level students, school personnel and parents may notice changes in the school guidance and counselling service as a result of the increased use of digital technologies.

3.2.4.5 *Community.*

Activity Theory views the community to be all of the actors in the activity system (Engeström, 1987). Activity Theory highlights the importance of community through the voice of individuals or groups in activities and the importance of the influence of social and cultural elements on the activity system (Engeström, 1999b). The intervention was likely to result in new communities being formed such as 1) SGC team working on the School Guidance and Counselling page of the school website, 2) SGC's forming connections with school information technology personnel, 3) the formation of a student blog community and 4) students emailing the SGC. It was also expected that this intervention would have an impact on the Year 11/12 school guidance and counselling community, possibly increasing SGCs' and students' connection with each other. The study identifies what changes occurred to school guidance and counselling relationships and community following the enhanced use of digital technologies.

3.2.4.6 *Rules.*

Activity Theory highlights the importance of rules within any form of activity (Sweeney, 2010). Rules refer to the conventions and guidelines regulating activities within a system (Engeström, 1987). Some rules are explicit whilst others are implicit and are inherently linked to the norms and conventions of organisations and society. Activity Theory highlights that rules are instrumental in helping to facilitate, build and change the relationships between people and the community (Kaptelinin & Nardi, 2006). In this study SGCs and Year 11/12 students were exposed to written and unwritten digital technology rules from the school, home and community. It was expected that digital technology rules would in various ways, impact on the SGCs' and students' interactions.

For example, in the study's intervention, the SGCs' digital technology interactions with students were unavoidably influenced by the Department of Education and Training's (DET) technology and student protection guidelines. It was expected that specific rules, for example, the use of safe websites, restricted use of social media with students, and not communicating directly with students' mobile phones, would impact on SGCs' use of mobile phones, websites, social media, software and departmental ICT systems. It was also anticipated that some of these rules and protocols required by the DET might be challenged by SGCs and students.

The data might also identify tensions that arise from participants feeling that they are constrained by specific digital technology rules. The researcher expected that some rules may "blur" and become unclear to participants when digital technology rules are vague or are not taught effectively, monitored or implemented consistently within the organisation, home or school. When these situations occur this may result in contradictions (inconsistencies and discrepancies). Rule contradictions may lead to change and development within the activity (Engeström, 2001).

3.2.5 Conclusion.

Appendix 3 represents an overall prediction of possible Activity Theory implications within student and SGC activity as a result of enhancing the use of digital technologies in school guidance and counselling.

3.2.6 Summary.

Activity Theory provides a systematic yet flexible way to analyse and understand humans' use of technology and forms the conceptual and methodological framework for this study. Activity Theory, through its six elements, provides researchers with a framework that enables technology users to analyse and improve work and recreation lives. The research questions were guided by the six elements of Activity Theory; research questions one and two (subjects and mediating artefacts); research question three (rules); research question four (division of labour); research question five (community); and, research question six (object). The core elements also provide the conceptual and methodological framework that guided the design of quantitative and qualitative data gathering instruments and the analysis of results.

3.3 Method

3.3.1 Introduction.

This research study aimed to enhance SGCs' technological competencies with and dispositions towards the application of digital technology while observing the impact on the student, SGC and the school guidance and counselling service. This mixed methods study employed a number of instruments capturing both qualitative and quantitative data pre-, during and post- intervention. The instruments used to collect this data included surveys, focus group interviews, group meetings, unstructured observations, blog text and diary content. Mixed methods is an appropriate research approach, as it has provided a rich in-depth understanding of the SGC experiences and perceptions of the digital technology intervention. Mixed methods also provided a greater understanding of students' perceptions of digital technologies and how their use of digital technologies impacted on the school guidance and counselling service. A mixed methods approach has developed a deeper understanding of the role of digital technologies in school guidance and counselling work. Mixed methods coupled with Activity Theory permitted the study to develop a more comprehensive understanding of the impact of digital technologies within the school guidance and counselling service by listening to the rich perspectives of the SGCs and students and using the Activity Theory framework to guide the questions that needed to be asked to elicit these perspectives.

3.3.2 Mixed methods.

Mixed methods research gathered momentum during the 1990s and is often referred to as the third research paradigm (Johnson & Christensen, 2012; Johnson & Onwuegbuzie, 2004; Ridenour & Newman, 2008). Researchers who advocate the use of mixed methods research view it as way to find out what best works with the research problem, research questions and research situation (Johnson & Christensen, 2012). Logical positivist methodologists use naturalistic and phenomenological approaches to complement tests and surveys (Miles & Huberman, 1984). Similarly post-structuralist methodologists have used numerical data to complement their natural examination of human behaviour through observations, in-depth interviews,

and data in the form of words (Miles & Huberman, 1984). The study reported here, lends itself to being understood both quantitatively and qualitatively.

This study uses a concurrent mixed methods design complemented by Activity Theory as a conceptual and methodological framework. Concurrent mixed methods enabled the researcher to merge quantitative and qualitative data in order to provide a comprehensive understanding of the research problem (Creswell, 2009). Concurrent mixed methods design enabled the simultaneous collection of both qualitative and quantitative data. The collection of qualitative and quantitative data permitted the integration and collaboration of data, assisting in the interpretation of the overall study's results.

Mixed methods is a methodology that is used in education research (Johnson & Christensen, 2012). Mixed methods enable behaviour to be investigated in a naturalistic setting (six state secondary schools), which helps yield more holistic insights into educational processes that occur in particular settings (Johnson & Christensen, 2012). Mixed methods enabled this study to capitalise on both qualitative and quantitative methods of enquiry to gain a clearer understanding of the impact of enhancing SGCs' use of digital technologies in their role.

There are a range of advantages in quantitative methods. Quantitative methods are aligned with the positivist or scientific paradigm, viewing the world as made up of observable, measurable facts (Glensne & Peshkin, 1992). Quantitative research enquiry is viewed as scientific, objective and credible where large volumes of data can be analysed relatively quickly and presented in a succinct manner (Denscombe, 2007). Johnson and Christensen (2012) list a range of strengths of quantitative research including it 1) is useful for testing hypotheses that are constructed before the data are collected, 2) is useful for obtaining data that allow quantitative predictions to be made, 3) provides precise, quantitative, numerical data, 4) enables data analysis that is relatively less time consuming (using statistical software), 5) maintains the research results relatively independent of the researcher, and 6) is useful for studying large numbers of people.

Qualitative methods in research also possess a range of advantages. The field of education is an area where it is recognised that qualitative methodologies can be powerful tools for enhancing our understanding of teaching and learning (Johnson, 1995). Qualitative methodology has gained momentum in research (Denzin & Lincoln, 2008) and qualitative approaches are typically rich in detail and insights into participants' experiences of the world (Stake, 1995). It is a useful means to access the impressions and feelings of participants enabling researchers to determine what is actually happening and allows for continual reflection during the research process (Punch, 2005). It was hypothesised that the qualitative approaches in this study would provide enhanced learning, understanding and perspectives regarding the implementation of digital technologies in the SGC role and its resultant impact on the school guidance and counselling service. Utilising qualitative approaches assisted the study in eliciting, exploring and understanding the meaning (Creswell, 2009) that the participants associated with their experiences of digital technologies within the study.

3.3.3 Benefits of mixed methods.

In research, mixed methods views both quantitative and qualitative research as important and useful (Creswell, 2009). Creswell further adds that mixed methods provides both open-ended data (qualitative) and close ended data (quantitative). The goal of mixed methods research is not to replace either qualitative or quantitative approaches but rather to draw from the strengths and minimise the weaknesses of both methods in research studies (Johnson & Christensen, 2012; Johnson & Onwuegbuzie, 2004). Mixed methods provide many benefits to research.

The researcher chose to use mixed methods in this research project for a range of reasons. Mixed methods provides opportunities for combining both qualitative and quantitative methodologies in research (Creswell, 2009; Johnson & Christensen, 2012; Teddlie & Tashakkori, 2009; Venkatesh, Brown, & Bala, 2013) which would help gain a clearer understanding of the changes that occurred as a result of the study's intervention. Johnson and Christensen (2012) highlight a number of strengths in using mixed methods research including words, pictures and narrative that can be used to add meaning to numbers and numbers can add precision to words,

pictures and narratives. Johnson and Christensen also state that combining qualitative and quantitative research approaches best informs theory and practice as multiple sets of data using different research methods, epistemologies and approaches are used. Mixed methods can answer a broader and more complex range of research problems providing deeper more meaningful answers (Creswell & Plano Clark, 2007; Johnson & Christensen, 2012) enabling a clearer holistic view of the research problem (Creswell & Plano Clark, 2007; Greene, 2008; Mingers, 2001).

Finally mixed methods complementary data collection can lead to a better understanding of the study's participants, their context and situation. In combination mixed methods provides greater insights of phenomena that each of the methods individually cannot offer (Johnson & Turner, 2003). By using a mixed methods approach the strengths of each method offsets the weaknesses, providing a stronger base for analysis of results. Mixed methods also has the ability to draw out a greater diversity of data enabling clearer analysis and collaboration of results (Creswell & Plano Clark, 2007; Greene, 2008).

3.4 Research Design

3.4.1 Introduction.

The researcher constructed a research design for this study to help understand and respond to a local problem using Activity Theory and mixed methods to guide the response. At a local level SGCs were using their DET provided technology in a limited way. SGCs had not received professional development in how to use digital technologies in their school guidance and counselling role. Additionally there was a concern about their efficiency and effectiveness in using technology and the potential adverse impact on their connectedness with their students. An integral part of the research design for this study would endeavour to increase SGCs' efficiency, skills and confidence in using digital technologies through a professional development program and school implementation.

The overarching research design as represented in Figure 3.3 is based on three stages, pre-intervention, intervention (SGC and school) post-intervention. A one-group pre-test post-test design (Johnson & Christensen, 2012) was used in response to the experimental treatment (school implementation intervention) where baseline responses were taken before, and responses were collected following the school implementation. During these three stages, four phases of data collection were administered.

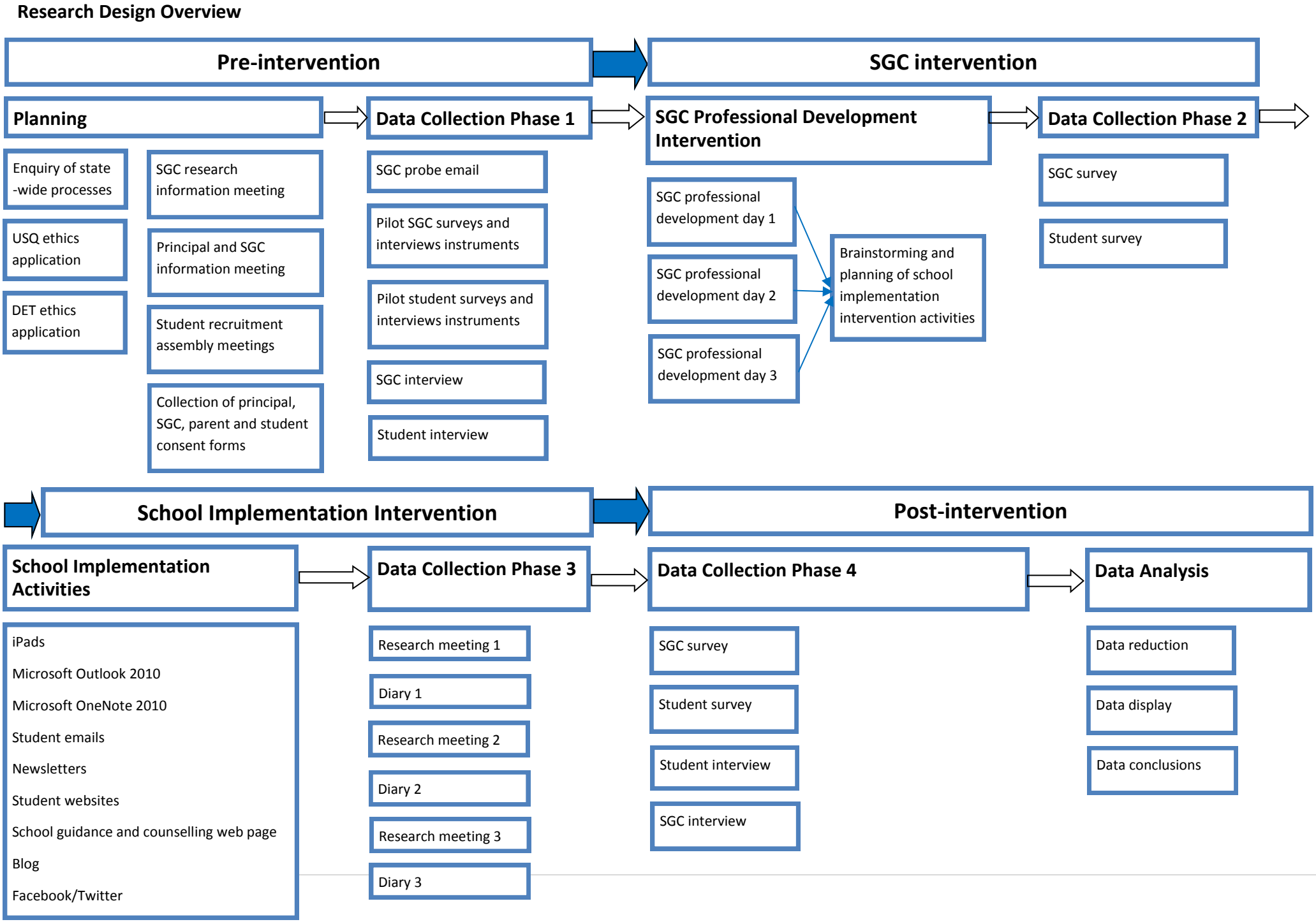


Figure 3.3 Diagrammatic representation of research design overview.

3.4.2 Pre-intervention (planning).

The pre-intervention stage of the research design consisted of planning the intervention. The planning phase involved applying for ethics approvals, informing key people of the research, piloting instruments and collecting baseline data. During the initial planning of the study the researcher sent an enquiry email to 437 SGCs across Queensland to gain a sense of how SGCs were using technology with students. Following this the researcher informed local prospective SGC participants of the study through a SGC information meeting followed by a principal and SGC information meeting held at each school. Principals and SGCs were provided with an information document (Appendix 4) and consent form. Parents/Guardians and students were also informed about the study through an information document (Appendix 5) and provided with a consent form (Appendix 6). The SGC participants were sent an email asking them about their use of specific technology devices and software. Following these actions, student and SGC interviews (Appendix 12 & 13) and surveys were trialled with a selection of local non-participant SGCs and students and these instruments were amended. The pre-intervention Student and SGC surveys as well as the pre-intervention Student and SGC focus group interviews were completed in the latter phase of the pre-intervention stage. One of the most significant elements of pre-intervention stage was the implementation of the SGC digital technology professional development program.

3.4.3 SGC intervention.

During the SGC intervention stage SGCs participated in a three day professional development program aimed at increasing SGCs' competencies with and dispositions towards using digital technologies and encouraging them to increase their use of digital technology with students within their role. The professional development targeted a range of digital technology tools including, iPads, desk top and laptop computers, mobile phones, the Internet (websites inclusive of school website), social media, computer software (email, Microsoft Outlook 2010 and Microsoft OneNote 2010, apps, blog). The final phase of the SGC intervention stage involved a SGC brainstorming activity that identified ways that digital technologies could be used in school settings

during the school implementation intervention stage. Planning commenced on nine school intervention activities.

3.4.4 School implementation intervention.

The experimental treatment was 16 weeks in duration and involved nine school intervention activities. Each of the 9 SGCs was encouraged to implement the nine intervention activities with students in his/her school by using 1) iPads, 2) Microsoft Outlook 2010 (Mendelson, 2011, March), 3) Microsoft OneNote 2010 (NZ Business, 2012), 4) student emails, 5) newsletters, 6) student websites, 7) school guidance and counselling web page, 8) blog and 9) Facebook and Twitter. During this stage three SGC research meetings were held. The school implementation intervention stage was then followed by the post-intervention stage.

3.4.5 Post-intervention.

The post-intervention stage involved the completion of the post- SGC and student surveys and interviews followed by the analysis of results.

3.4.6 Data collection phases.

The study's data collection processes were implemented through four phases. Being a mixed methods study, qualitative and quantitative data were collected during the pre-intervention, SGC intervention, school implementation intervention and post-intervention stages. Data collection from students were in the form of surveys, focus group interviews and blogs whereas data collected from SGCs were through a larger range of instruments including focus group interviews, surveys, electronic diaries, research monthly meetings, blogs and unstructured naturalistic observations. The four data collection phases are shown in Figure 3.4.

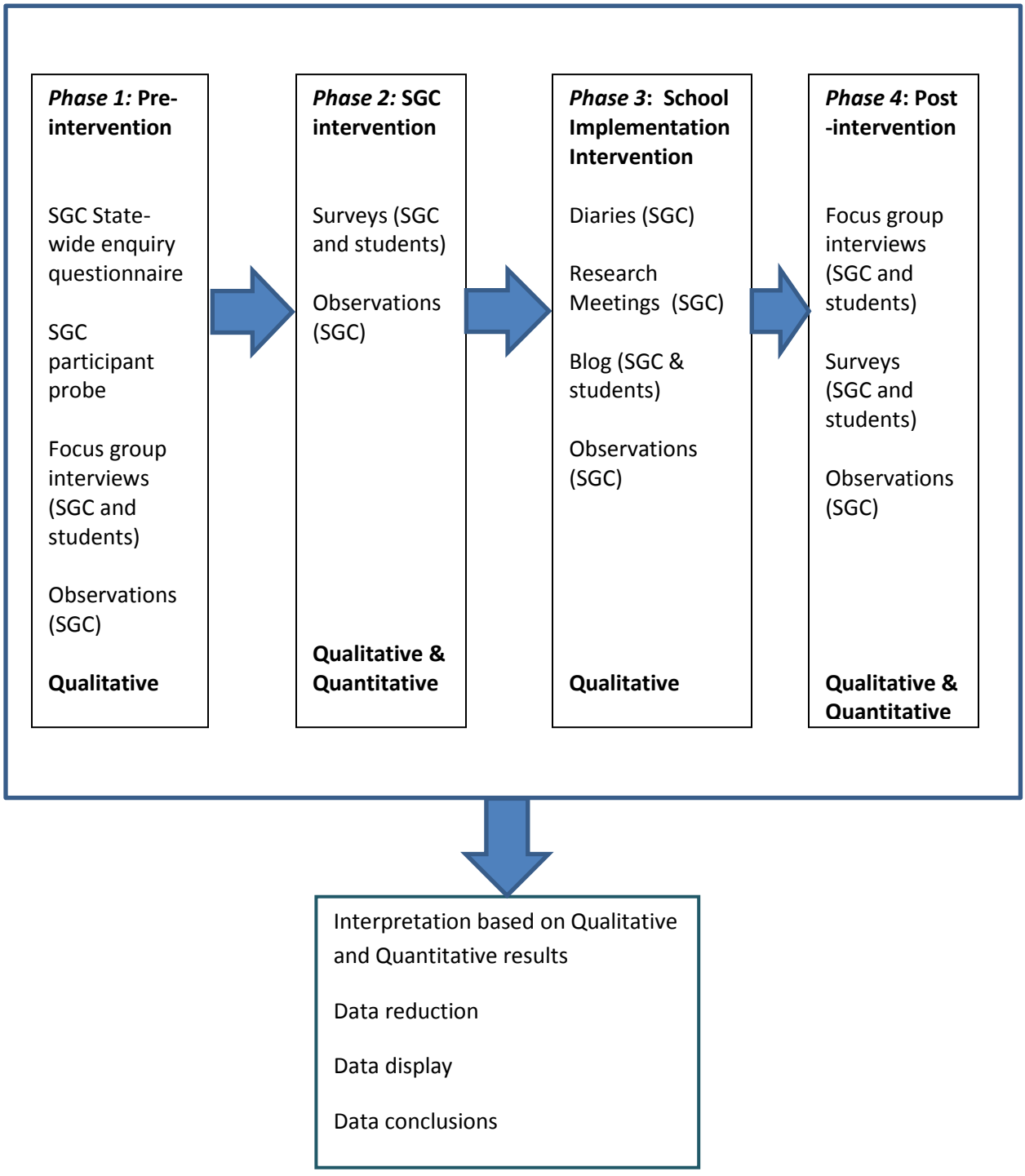


Figure 3.4 Design of the study's four data collection phases.

The following explains each of the data collection phases.

3.4.6.1 *Phase 1.*

Qualitative data only were collected in this phase. During the initial planning of the study in the pre-intervention stage the researcher sent an email to SGC participants to establish their use of particular technology devices and software and their perceptions of their skill level and confidence in using them. Interviews were also completed. A small group of students from one participating school took part in a pre-intervention focus group interview (Appendix 7). The interview was held at school D's conference room and was completed in one hour. SGCs also took part in a focus group interview (Appendix 8) at the local education office. This was a slightly longer interview (one and a half hours). Using focus groups at this early phase of the data collection enabled participants to speak about their experience of digital technology which in turn helped to facilitate the design of survey instruments (Stewart, Shamdasani, & Rook, 2009) and survey content (Fink, 2003). Furthermore during this pre-intervention phase unstructured naturalistic observations were taken of the SGCs. These were general observations that the researcher noted of SGCs using technology at their office (when the researcher visited), at SGC meetings and during each of the three professional development training days. The unstructured observations recorded were predominantly when the researcher saw how a SGC was working with digital technology (mainly email, laptops or iPads). It was worthy information in that it helped gauge whether there was an increase in the use of technology and confidence by SGCs during and post-intervention. Figure 3.4 outlines the design of data collection for Phase 1 of the study.

3.4.6.2 *Phase 2.*

Later in the pre-intervention stage, survey invitations were sent to students through their school email via an online website link containing access to the pre-intervention survey (this was the same as the post-intervention survey, Appendix 9, without the *Change* and *The Future* items but containing demographic items). SGCs were emailed a different pre-intervention survey that was the same as the post-intervention survey (Appendix 10) devoid of the *Change* and *The Future* items but containing demographic items. This

survey was sent via the same online website link. Unstructured naturalistic observations were also noted of SGCs. Both qualitative and quantitative data were collected during this phase (see Figure 3.4).

3.4.6.3 *Phase 3.*

During the school intervention stage data were collected from SGCs in the form of electronic diaries (Appendix 11) emailed to SGCs to complete and return, three research meetings, blog text and unstructured observations (see Figure 3.4). Only qualitative data were collected during this phase.

3.4.6.4 *Phase 4.*

This phase occurred during the post-intervention stage and both qualitative and quantitative data were collected. This last phase of data collection involved the completion of the final survey by students (Appendix 9) and SGCs (Appendix 10) via the online website. The final focus group interviews (Appendices 11 and 12) were also completed. Unstructured naturalistic SGC observations continued to be recorded. The final phase of data collection was completed in October, 2014 and was followed by the analysis of the results.

3.5 Participants and Context

3.5.1 Context.

This research project took place on the central Queensland eastern seaboard, an area with a population of 94 000. The region is recognised as a low socio-economic area impacted by high adult unemployment (Australian Government Department of Employment, 2015), high youth unemployment (Moore, 2014) and low personal income (Queensland Government Statistician's Office Queensland Treasury, 2015). All SGC and student participants attended state secondary schools in this area.

3.5.2 Participants.

The research participants came from six research settings that included three rural and three urban state secondary schools. Participants were targeted on the notion of non-probability, convenience and open sampling. Being a regional study, non-probability sampling was used as schools and participants were from the same area. Convenience sampling was used as schools and participants were situated in the local state education district and in close proximity and therefore accessible to the study. Schools and participants were engaged using an open sampling method recommended by Strauss and Corbin (1998) in order to maximise convenience and involved utilising those participants who are agreeable to participating in a study.

The research participants included SGCs and Year 11/12 students from three urban state secondary schools (see Table 3.02, Schools A, D and E) and three rural state secondary schools (Schools B, C and F). Schools in the study varied in population from 252 students within a rural P-12 (preparatory to Year 12) school to 1 312 in the largest school (School D, Year 7-12). A total of 1 568 Year 11/12 students were invited to be part of the research sample. This participant group represents students aged between 16 and 18 years of age in their compulsory participation phase of schooling. Table 3.02 represents the Year 11 and 12 populations of participating schools.

Table 3.02

2014 District State Secondary Schools Year 11/12 School Populations

DET central coast secondary school	**Year 11 student population**	**Year 12 student population**	**Total Year 11/12 population**
School A	239	223	462
School B	78	49	127
School C	77	77	154
School D	249	200	449
School E	162	149	311
School F (preparatory – Year 12)	34	31	65
Total district state school Year 11/12 population	839	729	1568

The SGC group sample (N=9) consisted of participants with differing characteristics including gender, years within the job, and school guidance and counselling sector experience. Four SGCs were born in the Bay Boomer's generation, 1946-1964 (McCrindle, 2016). The remaining five SGCs were born within Generation X, 1965-1979 (McCrindle, 2016). The group consisted of participants with a broad range of SGC experience from one to thirteen years who worked in various sectors of school guidance and counselling namely secondary, P-12 and behaviour management. The majority of the group worked in P-12 (N=7) and the remainder worked solely in secondary school guidance (N=2). Two of the participants with P-12 experience, worked in behaviour management. The gender representation favoured females at the ratio of 2:1. Table 3.03 represents the demographic characteristics for the SGC group.

Table 3.03

SGC Group Characteristics

Characteristics	(N=9)	%
Gender		
Male	3	33
Female	6	67
School guidance and counselling sector		
Preparatory to Year 12	7	77
Secondary	2	23
Specific school guidance and counselling role		
Preparatory to Year 12	5	56
Secondary	2	22
Behaviour management	2	22

In the initial stages of the study, the researcher met with the SGC and principal of each school. The meetings were held at each of the six schools. All schools and their SGC consented to take part in the research.

A total of 155 students returned signed consent documents, and 134 students completed the pre-study survey. Within this group, 123 student participants (41 males and 82 females) completed both the pre- and post- intervention surveys representing an 8% attrition rate. Only complete data obtained from participants in both the pre- and post-survey were included in the analyses.

There were a range of reasons that Year 11/12 students were chosen to participate in this study including rate of mobile phone ownership, internet access and the importance of making career and health decisions at this time in their lives. These students were more likely to have their own personal mobile phones. The ABS (Australian Bureau of Statistics, 2011a) noted that as children became older mobile phone ownership increased (76% for 12-14 year olds). Although Australian statistics are not specifically available for 16-18 years old adolescents, it can be extrapolated that ABS trends for mobile ownership statistics would be above the 12-14 year age group. The high rate of student mobile phone ownership also enabled the study to use SMS texting as a means of

communicating with students. The ABS (Australian Bureau of Statistics, 2014) also reported in 2013 that there had been a rapid increase in Internet access via mobile phones (83% of 15 years and older). The high rate of mobile phone ownership combined with the high rate of mobile phone Internet connectivity would also enable students to access specific websites (for example, health, careers, employment, and school website) and applications (apps). The final reason for selecting Year 11/12 students was that this group were in their last two years of schooling preparing to make career decisions prior to leaving formal schooling.

3.6 Qualitative Data and Instruments

3.6.1 Introduction.

The SGC and student participants were part of a mixed methods study where both qualitative and quantitative instruments were used in the research design. A range of qualitative instruments were used in the four phases of data collection (Figure 3.4) including 1) SGC state-wide enquiry, 2) SGC email probe, 3) semi-structured focus group interviews, 4) surveys, 5) electronic diaries, 6) monthly research meetings, 7) blogs and 8) unstructured naturalistic observations.

3.6.2 SGC State-wide enquiry.

In July, 2013 the researcher sent an email to 437 Queensland SGCs asking them to outline how they were using digital technologies to communicate, support and inform students. Fifty-one SGCs responded. The state-wide enquiry email was used as a reconnaissance procedure to find out generally what technology SGCs were using in their roles and how SGCs were using technologies in their school guidance and counselling service with students and parents. SGCs were asked two questions: 1) as a secondary SGC in what ways do you specifically use technology to directly communicate/support/inform students? and 2) in what ways do you use technology to

communicate with parents? In relation to these two broad questions that were posed, the following inferences were drawn:

- SGCs predominantly use the Internet for student career development;
- SGCs predominantly use email for administrative purposes and sending information to individual students and year levels;
- Only a very small number of SGCs use iPads;
- Only a very small number of SGCs use blogs; and
- Some SGCs use electronic newsletters to provide information to parents.

These inferences drawn from this process were used to inform the planning of the SGC professional development. The data from the state-wide enquiry were not part of the data set used in the results of the main study.

3.6.3 SGC email probe.

In September, 2013 the researcher requested all 9 SGC participants to respond to a range of questions to identify their experience, confidence and use of specific digital technologies. The data from this process were used to inform the planning of the SGC professional development. The data collected from the email probe provided a general baseline of SGCs' competencies with and dispositions towards the use of digital technologies.

3.6.4 Semi-structured focus group interviews (SGCs and students).

3.6.4.1 *Semi-structured interviews.*

The semi-structured interview is an in-depth form of inquiry that uses a combination of predetermined questions and structure but also has the scope for open-ended answers allowing, to some extent, for the interviewee to set the agenda (Hannon, 2007). Semi-structured interviews contain structure through pre-planned key themes and sub-questions (David & Sutton, 2004). The semi-structured aspect of the interview enables some autonomy to further investigate the response of the interviewee. There are a number of other advantages of semi-structured interviews.

3.6.4.2 *Advantages of semi-structured interviews.*

The literature outlines a number of distinct advantages of semi-structured interviews. Semi-structured interviews are the most common form of interviewing (Adams et al., 2004) and are considered to provide reliable, comparable qualitative data (Cohen & Crabtree, 2008). Other advantages include giving informants the chance to challenge the agenda set by the researcher and raise new issues and questions (Hannon, 2007). Gray (2004) also contends that these interviews enable flexibility, making it possible to make changes in the order of questioning, the questions asked and the topics discussed. Furthermore, Gray stressed that semi-structured interviews allow probing with follow-up questioning seeking clarification or further explanation. Other researchers note that these interviews allow researchers to probe the meanings interviewees give for their behaviour, ascertaining their motives and intentions (Bhamani Kajornboon 2005; Kvale, 1996). Finally, Hannon (2007) advocated that semi-structured interviews give informants the opportunity to check what is meant by a question as well as allowing for long and complex responses (Hannon, 2007).

3.6.4.3 *Focus group meetings.*

The semi-structured interview process was administered in the form of focus groups. A focus group is a group interview consisting of 5-10 selected participants who are brought together to give their opinions and offer their perspectives on specific topics (Fink, 2003). The focus group interview allows for the identification and discussion of issues, insights, attitudes, opinions, reactions, preferences and recommendations (Salend, 1999; Usability Professionals Association, 2010) that may not have come to light during individual interviews (Salend, 1999).

This study aimed to report on the enhanced use of digital technologies by SGCs and examine how this impacts on the Year 11/12 student clientele and school guidance counselling service delivery. The use of focus group meetings acquired

quality information concerning SGCs' own experiences and their stories of digital technology. Focus group meetings with students also provided an opportunity to hear the perceptions of students as clients of the school guidance counselling service. The researcher was able to compare the rich detailed qualitative data collected from focus group interviews with quantitative data collected during the study, enhancing the research findings and outcomes.

3.6.4.4 *Advantages of focus groups.*

Researchers have outlined many advantages of focus groups interviews. Stewart, et al. (2009) contend that focus groups provide general background information about a topic or interest, stimulate new ideas and creative concepts, and enable the interpretation of quantitative results. Focus group interviews can yield a great deal of specific information in a short period of time, access perception and bring the investigator closer to the research topic through direct encounter with key individuals (Vaughan, Shay Schumm, & Sinagub, 1996). Researchers see this research tool as making important contributions to research as focus group interviews are inexpensive, flexible and data rich (Punch, 2005).

3.6.4.5 *Semi-structured focus group interview rationale.*

This study aimed to report on the enhanced use of digital technologies by SGCs and examine how this impacts on the Year 11/12 student clientele and school guidance and counselling service delivery. The use of semi-structured interviews within a focus group format provides an in-depth qualitative inquiry (Hannon, 2007) and seeks to acquire quality information concerning SGCs' and students' own experiences of digital technology. From this point onwards semi-structured focus group interviews will be referred to as the *interviews*.

The interviews were established to help understand how digital technology was being currently used in school guidance and counselling with students. The purpose of the focus group interviews was to 1) understand the digital

technology channels between the SGC and students, 2) identify what forms of technology students had access to, 3) find out the preferred digital technology devices, 4) discover strengths and challenges of the use of digital technologies, 5) see what digital technologies were used, 6) form an understanding of the digital technology experiences of the SGCs prior to the school implementation intervention, and 7) investigate SGCs' attitudes to digital technology.

The pre-intervention SGC and student interviews were essential to the study's planning. The pre-intervention interviews helped the researcher understand what was happening with digital technology in the school guidance and counselling service. The interviews helped to form a baseline for the study. The student interview was implemented prior to the SGC interview. By scheduling the SGC interview later enabled the sharing of some of the feedback from the student interview with SGCs permitting collaborative planning of the SGC professional development intervention and school implementation intervention programs. The interviews also helped to inform the design of SGC and student surveys.

3.6.4.6 *Designing interviews for this study.*

As part of the interview process, the researcher constructed interview guides for the pre- and post- intervention interviews which is an essential component for conducting interviews (Bhamani Kajornboon 2005). The interview guide consisted of a list of questions, topics, and issues, designed to obtain information to help assist in answering the research questions. The student and SGC pre- and post- intervention interviews consisted of 12-13 open-ended question sets all specifically aligned with Activity Theory's core elements of mediating tools, object, subject, rules, division of labour and community.

All interviews were piloted. The Year 11/12 student interviews were trialled in November 2013 with four Year 12 students not participating in the study. The SGC interviews were also trialled in November 2013 with three non-participant SGCs. The purpose of the trial was to access specific feedback regarding these data gathering

instruments. Student feedback indicated some uncertainty with specific terminology. SGC feedback indicated the need to reorder some of the items and some questions required restructuring. The feedback from both students and SGCs resulted in changes to these instruments.

3.6.4.7 *Selection of interviewees.*

The student interviews included nine participants at pre-intervention and seven students at post-intervention. The selection of students for the interview involved a heterogeneous group based on convenience sampling. The group had near equal representation of Year 11 and Year 12 students who were either tertiary eligible, vocational education training bound or looking for employment following their schooling. One student identified as experiencing an intellectual disability. All students who participated in the post-intervention interview had participated in the pre-intervention interview.

The SGC interview was also determined by convenience sampling. The total complement of 9 SGCs working in secondary school guidance and counselling in the district consented to be involved in the study inclusive of the interviews. All 9 SGCs participated in both the pre- and post- intervention interviews.

Following completion of the pre- and post- surveys, qualitative items were transcribed and at post-intervention were analysed using Leximancer (2015) and Braun and Clarke's (2006) Thematic Analysis. The Leximancer analysis is explained later in section 3.8.3.1 and Braun and Clarke's Thematic Analysis is explained in later in section 3.8.3.2.

3.6.5 Surveys (SGCs and students).

Surveys were used in this study for a range of data collection reasons. Surveys were used to acquire both quantitative and qualitative data from all participants. Surveys are extremely popular with researchers particularly in the social sciences

as a means for accessing what people believe about issues and their opinions about people and events (Murray & Beglar, 2009). The researcher used the pre-intervention surveys as these would provide baseline data regarding the use of digital technologies by students and SGCs in the school guidance and counselling service over the previous four months of schooling. This baseline data were compared with the data from Time 2 (post-intervention). Furthermore the use of surveys enabled the access of a more comprehensive number of student participants in comparison to the student focus group interviews, thus increasing the quantity of qualitative data. There are a range of advantages and disadvantages in using survey instrumentation in research.

3.6.5.1 *Advantages and disadvantages of surveys.*

The study used survey instrumentation as surveys possess a number of distinct advantages as outlined by Murray and Beglar (2009) including: 1) collecting large amounts of data quickly, 2) enabling various types of questions to be asked (for example, closed and open-ended questions), 3) high response rates, 4) low costs, and 5) responses can be entered through computer processing in short periods of time. Survey instruments are particularly applicable for this study as participants have the potential to "describe, compare or explain their knowledge, attitudes and behaviour" (Fink, 2003, p. 1).

A disadvantage of surveys is that some research participants may self-report data of what they believe to be true or perhaps what they think researchers want to hear (Leedy & Ormrod, 2013). Other authors such as Tinson (2009) have stressed that incorporating young people in research can be complex especially in terms of what they want to divulge and the extent to which they engage with the research. Despite these concerns survey instruments have many benefits in research.

3.6.5.2 *Designing surveys for this study.*

All surveys were specifically designed for the study in order to align with Activity Theory which was used to frame the research and the research questions. The SGC pre- and post- intervention surveys (Appendix 10) comprised 23 qualitative items that related directly to the major and minor research questions 1, 2, 3, 4, 5 and 6. Survey items both at pre- and post-intervention asked all participants to think about the prior 4 school months when answering survey items. The student pre- and post- surveys comprised 21 qualitative items that also aligned with all major and minor research questions. The surveys accessed both qualitative and quantitative data within question groups aligning to Activity Theory and the research questions:

1. Section 1 – About You which accessed coded identification and demographic information,
2. Section 2 – Digital Technologies (mediating tools) requested specific, information regarding digital technology information,
3. Section 3 – Rules (rules),
4. Section 4 – Duties and Responsibilities (division of labour),
5. Section 5 - Community and Relationships (community),
6. Section 6 – Change (object), and
7. Section 7 – Future (object). Section 7 was in only in the post-surveys.

After designing the surveys they were all piloted and trialled in November 2013 as pilot testing surveys is a cardinal rule in research (Johnson & Christensen, 2012). The Year 11/12s' surveys were trialled with four Year 11 students not participating in the study. The SGC surveys were also trialled with three non-participant SGCs. The pilot participants were asked to verbalise their thoughts and perceptions about the survey. This process is referred to as the think-aloud technique (Johnson & Christensen, 2012). Student feedback indicated some uncertainty with specific terminology and the need for some items to be omitted.

SGC feedback indicated the need to restructure the wording of some questions. The feedback provided by the pilot participants resulted in changes being made to all student surveys and SGC surveys.

3.6.6 Web-based surveys.

The final drafts of the surveys were built on a password protected online survey website. Both the SGC pre- and post- intervention surveys and student pre- and post- intervention surveys were web-based (see URL https://www.limeservice.com/en/). Web-based software such as Lime Services (Lime Surveys, 2014) enables researchers to create surveys using custom made templates (Creswell, 2014). Lime Services sends links to participants to complete the surveys online.

Participants were advised of the web-based surveys through a variety of sources. During the study, students were informed of the web-based survey via information documents, student parades, student email, SMS texts and iDAttend texting (software for schools that enables bulk texting to parents' mobile phones). SGCs were informed of the web-based survey via the initial information session, principal/SGC information document, SGC research meetings and work email.

In order to gain a higher rate of survey completion the research study adapted five of the survey mail-out approaches recommended by Salant and Dillman (1994). Firstly, participants were given advanced notice of the forthcoming survey through information forms, consent forms and emails. Secondly, the actual mail-out (web page link) of the surveys was emailed to students' and SGCs' school email addresses. The third step included a reminder email (from online web link) to complete the surveys. Fourth, SMS text reminders were sent to the students' parents' mobile phones. Fifth, SGCs followed up with students providing reminders. Finally, SGCs arranged for students who had not completed their surveys to do so in a computer lab or designated room.

During the post-intervention stage the qualitative responses from pre- and post-SGC and student surveys were analysed using Leximancer and Thematic Analysis.

3.6.7 Electronic diaries (SGCs).

Diaries have been used extensively in research for both quantitative and qualitative means. Diaries are used repeatedly to examine ongoing experiences, and provide opportunity to investigate social, psychological, and physiological processes within everyday situations (Bolger, Davis, & Rafaeli, 2003). Diaries are designed to capture the "little experiences of everyday life that fill most of our working time and occupy the vast majority of our conscious attention" (Wheeler & Reis, 1991, p. 340). Rather than use paper and pen diaries, I chose to use electronic diaries (Stone, Schwartz, Neale, Shiffman, & Marco, 1998) as this was a digital technology process that provided opportunities to tap into the participant's personal and inner thoughts.

The design of the electronic diary question prompts was predominantly based on Activity Theory. SGCs were asked to write thoughts and observations during the school implementation stage. Question prompts were aligned with Activity Theory and included but were not confined to: 1) what SGCs had observed (object, mediating tools, rules, division of labour and community), 2) how SGCs had used digital technologies (mediating tools), 3) new uses of digital devices/software (mediating tools), 4) how students had used digital technologies with them (mediating tools), 5) obstacles that got in their way (rules and division of labour), 6) impact on relationships (community), 7) what changes SGCs had noticed (object, mediating tools, rules, division of labour and community), and 8) what changes had SGCs learnt that other SGCs needed to consider (object, mediating tools, rules, division of labour and community). SGCs were not informed that the question prompts aligned to the six elements of Activity Theory.

In this study electronic diaries were emailed on three separate occasions to capture qualitative data. The diaries were based on a time based interval-contingent design requiring participants to report on their experiences at regular pre-determined intervals (Bolger et al., 2003). Each SGC participant was requested to complete an electronic diary on a monthly basis (May, June and July, 2014). The electronic diary was emailed to the SGCs for each of them to complete within a week and return by email.

At post-intervention the electronic diaries were analysed using Leximancer and Thematic Analysis.

3.6.8 Research monthly meetings (SGCs).

SGC research meetings were held monthly in May, June and July, 2014 to gain insight into SGCs' thoughts, perspectives and learnings of the use of digital technologies during the school implementation stage of the research. The meetings were facilitated by the researcher and resembled a semi-structured focus group meeting format in terms of their being some set agenda, yet there was flexibility to discuss a range of topics that SGCs initiated. The research meetings were accessing SGCs' opinions and perceptions, identifying issues, resolving concerns and posing solutions and recommendations in the use of digital technologies during the school implementation intervention.

The agenda for these one hour meetings did not specifically target Activity Theory or the research questions; however it was evident from the transcripts that elements of Activity Theory and research question themes were present within each meeting. The researcher checked the accuracy of this interpretation by asking a colleague to interpret the meetings' transcripts. Each meeting was audio-taped, transcribed and analysed at post-intervention using Leximancer and Thematic Analysis. The dialogue from these meetings provided rich pertinent qualitative data.

3.6.9 Blog (SGC and students).

The Year 11/12 SGC blog was scheduled during the school implementation stage (Figure 3.3). Each SGC designed the content for a blog on DET's Learning Place website. None of the SGCs had previously used blogs in their school guidance and counselling service. The Learning Place is DET's eLearning website providing secure and safe access to a range of digital tools, resources and online spaces for teaching and learning, collaboration and networking. It is an environment for both DET students and staff (Department of Education Training & Employment Queensland, 2015). SGCs programmed into their blog the names of students who had consented to be in the research and these students were sent invitations to subscribe to the blog. Students were informed of the blog through information documents, student notices, email and SMS text. The researcher provided the SGCs with four topics to be discussed: 1) What is your favourite digital device and why? 2) What device do you most like using at school? 3) What could your school do to make using digital technology devices easier and better for you at school? and 4) What do you think could be the best way for teachers and SGCs to contact students digitally about school items, information, news and assignments?

The conversations were captured from each SGC's blog which provided additional qualitative data for the study. During the post-intervention stage the blog text were analysed using Leximancer and Thematic Analysis.

3.6.10 Unstructured naturalistic observations (SGCs).

The researcher used unstructured naturalistic observations to collect qualitative data from SGCs during phases one to four of data collection (Figure 3.4). The use of unstructured observations is a key method in anthropological and sociological research and is used to understand and interpret cultural behaviour (Mulhall, 2002) within the research context. Unstructured observations are conducted in natural settings where the observer undertakes field notes without specifying in advance what is to be observed (Johnson & Christensen, 2012).

The observations taken during the study were unstructured, opportunistic and serendipitous in nature and occurred throughout the study and in a variety of contexts.

3.6.10.1 *Applying unstructured observations in the study.*

Observations were undertaken throughout all stages of the study; pre-intervention, SGC intervention, school implementation intervention and post-intervention. The researcher had noted observations of SGCs during planning of the three day SGC digital technology professional development program (October 2013 – January 2014), through to the completion of the post-intervention SGC interviews (October 2014). Opportunistic observations occurred during Phase one to four of the data collection design (Figure 3.4) in a variety of contexts and situations.

The focus of the observations was to collect data indicating changes in SGCs' use of digital technologies and confidence in using this technology. Unstructured naturalistic observational data were collected through multiple contexts and activities including 1) field observations of SGCs in their natural setting (school campus), 2) monthly SGC research meetings, and 3) during the three day professional development program. Observations were also noted of the SGCs when they attended school guidance and counselling supervision meetings.

3.6.10.2 *The researcher's role.*

The researcher undertook a range of researcher roles whilst undertaking the observations. Whilst interacting with SGCs the researcher noted observations that informed the research questions. The researcher verified these observations with the SGCs, checking with them that the observations were correct. The researcher undertook the role of observer-as-participant (Johnson & Christensen, 2012) as the researcher was part of the school guidance and counselling staff and

leading the research study. Finally the researcher predominantly acted from some distance however the observational role was known to participants.

The researcher incorporated naturalistic unstructured observations instrumentation into the research design for a number of reasons. There are a range of benefits associated with unstructured observations including the ability to provide insight into interactions between dyads and groups, the capability to inform and illustrate the whole picture, the ability to capture context/process, and the capability to inform about the influence of the physical environment (Mulhall, 2002). The observations provided qualitative data that would inform the study's findings in regards to changes in SGCs' use of digital technologies as well as changes in SGCs' confidence in using digital technologies.

At post-intervention Leximancer and Thematic Analysis were used to analyse .the naturalistic opportunistic observation transcribed notes.

3.6.11 Summary.

The eight qualitative instruments have been described in reference to the literature review information, benefits of particular qualitative instruments, selection of participants, how the instruments were designed and applied in the study and the use of Activity Theory and research questions in assisting in the design of the instruments. The following section will focus on quantitative data and instruments.

3.7 Quantitative Data and Instruments

3.7.1 Introduction.

As a mixed methods study, quantitative research approaches were implemented through pre- and post- intervention web-based surveys for both SGCs and Year 11/12 students. The study's surveys provided neutral objective approaches to test the research questions. These surveys also permitted variables such as *change* to be measured pre- and post-intervention. This also enabled data to be analysed statistically, protecting against bias and controlling for alternative explanations (Creswell, 2009). The planning and formation of the survey questions were guided by research literature.

3.7.2 Surveys.

3.7.2.1 *Survey design.*

The formation of survey questions was guided by Fink's (2003) processes in how to plan and ask survey questions. Central to Fink's processes were: 1) identifying the specific goals of the survey, 2) knowing the respondent's context, 3) matching what needed to be found out with the time taken to complete the survey, 4) using conventional language when asking survey questions, 5) asking a range of questions standardising the response format, and 6) using surveys that were anonymous. The survey questions were composed in a way to ensure that they were appropriate in language and explanations enabling them to be comprehended by the students and SGCs. This was achieved through the use of complete sentences, avoiding abbreviations and slang, avoiding negative questions, avoiding two-edged questions containing two separate ideas and piloting the surveys with SGCs and students not involved in the research.

The surveys incorporated a range of quantitative question formats identified by Fink (2003), including: 1) closed text, 2) closed multiple choice, 3) closed categorical, 4) closed nominal, and 5) closed frequency. The five point Likert ordinal scales (Fink, 2003) were used for a number of quantitative items in the form of closed tabled multiple questions. These were in the form of endorsement scales (Fink, 2003) ranging from 1 to

5 (*Strongly disagree to Strongly agree).* The study used Likert scales as a quantitative measure as they are a common means of data gathering and are one of the most popular scales used for measuring people's attitudes (McLeod, 2008). The SGC survey contained 18 quantitative items and the student survey contained 22 items.

Both the SGC and student surveys were constructed with similar items grouped into sets based on the 6 dimensions of Activity Theory. For example, one set of items explored the participants' use of digital devices (tools). A deliberate choice was made to focus on items of interest rather than scales as the aim was to compare trends across time for both groups of participants (within groups comparison) and between both groups. The focus of analysis was on repeated measures changes per item as opposed to scale based changes. Also, the decision not to establish validity and reliability scale scores was influenced by the small number of SGCs involved in the study (N=9) which would have rendered scale scores meaningless.

3.7.2.2 *Web-based surveys.*

Each student and SGC was provided with an individually coded token for both the pre- and post- intervention web-based surveys enabling respondent anonymity. The coded token ensured that that each participant was sent their own individual invitation to their designated school email address. The use of coded tokens ensured that it was only possible for a participant to complete the survey once. Coded tokens also enabled the study to monitor which participants had commenced and/or completed the survey. The coded token process ensured the completion of the survey by the intended participant.

3.7.2.3 *Survey analysis.*

Quantitative data collected from the pre- and post- surveys were analysed using the Wilcoxon Signed Ranked Test (Pallant, 2011) comparing Time 1 (pre-intervention) with Time 2 (post-intervention).

3.8 Data Analysis

3.8.1 Introduction.

In order to attain reliable and rigorous data, mixed-methods techniques and instrumentation were used to collect data over 12 months. The data analysis within this mixed methods study occurred both within the quantitative and the qualitative approaches and between both approaches (Creswell, 2009). The data analysis phase was not a separate process but was carried out as a simultaneous activity throughout the data collection course of the research.

The study's data collection commenced October 2013 and concluded October 2014. During this time both qualitative and quantitative data were collected and analysed from all SGC and student participants. Appendix 14 outlines an overview of the data gathering instrumentation, analysis techniques and schedule that were implemented pre-intervention (Phase 1), SGC intervention (Phase 2), school implementation intervention (Phase 3) and post-intervention (Phase 4).

3.8.2 Quantitative data analysis.

Quantitative items in both the pre- and post- intervention web-based surveys for SGCs and students were aligned with the major research question and five of the six minor research questions. Aligning the research questions with the quantitative methodological questions provided a means to test the study's theories (Creswell, 2009). The student pre-intervention survey contained 10 quantitative items that captured demographic information (name, gender, date of birth, country of birth, year level, school attended, ethnic identity, language spoken at home, and mother's and father's highest level of qualification). This demographic data were useful in gaining insight into the student participant group inclusive of the number of students from each year level (Years 11/12), gender balance, school numbers per year level and parent education levels per year level and school. The pre- and post- intervention student surveys included a further 11 quantitative items aligned with research questions 1, 2, 4, 5 and 6.

The SGC pre-intervention survey included six quantitative items that related to demographic information (name, gender, date of birth, location of SGC training, year completed training, and SGC experience in years). This demographic data were useful in gaining further insight into the SGC participant group inclusive of gender balance, whether all SGCs had been trained in Queensland and years' experience in the role. Both SGC pre- and post- intervention surveys included a further 11 quantitative items that related directly to the major research question and minor research questions 1, 2, 4, 5 and 6. Following the post-intervention surveys, the quantitative items on the surveys were analysed with the Wilcoxon Signed Ranked Test.

The Wilcoxon Signed Ranked Test (also referred to as the Wilcoxon Matched Pairs Signed Ranks Test) was used in this study as a non-parametric means of comparing quantitative data statistically (Pallant, 2011). The Wilcoxon Signed Rank Test is the non-parametric alternative to the repeated measures *t*-test; however it converts scores to ranks and compares them at Time 1 and Time 2 (2011). The Wilcoxon Signed Ranked Test was chosen as it is designed for use with repeated measures when participants are measured on two occasions or under two different conditions (2011). In this research study quantitative data from surveys were collected on two different occasions: Time 1 (pre-intervention), and at Time 2 (post-intervention). In between these data collection points, a school implementation intervention was conducted.

The Wilcoxon Signed Ranked Test is also ideal for use when the data that are measured are collected on nominal (categorical) and ordinal (ranked) scales (Pallant, 2011). Nominal (binary and closed categorical items) and ordinal scales (Likert scales items) were used on the SGC and student pre- and post- surveys. Furthermore, the Wilcoxon Signed Ranked Test is used when the sample size is relatively small and a normal distribution cannot be guaranteed (Stevens, 1996). As the sample size for the SGCs was small (N=9), effect size was not considered to be an issue in this study. Further, no correction for the number of tests was considered necessary for example Bonferonni family wise correction (2011). To maintain parity for comparison of the student and SGC data, the same approach was followed on both data sets.

Probability was set at *.05* for all pre- and post- intervention comparisons of significant univariate analyses to account for experimental error. The Wilcoxon's Signed Ranked Tests were conducted on all quantitative student and SGC survey items where it was possible to compare results at Time 1 and Time 2.

3.8.3 Qualitative analysis.

The data analysis process for this study was guided by Miles and Huberman's Components of Data Analysis Interactive Model (1994). Qualitative data analysis consists of three streams that are interactive and cyclic with each other (Miles & Huberman, 1994). The following relates to Miles and Huberman's (1994) writings regarding the three streams of data analysis: data reduction, data display and conclusions. Each of these data analysis processes occurs before, during and post- data collection. Data reduction refers to the process of selecting, focussing, simplifying, abstracting and transforming data that appears as notes or transcriptions. The decisions made are analytic choices made by the researcher. Qualitative data can be reduced and transformed in many ways such as through selection, through summarising or paraphrasing. The second data analysis activity is that of data display. Miles and Huberman (1994) report how displays such as matrices, graphs, charts and networks are designed to assemble and organise information into an immediately accessible compact form so the analyst can see what is happening and draw conclusions. The final data analysis activity involves drawing and verifying conclusions. The researcher is noting regularities, patterns, explanations, possible configurations, causal flows and propositions. Miles and Huberman's Components of Data Analysis: Interactive Model is represented in Figure 3.5.

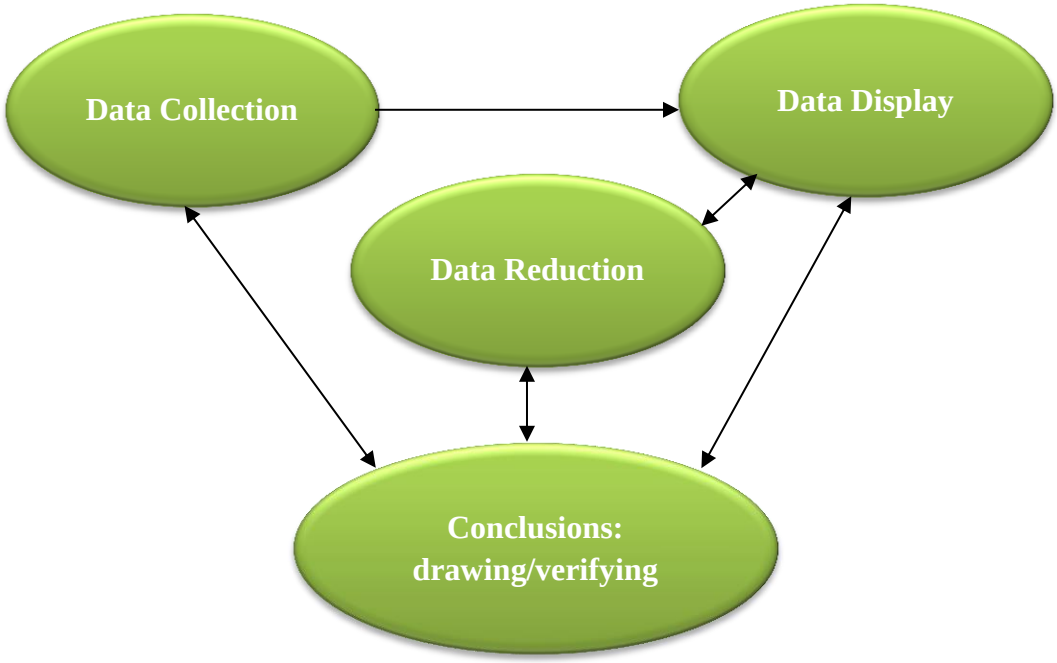


Figure 3.5 Miles and Huberman's components of data analysis: Interactive model. From "*Qualitative Data Analysis – 2nd Edition,*" by M. Miles and A. Huberman p. 12, 1994 by Sage Publications, Thousand Oaks.

3.8.3.1 *Leximancer version 4.0.*

The researcher used Leximancer version 4.0 (2011) to analyse qualitative data collected during the study. Leximancer (2011) provides a means of quantifying and displaying the conceptual structure of a document set and using this information to explore interesting conceptual features. This tool analyses the text to tell a story where ideas, concepts and relationships can be hidden in words (Leximancer, 2015). The application of Leximancer was a means for helping to decipher this study's story and identifying the pertinent themes.

Leximancer uses word frequency and co-occurrence data to identify families of terms that tend to be used together in the text (Anagnostopoulos & Bason, 2015). These concepts are grouped by proximity into clusters which help form significant themes within the research. Leximancer is a *data-mining* tool that is used to analyse the content of collections of textual documents and visually displays the extracted information

(Leximancer, 2011). The information is displayed as a concept map providing an overview of the material which is representative of the main concepts within the text and how they are related (2011). The concept maps visually represent the relational strength between specific concepts and are presented schematically to help interpret the strength of association (Cretchley, Gallois, & Rooney, 2010; Rooney, McKenna, & Barker, 2011). The themes are represented within the concept map containing coloured circles, all of which are determined by size and brightness according to the occurrences within the text (2011). The themes are also heat-mapped, meaning that hot colours (red, orange) indicate the most important themes and cool colours (blue, green), denote less important themes (Leximancer, 2015).

The Leximancer software reduces the data collected in observation notes, transcriptions (participants' conversation) and written text. Leximancer reduces the text identifying the frequency of terms and relationship between these terms (Leximancer, 2011). Step one of the analysis identifies the most frequently used concepts in chunks of speech. In step two of the analysis, linguistic filler words (for example, "think, the, and, say, because…"), numbers and brackets are omitted. In step three, the analysis is conducted again using the refined concept group. Leximancer (2011) develops a data display in the form of a concept group table of concepts in descending order from most to least used terms as well as the frequency of the count of each term. The final step is a data display of the significant themes in the form of a concept map of the analysis.

The majority of qualitative data from the data collection phases one to four (Figure 3.4) were used in six separate Leximancer analyses. Various distinct text analyses were conducted using Leximancer including: 1) interviews, research meetings, diaries and blog text, 2) SGC research meetings, electronic diaries, blog and observations, 3) student versus SGC interviews, 4) student pre-intervention survey, 5) student post-intervention survey, and 6) student pre- and post- intervention surveys.

3.8.3.2 *Thematic analysis.*

In order to gain insight into the qualitative data a variety of methods were used to analyse the qualitative data. Six Leximancer analyses of various qualitative data groups were undertaken. This allowed the analysis of "horizons" (categories arriving from the data) and relationships between the data. The Leximancer analyses were used to help identify cluster themes in student and SGC dialogue and text. The researcher then used the cluster themes (for example, access, website, email and so on) as an initial step to focus the thematic analysis of dialogue and text. Further analyses were undertaken using Braun and Clarke's (2006) thematic method. These two methods of analysis were described by van Manen (1997) as a comprehensive analysis because the "horizons" had been both defined (Leximancer outcomes) and undefined (Braun and Clarke's Thematic Analysis). Braun and Clarke (2006) contend that thematic analysis is a widely used qualitative analytic method used within psychology that is the foundational method for qualitative research. The thematic analysis method is used to identify themes in the data set "…and captures something important about the data in relation to the research question and represents some level of patterned response or meaning within the data set" (Braun & Clarke, 2006, p. 10). Braun and Clarke identified six phases of thematic analyses.

Phase 1: Familiarising yourself with your data. The researcher repeatedly reread the data taking notes and marking ideas for coding. Part of the familiarisation of the data phase involved the researcher transcribing verbal data in order to conduct a thematic analysis. The familiarisation of the researcher with the data is also highlighted by Johnson and Christensen (2012) as being immersed in the data, living with the data and spending time with the data (Johnson & Christensen, 2012).

Phase 2: Generating initial codes. Using the data set, the researcher produced initial codes highlighting features of the data that were interesting and organising the data into meaningful groups (Tuckett, 2005). The researcher used a manual process of coding repeatedly *combing* and *filtering* the data. The codes were primarily theory-driven

where the researcher was conscious of the specific research questions in the coding process.

Phase 3: Searching for themes. At this phase the researcher focused on the analysis of the broader level of themes. The researcher sorted the different codes into potential themes.

Phase 4: Reviewing the themes. The researcher refined the themes ruling out themes supported by limited data and themes where the data were too diverse or where some themes collapsed into other themes or other themes needed to be broken into two themes.

Phase 5: Defining and naming themes. After constructing a thematic map, themes were defined and further refined for the analysis. In this phase Braun and Clarke (2006) highlight the need to consider how each theme fits into the overall story.

Phase 6: Producing the report. This is the final phase of the analysis where the researcher has a set of fully worked-out themes and completes the final analyses write-up in the thesis (Braun & Clarke, 2006).

Using the Thematic Analysis of the qualitative data enabled the 1) identification of recurrent themes, 2) determination of patterns in the data, 3) comparison of similar or related pieces of information and 4) search of data to help answer the research questions. This data reduction approach was also extremely beneficial in triangulating with other qualitative data analysis processes (Leximancer) and quantitative data analysis processes (Wilcoxon Signed Ranked Tests), helping to draw conclusions and form explanations and theories of this study's research.

3.8.4 Triangulation of data.

Triangulation is the term given when the researcher seeks convergence and corroboration of results from different methods studying the same phenomenon (Johnson & Christensen, 2012). Many writers and researchers have contended that mixed methods research allows the purposes of triangulation of data (Creswell, 2014; Denzin, 1978; Johnson & Christensen, 2012; Leedy & Ormrod, 2013; Smith & Kleine, 1986). Triangulation of data in mixed methods research has enabled conclusions and recommendations to be supported and accepted by the empirical world. Mixed method research can provide stronger evidence for a conclusion through convergence and corroboration of findings which is the principle of triangulation (Johnson & Christensen, 2012). Using a mixed methods approach also involves a heightened sensitivity to the process of triangulation of data (Denscombe, 2007) through a greater range of data collection instruments. Teddlie and Tashakkori (2009) also contend that mixed methods research has the ability to provide stronger inferences. The adoption of a mixed method approach within this study allowed the collection of qualitative and quantitative data enabling the study to cross reference through triangulation processes.

In this study, the diversity of data collection through the mixed methods instrumentation has ensured opportunity to *triangulate* research data. Triangulation of the study's results was achieved through comparing Time 1 and Time 2 quantitative results using the Wilcoxon Signed Rank Test, particularly results that indicated a statistically significant difference ($p < .05$ level). The Leximancer analyses provided cluster themes to be considered. The Thematic Analysis identified even further themes (beyond the Leximancer analyses) in the text and transcriptions.

Once the study's quantitative and qualitative results had been determined the researcher compared the SGC and student quantitative outcomes for consensus and differences. The researcher then compared the themes that had evolved through the qualitative analysis for both SGCs and students, identifying consensus and differences. The researcher was guided by Creswell's (2012) recommendations where the researcher

creates a table, one column for quantitative findings and another for qualitative findings and then identifies parallels and any discrepancies between the two data sets.

Triangulation and multiple methods of data collection and analysis have been applied strengthening validity (Merriam, 1998) in this study. The mixed methods research approach enabled triangulation of qualitative and quantitative data and this has led to results that have both rigour and reliability (Merriam, 1998). Using mixed methods enabled the convergence of the qualitative and quantitative data collected by all methods in this study leading to quality research conclusions, the enhanced credibility of the research findings (Toomey, 2001) and corroboration of results (Johnson & Christensen, 2012).

3.9 Research Quality

The planning, design and implementation of this research project has aimed to meet a range of research quality standards including research integrity, alignment, trustworthiness, reliability, validity and ethical considerations.

3.9.1 Research integrity.

This research has been informed by Activity Theory as a conceptual and methodological framework and the implementation of mixed methods. The study is also in response to identified school guidance and counselling digital technology needs and national curriculum priorities.

The research plan and implementation has also utilised a range of measures to increase the standardisation of research processes. A large quantity of quantitative and qualitative data has been collected from the two participant groups in the study using a range of instruments. The sample included multiple settings (six different secondary schools), essentially applying the methodology six times, increasing the probability of

standardisation of research process. Furthermore the 9 SGCs experienced the same professional development intervention and were thoroughly guided throughout the school implementation stage.

Research integrity was further enhanced through the use of multiple measurement instruments that enabled data to be triangulated based on theory and method. The four month school implementation and the multiple data sources enabled a comprehensive analysis of the data and reduced research bias.

3.9.2 Alignment.

The aim of this study was to investigate how the enhanced use of digital technology competencies by SGCs with Year 11/12 students resulted in changes to the school guidance and counselling service. The mixed methods approach allowed for the collection and analysis of a large quantity of qualitative and quantitative data. To ensure research validity and reliability, all instrumentation including surveys, focus group interviews and electronic SGC diaries were specifically aligned to Activity Theory. Furthermore all question items on these instruments were also aligned with the core elements of Activity Theory and the research questions.

3.9.3 Qualitative Research.

Lincoln and Guba (1985) refer to trustworthiness of a research study as being important in evaluating its worth. Trustworthiness in qualitative research involves establishing credibility, transferability, dependability and confirmability.

3.9.3.1 *Credibility.*

Credibility refers to the confidence in the 'truth' of the findings (Robert Wood Johnson Foundation, 2017). The researcher's study enhanced credibility of the findings through the researcher's prolonged engagement and persistent observation of the SGCs and schools over the past 26 years, understanding the research problem, the school context, students' needs and the SGC role. During the 12 month duration of the pre-intervention,

SGC and School implementation stages (Figure 3.3) of the study the researcher engaged with students through class assemblies, semi-structured focus group meetings and survey emails. The researcher engaged with SGCs through the SGC professional development, research meetings, semi-structured focus group interviews, face-to-face discussions and emails. The prolonged engagement provided 'scope' and persistent observation provided 'depth' (Lincoln & Guba, 1985) to the findings.

Triangulation involves using multiple data sources in an investigation to produce understanding (Robert Wood Johnson Foundation, 2017) and is another means of improving credibility of results. Triangulations of data were enhanced through the use of a range of data instruments (surveys, semi-structured focus interviews, electronic journals, research meeting text and observations). Qualitative Data were also collected at various points in time (pre-intervention, intervention and post- intervention) from the range of participants (SGCs and students). The majority of survey questions as well as semi-structured focused interview questions were identical (with the exception of RQ 6) and were asked at both Time 1 and Time 2 to allow for reliable comparisons across time. Rich descriptive data were collected to examine and interpret the data.

The researcher also used member checking that occurred during research meetings and individual SGC discussions to ensure the validity of interpretation of participants' accounts. Lincoln and Guba (1985) posit that member checking is a crucial technique for establishing credibility.

3.9.3.2 *Transferability.*

Robert Wood Johnson Foundation (2017) refers to transferability as showing that the findings have applicability in other contexts. Lincoln and Guba (1985) contend that by describing a phenomenon in sufficient detail can begin to evaluate the extent to which the conclusions drawn are transferable to other times, settings, situations and people. The researcher used a range of qualitative data instruments (surveys, semi-structured focus group interviews, electronic journals, research meeting text and observations) to investigate the research problem in detail, thus improving transferability. Two forms of

qualitative analysis also assisted transferability of findings; Leximancer (2011) and Braun and Clarke's Thematic Analysis (2006).

However, the results were treated appropriately based on the number of SGC and student participants and despite the use of a range of transferability techniques in this study, it was not possible to generalise the findings beyond the research study. A small number of SGCs (N=9) and students (N=123) participated in this study from one education district in Queensland. Participants were not randomly selected. Given the small number of participants it was not possible therefore to conclusively generalise the findings.

3.9.3.3 *Dependability.*

Research dependability demonstrates that the findings are consistent and could be repeated (Robert Wood Johnson Foundation, 2017). The purpose is to evaluate the accuracy and evaluate whether or not the findings, interpretations and conclusions are supported (2017). The researcher collected a diverse range of qualitative data and used Leximancer (2011) and Braun and Clarke's (2006) Thematic Analysis framework to systematically analyse data enhancing the likeliness that findings are consistent and the processes that generated the results could be repeated. The researcher was extremely familiar with the data. The researcher methodically recorded the criteria on which category decisions were made. Furthermore, the researcher ensured that the data analysis processes through Leximancer (2011), and the Thematic Analysis (Braun & Clarke, 2006) were not over-interpreted.

3.9.3.4 *Confirmability.*

Confirmability is the degree of neutrality or the extent to which the findings of a study are shaped by the respondents and not by researcher bias, motivation or interest (Robert Wood Johnson Foundation, 2017). The collection of data from multiple data sources and triangulation of data through the analysis processes assisted confirmability of the study's results. Method triangulation was achieved through the collection of both quantitative and qualitative data at different points in time; pre-, school implementation

and post- intervention. The researcher used member checking to ensure that SGCs' perspectives were clearly defined and recorded. Member checks asked participants to review both the data collected by the researcher and the researcher's interpretation of the data (DeVault, 2016).

Reflexivity is the process of attending systematically to the context of knowledge construction, especially to the effect of the researcher, at every step of the research process (Robert Wood Johnson Foundation, 2017). The researcher developed a systematic research design model (Figure 3.3) that provided a step by step approach to all key components of the research inclusive of instrument design, instrument implementation, phases in the collection of data and analyses of data. The researcher's comprehensive understanding and experience in school guidance and counselling helped to clearly develop the research problem, determine the way to investigate the research problem, establish the appropriate methodology, select the appropriate data analysis processes and analyses, and help determine conclusions applicable to the school guidance and counselling literature and profession. The researcher was also vigilant that researcher bias did not influence the findings, using member checking to help monitor and gauge the researcher's perceptions.

3.9.4 Quantitative Research

3.9.4.1 *Reliability.*

Johnson and Christensen (2012) highlight that reliability is one of the two most important psychometric properties to consider in using a test or assessment procedure. These authors refer to reliability as the consistency or stability of the test scores. If a test or assessment procedure provides reliable scores, the scores will be similar on every occasion.

Quantitative reliability was enhanced through the different data that were collected through a variety of instruments and quantitative items being directly related to research questions. The framings of quantitative questions were customised to directly link with

the research questions that were guided by the six elements of Activity Theory which formed the conceptual and methodological framework for this study. The majority of quantitative question items were also accompanied by qualitative questions that further elicited clarifying data related to the quantitative items. Furthermore, surveys were used 2 times; pre- and post- intervention.

The researcher ensured that the results obtained from the Wilcoxon Signed Ranked Test (Pallant, 2011) were not over-interpreted. Furthermore quantitative data were analysed and interpreted through non-parametric means (Wilcoxon Signed Ranked Test) treating the data as ordinal not interval data.

3.9.4.2 *Validity.*

Johnson and Christensen (Johnson & Christensen, 2012) posit that validity is the other most important psychometric property to consider in using a test or assessment procedure. Validity refers to the accuracy of the inferences or interpretations that are made from the test scores. That is the test is measuring what was intended to be measured for the particular people in a particular context and the interpretations that are made are on the basis of the test scores are correct (2012). Research validity is composed of internal and external validity.

Internal validity refers to the approximate truth about inferences regarding cause-effect or causal relationships (Trochim, 2006). The key question in internal validity is whether observed changes are attributed to the intervention or program (2006). In this study, internal validity of quantitative results and findings was strengthened through: 1) ensuring that each quantitative question item aligned with specific research questions and in turn aligned with Activity Theory's six core elements, 2) the piloting of SGC and student survey instruments, 3) use of identical surveys (with the addition of RQ 6 on the post-survey) that were used at Time 1 and Time 2 allowing for comparison of data and results, and 4) the use of a variety of mixed methods test instruments (surveys, interviews, research meetings, electronic diaries and blog) that enhanced triangulation of quantitative and qualitative data.

Internal validity was further strengthened through "member checking" throughout the four month study and data collection. The researcher regularly checked with SGC participants regarding the interpretations of each participant's reality and meaning to ensure the accuracy of the reported data (Miller, 1992) and the accuracy of their accounts (Creswell, 2009). The regular checking through emails, SGC research monthly meetings, individual visits and conversations with SGCs enabled the researcher to compare qualitative data with data that were collected through quantitative means.

In addition to the internal validity measures the research project has used a range of actions to enhance external validity of the results and findings. External validity refers to the extent to which the results of the study can be generalised to and across populations, settings, times, outcomes and treatment variations (Johnson & Christensen, 2012). The selection of subjects for this study was by convenience and open sampling where subjects determined whether they wished to participate in the study or not. The research was restricted to Year 11/12 students and their associated SGCs and there was a range of school contexts within the research, ensuring coverage of rural/urban and small/large secondary student populations. Given the small number of SGCs (N=9) and students (N=123) it was not possible to conclusively generalise the findings of this research more broadly. However, even though this would be regarded as a small research sample, the results will help inform the research literature.

Furthermore, as there were only a small number of students (N=123) and SGCs (N=9) who responded to the surveys pre- and post-intervention, a decision was made not to establish survey validity and reliability scale scores, as the scale scores would have had little statistical meaning, because of the relatively small number of participants. The survey instruments were created using the Activity Theory framework, trialled and modified as necessary. The data were treated as frequency rather than interval data. Hence, the results reported in this thesis are valid and reliable for this group of participants.

3.9.5 Ethical considerations.

To ensure and uphold quality research standards the study applied a number of actions in reference to participant confidentiality, student protection and research ethics. The researcher completed an online DET Risk Management course and SGCs maintained currency (past 12 months) in DET Code of Conduct training and DET Student Protection training. Additionally, as the research involved human beings the study sought and attained ethics approval (Appendix 15) through the Human Research Ethics Committee of University of Southern Queensland (June, 2013). As the research was conducted in six state school sites with students and SGCs, the researcher submitted an *Application for conducting research in Queensland Department of Education, Training and Employment sites.* DET Ethics approval (Appendix 16) was obtained in May, 2013.

Prior to the intervention all potential participants received information and informed consent forms informing participants of the research goals, duration and commitment and assured anonymity and confidentiality. The SGCs were presented with a research information session (Monday 15 July, 2013) outlining the research aims, schedule and SGCs' commitments. SGCs were given opportunities to ask questions and raise concerns about the study. SGCs were then given a week to respond to the researcher if they wished to be part of the research. It was clearly stated that they would not experience any negative outcomes if they chose not to be part of the research. Following this all potential research school principals and their SGCs received visits from the researcher outlining goals of the study; participants' intended outcomes and required commitments from both the school and SGC. The researcher and SGC then addressed each Year 11/12 student assembly informing them of the research project. Information and informed consent forms were provided to each student to discuss with his/her parent/guardian. All consenting participant information was then contained in a secured filing cabinet and password protected computer files.

3.10 In Summary

This chapter has outlined how Activity Theory as a conceptual and methodological framework (Larkin & Finger, 2010) has been applied to this study. The participants and the research context have been defined. The research design and methods of this mixed methods study have been described including the phases of data collection and instruments used to collect data. All instruments have been described including rationale for their selection and their construction. Both quantitative and qualitative methods of enquiry have been discussed in relationship to each of the data collection instruments and their relationship to the major and minor research questions. An overview schedule of the data gathering techniques, instrumentation and data analysis has been detailed in relation to each specific research question. The final section of the methodology chapter has conveyed research quality of the study inclusive of reliability and validity measures, ethical considerations and risk management actions.

The following chapter will outline and discuss the intervention program.

Chapter 4.

The Intervention Program

4.1 Overview

This chapter will outline the intervention conducted with nine Department of Education and Training (DET) School Guidance Counsellors (SGCs) over 11 school months from July 2013 to August 2014. An overview of the phases of the intervention is displayed in Figure 4.1.

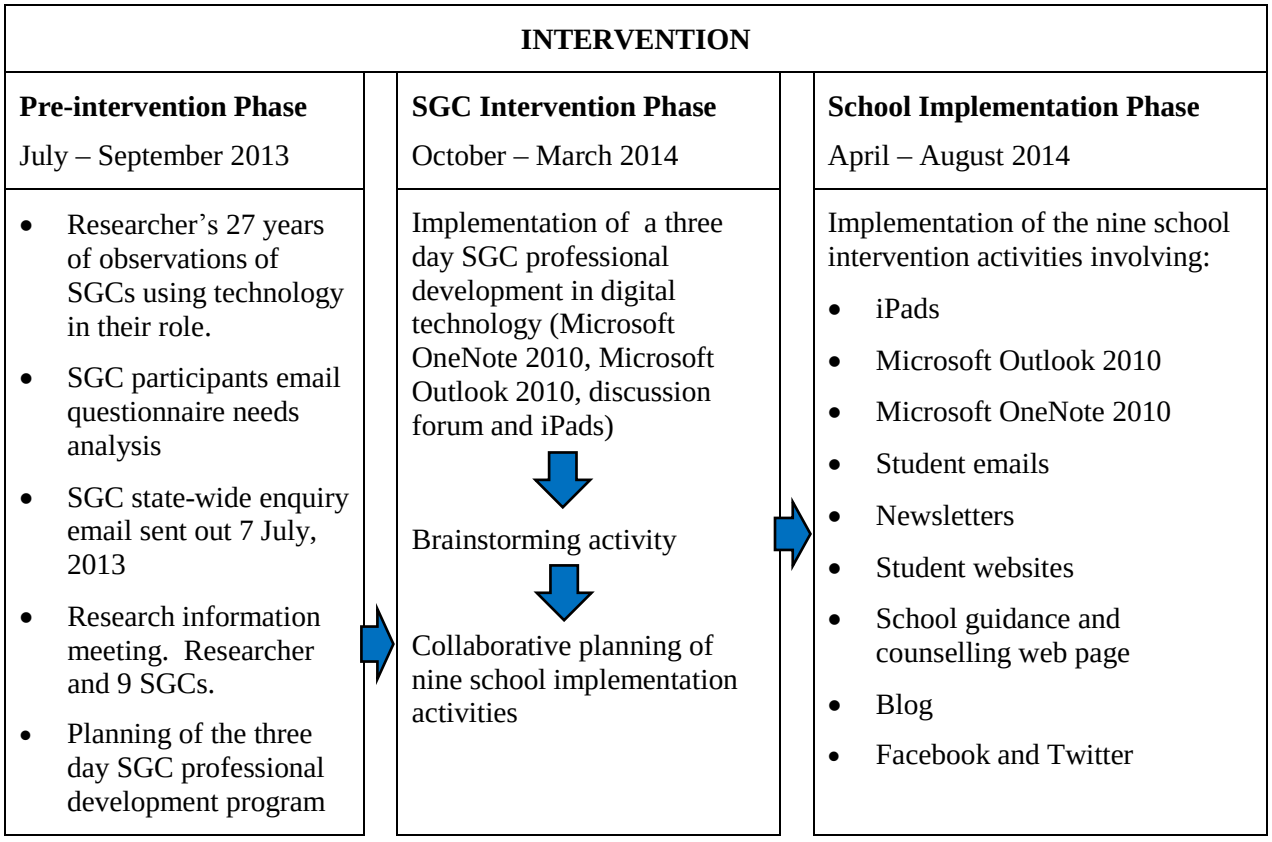


Figure 4.1 Intervention phases of the study.

The intervention aimed to improve SGCs' competencies with and disposition towards the use of technologies and provided structure and support that would enhance their use of digital technologies in each of their schools. Support was delivered both directly and indirectly through the use of eLearning presenters, school information technology personnel, SGCs' peer support networks and by the researcher. The remainder of Chapter 4 outlines the aims, rationale, intervention phases and a detailed account of the nine SGC activities that formed the foundation of the school implementation program.

4.2 Intervention Aims and Rationale

4.2.1 Aims.

The intervention aimed to benefit both SGCs and students. The aims of the intervention aligned with the six elements of Activity Theory as represented in Figure 2.1. The reasons for this alignment is attributed to the previous research as quoted in Chapter 2, the researcher's observations, the results of the SGC state-wide enquiry and the data from the SGC participant email questionnaire. Collectively this data indicated that SGCs were using a restricted range of digital technologies (mediating tools) in a limited manner and it seemed that technology guidelines (rules) may be restricting the of use digital technologies by SGCs (for example, rules around Facebook use and texting students). SGCs may not have been taking the opportunity to use digital technologies to build upon existing student relationships and to create new relationships with a greater number of students (community). Furthermore, through increased SGC and student commitment to the engagement with digital technologies (division of labour) it was expected that a more comprehensive school guidance and counselling service would result and that this could have benefits for student academic, psychosocial and career development (object).

The aims of the intervention were that SGCs:

1. increased their competency with and disposition towards using a broader range of digital technology hardware and software that they utilise in their role (Engeström: Mediating tools).

2. become more aware of DET's technology rules and work within them to optimise their service delivery to students (Engeström: Rules).

3. would work together to develop digital technology resources that all SGCs could use more frequently in their role (Engeström: Division of labour).

4. improved the integration of digital technology into their school guidance and counselling service leading to increased communication and enhancement of relationships with students (Engeström: Community).

5. increased the integration of digital technology into their role, improving service delivery to students (Engeström: Object).

The intervention aimed to achieve the following learning outcomes for students:

1. increased exposure to a broader range of digital technology (both hardware and software) associated with school guidance and counselling (Engeström: Mediating tools).

2. increased awareness of digital technology rules that are perceived as necessary, helpful or unhelpful (Engeström: Rules).

3. enhanced understanding of the SGC role (Engeström: Division of Labour).

4. awareness that they have duties and responsibilities to undertake in using digital technologies to enhance their own academic, learning, emotional and career needs. (Engeström: Division of Labour).

5. further development of their relationship with the SGC (Engeström: Community).

6. enhanced awareness of digital technology resources that could assist their academic, learning, emotional and career needs (Engeström: Object).

The measured outcomes for the study are each aligned with the elements of Activity Theory: mediating tools, object, rules, community and division of labour which is represented in Figure 4.2.

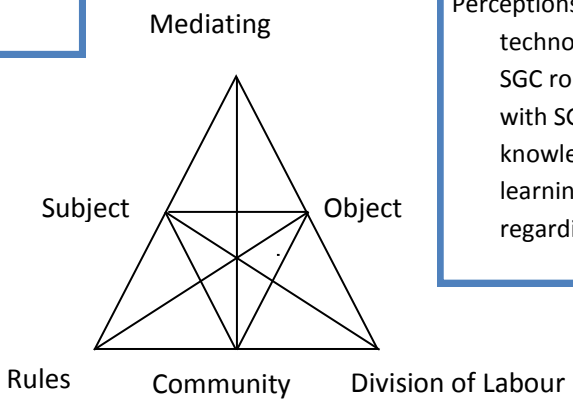
Activity Theory Measured Outcomes

Mediating Tools (SGC)
Changes in devices used at home/school.
Changes In frequency of use of digital technologies (email, text, mobile phone, blog, apps, Guidance web page, Internet, social media, computer programs).

Object (SGC)
Changes in self, student, school and school guidance and counselling program.
Had the service improved?
Perceptions of impact of enhanced use of technology (students' understanding of SGC role, relationships with students, self-referrals, student knowledge of careers, counselling, student academic learning, students willing to see SGC regarding personal problems/mental health, skills and confidence with technologies and enthusiasm for role).

Mediating Tools (Student)
Changes In devices used at home/school.
Changes In frequency of use of digital technologies (email, text, mobile phone, blog, apps, Guidance web page, Internet sites, social media, computer programs with SGC).

Object (Student)
Observed changes in service.
Measured, had the service improved?
Perceptions of impact of enhanced use of technology (students' understanding of SGC role, connection to SGC, relationship with SGC, self-referrals, increased student knowledge of careers, improved student learning, students more willing to see SGC regarding personal problems).



Rules (SGC)
Perceptions of what are the rules and helpful/unhelpful rules.

Rules (Student)
Perception of what are the rules and helpful/unhelpful rules.

Division of Labour (SGC)
Changes in frequency of using digital technologies in school guidance and counselling service.
Perception of applying technology duties and responsibilities (face to face with students, responding to electronic requests, providing information on Guidance web page, managing blog, item for newsletter, using apps, maintaining confidentiality, providing up to date information).
Perception of duties and responsibilities that constrain/assist.
Perception of how duties and responsibilities had changed.

Division of Labour (Student)
Changes in frequency of using digital technologies in school guidance and counselling service.
Perception of applying technology duties and responsibilities (face to face with SGC, checked emails, checked for texts, checked the Guidance web page, read blog, used polite and courteous language, tried to apply to life).
Perception of duties and responsibilities that constrain/assist.
Perception of how duties and responsibilities had changed.

Community (SGC)
Perception of feeling part of guidance community.
Perception of sense of guidance community and SGC-Student relationship (quality of relationship, students knowing SGC, feeling connected).

Community (Student)
Perception of feeling part of guidance community.
Perception of strength of guidance community.
Perception of SGC-Student relationship (quality of relationship, digital technologies impact on relationship with SGC).

Figure 4.2 Measured outcomes of study based on Activity Theory.

4.2.2 Rationale.

This intervention program has been aligned with government directives. For example, successive Australian federal governments have funded the *Digital Education Revolution* (The Commonwealth of Australia, 2009) with the aim of young people completing their schooling with relevant knowledge and skills in using ICTs. The Digital Education Revolution's second aim is to improve student learning across the curriculum through the use of ICTs (Hess-Biber & Nagy, 2010). The intervention has been aligned to these aims.

The intervention has also been aligned to initiatives from the Australian Curriculum and Assessment and Reporting Authority (ACARA) which is the national curricula, assessment and reporting framework for all Australian schools (Australian Curriculum Assessment and Reporting Authority, 2013). The study was aligned with ACARA's general capabilities: Literacy, Numeracy, Information and Communication Technology, Critical and Creative Thinking, Personal and Social Capability, Ethical Understanding, and Intercultural Understanding.

The literature reviewed in Chapter 2 indicated that there was a clear need for SGCs to receive training in the use of digital technologies in school guidance and counselling (Beidoğlu et al., 2015; Carlson et al., 2006; Glasheen & Campbell, 2009; Glasheen et al., 2013; Grosshandler, 2012; Hayden et al., 2008; Holcomb-McCoy, 2005; Roddy, 2013; Sabella & Booker, 2003; Vinluan, 2011). The literature also indicated that it would be an ongoing challenge for SGCs to integrate digital technologies into their role (Baker & Gerler, 2001; Grosshandler, 2012; Hayden et al., 2008; Sabella et al., 2010) and that there has been a deficiency of relevant training to address this need (Carlson et al., 2006; Owen & Weikel, 1999; Sabella et al., 2010). Although DET provides a range of digital technologies for SGCs, it was noted that prior to this intervention, professional development in digital technology directed at SGCs was rare. Most professional development organised by schools was directed at meeting teachers' needs and was of limited relevance to SGCs as their roles and digital technology needs are quite different. During a 27 year school guidance and counselling period the researcher had observed

only one digital technology professional development program organised specifically for SGCs. This involved a one hour workshop on the basics of the OneSchool (Department of Education Training & Employment Queensland, 2015) software program, a DET system's requirement.

The researcher observed a need to improve SGCs' competencies with and disposition towards using digital technologies in school guidance and counselling which is also noted in the literature reviewed (Fernandez et al., 2009; Hayden et al., 2008; Rainey et al., 2008; Sabella et al., 2010). The researcher implicitly understood the use of digital technologies in the SGC role and explicitly devised an intervention that was consistent with current literature based on what the researcher observed to be the shortcomings of professional development for SGCs with respect to the use of digital technologies in the Queensland DET system.

This study's customised SGC professional development program focussed on competencies with and disposition towards digital technology mediating tools: Microsoft OneNote 2010 (NZ Business, 2012), Microsoft Outlook 2010 (Mendelson, 2011, March), iPads and a blog. Each of these was recommended by the eLearning presenters of the professional development who are DET's experts in the ICT field. Furthermore each of these was a form of mediating tools (Engeström, 1999a) that through activity could result in changes to rules, division of labour, subjects, community and object. Microsoft OneNote 2010 was targeted as it was part of the software that was DET provided and it enabled SGCs to keep ongoing data (notes, emails and meeting information) on each student case in one easily accessed location. Microsoft OneNote 2010 also provides the options of recording information by video or audibly with a student. Microsoft Outlook 2010 was DET provided software that was already used by the SGCs, however in a restricted manner. Additional competencies in Microsoft Outlook 2010 could assist SGCs in managing data, enhancing communication, improving organisation and assisting with time management. The SGCs were provided with iPads as these are not DET provided devices and their DET laptops did not have app (application) functionality. iPads provided SGCs with the opportunity to have a

mobile device that they could take to the student and it enabled the access of apps that were purpose designed for school guidance and counselling. The use of apps enabled another counselling medium that SGCs could use when assisting students. SGCs were also educated in competencies for constructing, using and managing a blog. This was DET provided software that would enable SGCs to communicate two-way with students through conversational text.

4.3 Structure of the Intervention

4.3.1 Intervention phases.

The intervention for this study spanned 11 school months over three phases 1) *pre-intervention*, 2) *SGC intervention*, and 3) *school implementation intervention* as represented in Figure 4.1.

The pre-intervention phase (Figure 4.1) included the collection of data from a range of sources such as: researcher observations, research information meeting (October, 2013), a SGC state-wide enquiry email, SGC participant email questionnaire and SGC disclosures. The purpose of this phase (July – September 2013) was to gain a sense of which digital technology hardware and software were available to SGCs, what they were using and where needs existed that could help plan the SGC intervention.

The SGC intervention phase (Figure 4.1) involved teaching SGCs digital technology competencies and planning nine school implementation intervention activities to be implemented in schools. The purpose of the SGC intervention phase was to enhance SGCs' skills and disposition towards the use of digital technologies targeted in the professional development and identify ways of using these technologies in their service delivery. The planning for the SGC intervention program (October 2013 – March 2014) is displayed in Table 4.01.

Table 4.01

SGC Intervention Program: SGC Professional Development and Planning (October 2013 – March 2014)

	Activity	Aim	Participants	Dates of activity	Duration of activity	Led or delivered by
1.	Professional development Days 1, 2 and 3	To provide a common learning and skill sets for specific software and devices.	SGC group, researcher & eLearning teachers (2)	October & November 2013 February 2014	18 hours	eLearning teachers (2)
2.	Supplied iPads	To enable all SGCs to use iPads in their service delivery.	Individual	November 2013	1 hour	Researcher
3.	SGC meeting brainstorming meeting	To utilise the collective wisdom of the group to identify ways technologies could be used in the research.	SGC group & researcher	February 2014	1.5 hours	Researcher
4.	Student emails (preparation)	To develop emails assisting students in careers and mental health.	1 SGC & researcher	April – July 2014	5 meetings (30 minutes each)	SGC & researcher
5.	Ongoing contact emails	Researcher to provide support for SGC participants.	Individual & whole group	October 2013 – August 2014	11 month span	SGC group & researcher
6.	Telephone calls	Researcher to provide support for SGC participants.	Individual	October 2013 – August 2014	11 month span	SGC group & researcher
7.	Face-to-face	Researcher to provide support for SGC participants.	Individual	October 2013 – August 2014	11 month span	SGC group researcher

The final phase of the intervention, the school implementation (April to August 2014), involved the application of the SGC's competencies with and dispositions towards digital technologies in the school context. The school implementation program was conducted over 16 school weeks. As well as implementing the research project in the school context, SGC teams continued to design, plan and complete school

implementation intervention activities during this phase using student emails, school guidance web page, student texts, Twitter and Facebook, and blog. Table 4.02 outlines planning of the school implementation intervention program (April to August 2014).

Table 4.02

School Implementation Intervention Program (April – August 2014)

	Activity	Participants	When	Duration	Led or delivered by
1.	Student emails	1 SGC & researcher	April – July 2014	5 meetings (30 minutes each)	SGC & researcher
2.	School guidance and counselling web page	3 SGCs & researcher	May – June 2014	5 meetings (1 hour each)	3 SGCs & researcher
3.	Newsletter	2 SGCs & researcher	May & July 2014	3 meetings (1 hour each)	2 SGCs & researcher
4.	Student texts, Twitter and Facebook	Individual, whole group & researcher	May – July 2014	3 months	SGCs & researcher
5.	SGC Year 11/12 blog	SGCs & researcher	June – July 2014	6 weeks	Researcher
6.	Ongoing contact emails	Individual & group	April - August 2014	20 week span	SGCs & researcher
7.	Telephone calls	Individual	April - August 2014	20 week span	SGCs & researcher
8.	Face-to-face	Individual	April - August 2014	20 week span	SGCs & researcher
9.	SGC research meetings	SGC group & researcher	May, June & July 2014 (3 meetings)	3 meetings (1.5 hours each)	Researcher

The SGC and school implementation interventions were developed based on six of Sabella, Poynton and Isaac's (2010) framework of technology subscales as these were considered essential learning areas in digital technology for SGCs globally. The subscales include, 1) Data Management (includes spreadsheet and database related tasks), 2) Communication and Collaboration (includes various tasks largely associated to

email, chat, discussion boards and electronic mailing list applications, 3) World Wide Web (searching, downloading and bookmarking websites), 4) Operating Systems (managing files, maintenance tasks, install plug-ins and add-ons for particular software), 5) Website Development (inserting links, creating a web page), and 6) Ethics including ethical implications of computer related technology, copying digital content and client confidentiality to electronic communication. The remaining two subscales Word Processing and Multimedia were not used in the professional development. Word Processing was omitted because the SGCs self-reported that they were competent and confident in the area of Word Processing. Multimedia was omitted as there was insufficient time to effectively implement this category in the agenda of the three day professional development program and it was considered that there were other SGCs' digital technology competencies that needed to be addressed more urgently.

The study encouraged SGCs to apply Sabella, Poynton and Isaac's (2010) framework of technology subscales in their school guidance and counselling service. For example, with respects to Data Management, SGCs were encouraged use Microsoft OneNote 2010 and Microsoft Outlook 2010. Communication and Collaboration was included and SGCs were asked to email and text student groups and participate in a blog. In respect to the World Wide Web SGCs were requested to access additional tertiary, vocational education and mental health and well-being websites with students. In the area of Operating Systems, SGCs were asked to use DET's OneSchool (Department of Education Training & Employment Queensland, 2015) and the Learning Place (Department Education Training & Employment Queensland, 2015). SGCs were asked as a group to help plan the content and layout for a School Guidance and Counselling web page to be part of the schools' websites. Finally, Ethics was included and SGCs were asked to maintain confidentiality with all digital technology activities involving student data.

Knowles's (2005) six adult learning principles were incorporated into the presentation of the SGC professional development (3 days) and the planning of the nine school implementation activities. The principles were adhered to wherever possible:

identifying what SGCs' needed to know, ensuring their self-concept was enhanced, respecting SGCs' prior experience, ensuring they were ready to learn, orientating their learning towards a real work problem and maintaining motivation throughout the research period. In order to apply Knowles's (2005) principles, a range of pedagogies were used including modelling, demonstrating, scaffolding, problem-solving, experiential learning, mentoring, group discussions, peer support, and teaming.

4.3.2 Pre-intervention phase (July – September, 2013).

DET provides SGCs with access to a range of digital technologies. Some of these technologies include, 1) software (Microsoft Office 2010), 2) hardware (laptops, data projectors and printers), 3) access to the school mobile phone, and 4) access to standardised DET systems including the school website, school Facebook and Twitter, the Learning Place (Department of Education & Training, 2015) and OneSchool (Department of Education Training & Employment Queensland, 2015). DET enables each SGC to have 3G or 4G access on one device. OneSchool (mediating tools) is DET's portal that enables DET personnel to digitally upload and retrieve information for each student. All DET staff are mandated to use OneSchool. Some schools have extended their digital technology beyond the standard DET provisions to include additional software such as iDAttend and supply a range of devices including iPads.

A needs analysis process was conducted to identify possible technology needs areas that could inform the planning of the intervention. Prior to the intervention it was noted from the researcher's observations, SGC participant email questionnaire (Table 4.03) and SGCs' disclosures that the SGCs in the study were primarily not accessing the available digital technology or were accessing technology in a limited way. The researcher noticed reoccurring behaviours in the SGCs' use of technology. Firstly SGCs' use of the Microsoft Outlook 2010 was restricted (mediating tools). Secondly, the majority of SGCs had not used Microsoft OneNote 2010 (mediating tools). Thirdly, SGCs appeared to prefer to use laptops and printers (mediating tools). Fourthly, DET technology such as the school website, school Facebook and Twitter (mediating tools) appeared to be underutilised by SGCs whereas the use of OneSchool, (Department of

Education Training & Employment Queensland, 2015) was on the increase (division of labour). Fifthly, only one SGC had used a blog however this was personal use, not work purposes. Finally, SGCs reported that they infrequently texted students as texting students directly is not allowed by DET personnel (division of labour and rules).

In July, 2013 a self-evaluative email questionnaire was sent to SGC participants to gather information to profile their digital technology experience and skill level. In the questionnaire, SGCs rated themselves on their experience and skill level in the use of specific digital technologies: Microsoft OneNote, blogs, iPads, school website and emails. Response categories were *No experience, Beginner, Intermediate, Quite skilled* and *Very skilled*. Table 4.03 represents the number of responses from the SGC participants.

Table 4.03

Summary of SGC (N=9) Responses to Pre-intervention SGC Email Questionnaire of Digital Technology Experience and Skill Level

Technology device and software	**No experience**	**Beginner**	**Intermediate**	**Quite skilled**	**Very skilled**	**Total participants**
OneNote	6	3				9
Blog	8	1				9
iPad		3	5		1	9
School website	4	3	1	1		9
Email			4	4	1	9

The data from the self-evaluative email questionnaire also indicated that SGCs were underusing the available digital technologies provided by DET. SGCs were using a portion of the Microsoft Office suite. As indicated in Table 4.03, all SGCs were using email. SGCs indicated that they used Microsoft Outlook 2010's basic functions including sending and constructing emails and placing appointments in the calendar.

Whilst all SGCs used email technology it was predominantly used to meet administrative needs such as emailing school personnel and other professionals. Emailing students individually or as a group for school guidance and counselling purposes was infrequent. The literature (Holcomb-McCoy, 2005) has noted this characteristic in the SGC profession. Furthermore as indicated in Table 4.03, the majority of SGCs had not used Microsoft OneNote 2010 even though it was part of their Microsoft 2010 suite.

Additional researcher observations and SGC disclosures indicated that SGCs were primarily using two forms of digital devices, DET provided laptops and printers. This observation was also confirmed in the SGC pre-survey results which endorsed the decision to focus aspects of the intervention on software that could be used on laptops such as Microsoft OneNote 2010 and Outlook 2010 and blog (mediating tools). Although all SGCs indicated in the email questionnaire that they had experience in using iPads, only two of the 9 SGCs had access to school provided iPads (School A). The low usage of iPads by SGCs in their role was also confirmed in the SGC pre-survey results and endorsed the decision to focus aspects of the intervention on iPads as a mediating tool. The researcher's observations and SGC disclosures also indicated that SGCs infrequently accessed the school mobile phone (mediating tool).

The standard procedure for DET schools is to have a school website with a *Student Services* section that includes School Guidance and Counselling. At the pre-intervention phase an audit of the School Guidance Counselling web pages on the six research schools' websites contained only a brief reference to school guidance and counselling. There was no other content or links to other websites to assist students, parents and staff. Holcomb-McCoy (2005) also noted web page development was minimally used by SGCs.

Another functionality of DET school websites that is becoming more prevalent is school Facebook and Twitter. The SGCs in this study had not used School Facebook or Twitter in their school guidance and counselling service. School Facebook and Twitter

functionality has recently been provided to schools by DET. An audit of the six school websites indicated that two of the six participating schools had chosen to use Facebook and Twitter with their school community however SGCs in those schools disclosed that they had not used this functionality.

DET has developed OneSchool (Department of Education Training & Employment Queensland, 2015) which stores data digitally on each DET student in Queensland. Prior to the school implementation intervention, SGCs reported and the researcher observed that SGCs were using DET's OneSchool data recording software more regularly. DET has enabled more functions on OneSchool including the mandated use of specific actions such as maintaining school history, attendance, academic and behavioural records, and managing sensitive and complex cases.

In brief, the observations, SGC statements and self-evaluative email questionnaire provided data regarding SGCs' use of digital devices and software which assisted the planning of the SGC and school implementation intervention programs. The data also helped to guide the agenda of the three day professional development program, part of the SGC intervention phase. Furthermore the data were instrumental in assisting the planning of the nine school intervention activities essential in the school implementation phase.

4.3.3 SGC Intervention phase (October 2013 – March 2014).

A three by one day SGC professional development program (October and November 2013 and February 2014) was an integral part of the SGC intervention phase. The presentations were whole day (8:45am to 4:00pm) at a participating school's conference room. The professional development program was delivered through a face-to-face medium as the researcher through his experience has observed that the SGC profession highly value this medium in working (teaching and counselling) with students, parents and school personnel. Furthermore, SGCs value of face-to-face interactions in their role has been highlighted in the research (Barnes, 2008; Cogoi et al., 2009; Glasheen et al., 2010).

The professional development was collaboratively planned with two eLearning teachers who had explicit knowledge of DET's technology guidelines and policies, digital technology hardware, system and infrastructure (division of labour). eLearning teachers are also experienced in providing technology professional development to DET staff and administrations. The professional development program included skill building and knowledge content to enhance SGCs' competencies with and dispositions towards the use of technology (object). The four topics presented by the eLearning teachers were based on using a) Microsoft OneNote 2010, b) Microsoft Outlook 2010, c) Discussion forum (later replaced by the use of a blog), and d) iPads. Table 4.04 represents a plan of the SGC professional development program.

Table 4.04

Days 1, 2 and 3 SGC Digital Technology Professional Development

Time	Content/Aims	Competencies and Dispositions
Day 1		
2.5 hours	Developing confidence with technology. "You can't break it!" SGCs are familiar with DET technology policy and guidelines *OneNote* rationale and functions.	SGCs willing to take a risk with technology. Knowledge of DET technology policy and rules. Learn components of OneNote.
1.5hours	*OneNote* SGCs know how to use the majority of OneNote's functions. Activity: SGCs build their own OneNote folder system.	Setting up OneNote in the school system, Folders, sections, pages. Saving/back up. Confidentiality. OneNote share, inserting/attaching file, file print out, tags, inserting word document, inserting emails and photo from web. Visual and audio recording.
2 hours	*Microsoft Outlook 2010* SGCs are taught advanced skills in the use of Microsoft Outlook. Homework: SGCs set up OneNote at their school/s. Discuss what format school website managers wish to have information sent to them. Bring problems, concerns and questions to Day 2.	Emails (MIS & 3G), meetings, requests and notes. New contact group, adding contacts and forwarding a contact group. Creating signature block, voting emails, email appearance, categorising emails. *To do* tasks, delivery receipts, draw tab and screen clipping. Continue to experiment and practise. SGCs developed increased confidence and skills in using OneNote.
Day 2		
2.5 hours	Recap on topics covered in Day 1. SGCs resolve digital technology concerns and questions. *Learning Place:* SGCs become familiar with navigating the Learning Place.	Consolidating competencies from Day 1. Navigation competencies of the Learning Place.
1.5 hours	Discussion forum (*EdStudio*) SGCs know what a discussion forum is and how it works. What is a discussion forum? Purpose of a discussion forum.	Creating a discussion forum. Uploading picture/photo to EdStudios.
2.hours	Discussion forum *(EdStudio*) SGCs know how to create a discussion forum on the Learning Place.	Setting permissions, statistics, designing pages, setting backgrounds, editing, saving, entering emergency information as per signature email, and steps to add a discussion.
	Homework: SGCs construct their	SGCs implement discussion forum skills. SGCs

Time	Content/Aims	Competencies and Dispositions
	own discussion forum for their research group. Practise and experiment with Microsoft OneNote 2010, Microsoft Outlook 2010 and discussion forum.	become more confident with Microsoft Outlook and OneNote, and discussion forum.
Day 3		
2.5 hours	Recap on topics covered in Day 2. *iPads* SGCs will become familiar with the features of the iPad.	Consolidating competencies from Day 2. iPad basic functions. *Reflector.*
1.5 hours	*iPads* SGCs will be able to locate and download iTunes apps on to their iPads.	*Doceri* (enables an iPad to be used with a data projector). Finding apps and downloading apps.
2 hours	*iPads* SGCs are able to organise apps into groups on the iPad screen. Group sharing of apps.	Group apps into one category area. SGCs know how to delete an app. Exploring and using apps within the iTunes store.

Microsoft OneNote 2010 is a computer software program part of the Microsoft Office 2010 suite (NZ Business, 2012). Two thirds of the SGCs had not used Microsoft OneNote 2010 and the remainder classed themselves as *beginners* (Table 4.03). Microsoft OneNote 2010 can also be used both as a means of information storage and sharing. Microsoft OneNote 2010 has particular relevance to SGCs as it enables a student's information to be stored confidentially (rules) in one area and can include emails, notes, documents, web pages and visual and auditory recordings (mediating tools) relating to that student. Microsoft OneNote 2010 maintains a detailed summary of information and interactions (community) with an individual student**.** It has particular relevance for the times when a student visits the SGC once only. The SGC can quickly find the student's page by searching either the student's first name or surname. This reduces the frustration of trying to locate entered notes on a particular student as SGCs work with large numbers of students from many schools.

Microsoft Outlook 2010 is also part of the Microsoft 2010 software suite (Mendelson, 2011, March). Most of the participants felt they were reasonably confident with Microsoft Outlook 2010 – all SGC self-ratings were in the *intermediate* to *highly skilled* range (see Table 4.03 for participant responses). The researcher, in consultation with the eLearning teachers, was unsure if SGCs were aware of the more advanced functions of Microsoft Outlook 2010 when completing their skill rating.

A goal of the professional development program was to present SGCs with the full range of functions and processes of Microsoft Outlook 2010. This could enhance their skill level and confidence in using Microsoft Outlook 2010 with students and other professionals (object). Microsoft Outlook 2010 also has the potential to increase communication with students (community) through emailing entire year levels (Years 11 and 12). It can also reduce time on tasks such as setting up meetings, responding to meetings, sending out multiple emails and signing off emails, reducing pressure for SGCs who deal with significant student numbers (object).

The *Learning Place* (Department of Education & Training, 2015) is DET's eLearning website, an environment for both DET students and staff. Day 2 of the professional development (see Table 4.04) involved understanding Ed Studio as a discussion forum and how to set up and use an Ed Studio with students (division of labour). The discussion forum was important in that it provided a channel for two-way text communication between the SGC and students (object and community). Barnes (2008) also identified that guidance practitioners needed to use blogs with students as it provided a means to enhance two-way communication. This technology had not been used by any of the SGCs with students prior to the intervention.

Following the professional development days the Learning Place (Department of Education & Training, 2015) added blog functionality for all DET users; staff and students. The researcher consulted a technology advisor at the Learning Place who recommended using a blog format in preference to the discussion forum as it was a more modern technology and students were more conversant with this medium (personal

communication, July 22, 2014). The set-up of blogs was quite similar to the discussion forum. The researcher educated the SGCs in how to use a blog, through email instructions (provided by the Learning Place), face-to-face and small group demonstrations.

During the SGC intervention phase (November, 2013), each SGC was supplied with an iPad as this device (mediating tool) is not a standard issue by DET. Only two SGCs had used iPads within their role prior to the intervention. The eLearning presenters recommended each SGC be provided with an iPad prior to their summer vacation to allow time to *play* and *experiment*. This would increase their competencies with and disposition towards the use of iPads prior to the professional development program (object).

iPads were chosen for the intervention for additional reasons. iPads were becoming more commonly used in schools. Participating schools had provided iPads to students of various year levels (Schools A, B, C, D, E and F, personal communication, May 14, 2014). Schools C, D and E's special education students were using iPads at school (personal communication, May 14, 2014). Schools A and D's Year 11 and 12 students were using iPads in school (personal communication, May 14, 2014). iPad mobility allowed the SGC and student to operate and view the same computer screen whilst remaining in counselling chairs, as well as providing any-place access to counselling information outside of the SGC's office (division of labour). iPads were a means of enabling SGCs to use apps with specific application to the school guidance and counselling program, assisting and complementing individual case interventions (object). Apps are also relatively inexpensive for students to purchase (the price of recommended apps ranged from $0 to $2.99), and apps can be used on other forms of mobile technology including mobile phones (mediating tools).

A table of recommended adolescent apps was discussed with SGCs at the Bundaberg Education Office (February, 2014). This selection of apps resulted from recommendations made by a variety of sources including the SGCs themselves, Dr Carr-

Gregg (a nationally registered child and adolescent psychologist) and state and federally endorsed programs. The selected apps were linked to major duties of school guidance counselling including career advice and student emotional well-being support. In May 2012, Dr Carr Gregg was employed by DET to provide mental health presentations to DET staff and parents throughout Queensland. During these presentations Dr Carr Gregg recommended a range of adolescent emotional-wellbeing apps to DET staff and parents for example, iCounselor Depression, iCounselor Anxiety, iCounselor Anger, iCope Self-harm and Eating Disorder (Carr-Gregg, 2012). These apps provide strategies for depression, anxiety, anger management, self-harm, general problems, bullying including cyber bullying and cognitive behaviour therapy (thinking skills and body changes). A range of other apps were recommended to SGCs including career apps *Career Test* and *Career Hunter* (iTunes, 2015), relaxation apps *Bubble mania*, *Bubbles, Colouring by numbers and Piano melody* (iTunes, 2015) and *Qschools* (iTunes, 2015) an app that integrates with the school website and displays information on iPads and smart phones.

Following the three day professional development, the SGCs met with the researcher at the Bundaberg Education Office in February 2014 to collaboratively brainstorm strategies of how and when to use digital technologies with students. This provided an opportunity for SGCs as adult learners to help self-direct their learning about digital technologies (object). The School Implementation Model (Appendix 17) is the result of the professional development program and brainstorming activity and provides a diagrammatic view of the interventions (activity) and digital technology devices and software (mediating tools) used in the research. The SGCs and the researcher (subjects) collaboratively generated nine school implementation activities (object) for the study which included: 1) Microsoft OneNote 2010, 2) Microsoft Outlook 2010, 3) SGC student blog, 4) iPad, 5) student emails, 6) student websites, 7) School Guidance and Counselling web page, 8) electronic newsletters, and 9) student mobile text, Facebook and Twitter (mediating tools and activity).

4.3.4 School implementation phase (April – August 2014).

This section will discuss the remainder of the school implementation activities.

During the *Brainstorming Activity* with SGCs it was agreed to email students (division of labour). SGCs infrequently used emails as a way of communicating with a larger number of students. Each student and SGC is assigned his/her own individual school email account. SGCs also have access to functions that enabled them to send bulk emails, for example to a whole year level. Students would benefit from receiving emails from the SGC on a range of topics including assisting students with academic, emotional well-being, communication and career-decision strategies (object). Emailing was also another means of SGCs and students communicating and connecting with each other (community).

One SGC volunteered to work with the researcher to generate 12 weekly emails for students (division of labour). SGCs provided topics and resources to create these student emails such as: SGC role, careers, emotional well-being, tips for surviving senior schooling, future jobs, dealing with conflict, study skills, and digital footprints (object). Once the emails were designed these were emailed to the remainder of the SGCs. The SGCs were then requested to transfer each email to their student signatured email and then send to each student's school email address (division of labour).

Microsoft Outlook 2010 provides an option to generate a personal signature block for emails. On Day 1 of the professional development each SGC developed a personal signature for their work email (division of labour). Each SGC was asked to include the following text as part of their email signature block to assist students in emergency situations:

> *If you are in an emergency or there is immediate risk of harm to yourself or others, contact emergency services on 000. If you need to talk to someone, phone Kids Helpline 1800 55 1800, Beyond Blue 1300 22 46 36 or Life Line 131114. To chat online contact eheadspace: www.eheadspace.org.au.*

A list of student websites was discussed with SGCs at the Bundaberg Education Office (February, 2014). The selection of these websites was the result of recommendations made by Queensland SGCs on the electronic state-wide discussion list, SGC participants, Dr Michael Carr-Gregg, as well as websites developed by the state and federal governments. All recommended websites were accessible through DET infrastructure and could be accessed by students and SGCs at any time.

The student websites were selected because they aligned with the school guidance counselling program (object). The websites provided information and strategies for adolescent emotional well-being, career development, academics and financial assistance (object). Some of the websites provided structured teaching of skills for example, eCouch (Ecouch.anu, 2014), Smiling Mind (Smilingmind.com, 2014) and Study Skills (Federal Australian Government, 2014c). A small number of websites enabled online text chat for students such as BeyondBlue (Beyondblue.org, 2014) and Kids Helpline (BoysTown Incorporated, 2014). SGCs could incorporate the websites in their individual case management of students and email the website links to a student or group of students (division of labour). An adolescent website document outlining a summation of recommended student websites was emailed to SGCs in March 2014 prior to the school implementation phase.

The websites were categorised into four areas 1) emotional well-being, 2) careers, 3) study skills and 4) financial assistance.

- *Emotional well-being:* Websites recommended to SGCs, were Reach Out (Inspire Foundation, 2015), Smiling Mind (Smilingmind.com, 2014), Beyond Blue (Beyondblue.org, 2014), eheadspace (National Youth Mental Health Foundation, 2014a), Headspace (National Youth Mental Health Foundation, 2014b), Moodgym (Centre for Mental Health Research, 2014), E-couch (Ecouch.anu, 2014), Kids Helpline (BoysTown Incorporated, 2014), Take a Stand Together (Federal Australian Government, 2014d), and Cybersmart (Federal Australian Government, 2014a).

- *Careers*: The Job Guide (Department of Education Employment and Workplace Relations, 2014) and Myfuture (Commonwealth Department of Education, 2014) websites were recommended to SGCs. The Job Guide provides an in-depth look at a range of occupations, and their education and training pathways. Myfuture is a national career information and exploration service that outlines careers, occupations and career paths.

- *Study Skills*: The SGC role includes providing study skills assistance to students. Two study skills websites recommended to SGCs were Learning Laboratory (RMIT University Open Universities Australia, 2014) and Study Skills Guide for Students (EducationAtlas, 2014). Each site provides tutorials to assist students in areas of note taking, exam preparation, using study groups, improving memory, and writing.

- *Financial Assistance:* A number of websites such as Study Assist (Federal Australian Government, 2014c) and Department of Human Services (Federal Australian Government, 2014b) provide information to students and parents regarding payments and assistance in vocational education and tertiary studies.

School guidance and counselling services are able to promote their services and provide information on the school website (division of labour). The audit of the six participating schools' websites (division of labour) helped to gain an understanding of what content was aligned with the school and guidance counselling program. The proposal to design a school guidance and counselling web page for each school website was discussed with all participating principals and SGCs (October, 2013) and all were in agreement to implement the proposal (object).

A summary of the audit findings was discussed with SGCs in the Brainstorming Activity. All SGCs were in agreement there was a need to design a school guidance and counselling web page that could be built or uploaded by each school (object). SGCs discussed reasons why the development of a school guidance and counselling web page would be advantageous. These included: 1) being a way to save time regarding

frequently asked questions from students, 2) a means of conveying current and detailed information, 3) enabling students to download resources, 4) providing links to specialised organisations, and 5) being accessible to all school students and parents at any time. The advantages of using web pages in school guidance and counselling has been documented in the literature review (Kennedy & Baker, 2014; Reynolds & Kitchens, 2007; Van Horn & Myrick, 2001).

Three SGC participants volunteered to develop the content and structure for the school web page (division of labour). The group originally undertook a general audit of state, independent and catholic secondary school websites in Queensland. From this audit it was determined that the web page needed to contain five main category areas, namely: the SGC Role, Careers, Education, Emotional Well-being, and Bullying (object). The following outlines components of each of the five main sections:

- *SGC Role:* This included a description of the role, name of the SGC, photograph (optional), contact details and how to make an appointment.

- *Careers*: This section was separated into three subsections, exploration, tertiary pathways and vocational pathways. Exploration included a general introduction to career development and three nationally recognised career exploration websites. The Tertiary Pathway included links to: open days and expos, tertiary admission centres, Undergraduate Medical Health Sciences Admission Test (UMAT), student accommodation and financial assistance. In addition there were links to major universities and colleges and the Australian Defence Forces (ADF). The Vocational Pathway included general vocational education information, open days and expos, traineeships and apprenticeships, and financial assistance. Further links included a range of industries and training organisations as well as Technical and Further Education (TAFE) and Australian Qualifications Framework websites.

- *Education:* This sector was divided into four subsections, learning account, Queensland Certificate of Education (QCE), Queensland Certificate of Individual Achievement (QCIA) and study skills. The learning account is opened for each Year 10 student and is a personal digital record of all eligible learning for a student (Queensland Curriculum and Assessment Authority, 2014). The QCE is a senior school qualification that is usually awarded at the end of Year 12 recognising a broad range of academic options (Queensland Curriculum and Assessment Authority, 2015a) completed by the majority of Year 12 students. The QCIA is awarded to students at the end of Year 12 who have undertaken individualised learning programs for example, students with disabilities and learning difficulties (Queensland Curriculum and Assessment Authority, 2015b).

- *Emotional Well-Being*: This was primarily the mental health component of the web page. It was designed to assist students and parents when there could be emerging or serious mental health concerns. It also contained emergency contacts.

- *Bullying*: This final section contained a descriptor of bullying, what to do if it occurs and links to websites that focus solely on bullying, including cyber bullying.

The School Guidance and Counselling web page group presented a draft of the web page content and links to the remainder of SGCs in a meeting at Bundaberg Education Office (March, 2014). Feedback was sought from the SGCs resulting in minor amendments to the web page content. The final document was emailed to each SGC (April, 2014). SGCs were requested to negotiate with their principal (division of labour) to have the web page built or uploaded onto their school website to commence operation by the beginning of semester 2 (July, 2014).

Another school implementation activity was producing a school guidance and counselling newsletter for students (object). Although some of the SGCs were periodically placing items in the school newsletter, none of the SGCs had their own

designated school guidance and counselling student newsletter. The SGCs agreed that an electronic School Guidance and Counselling newsletter would be beneficial in providing current career related information and training opportunities to students in their final years of schooling (object). This is a time when these students are making significant decisions about their future career pathway after leaving school. The newsletters were another way for SGCs to communicate with students (community).

Two SGCs volunteered to generate electronic newsletters that were emailed to students in May and July 2014 (division of labour). Newsletters were based on careers and contained a balance of tertiary, vocational education and training topics. Each newsletter also contained local area topics. Some of the topic titles included: Queensland Police Recruiting, 7 Tips for Starting University, Support for Australian Apprentices, What are Employers looking for? Gap Year, Future Work Opportunities, Career Expos, Mining and Resources, Employment, Defence Force Gap Year, and Local University news.

Another component of the school implementation was texting students with school guidance and counselling information. DET's technology rules do not condone direct teacher-student text messaging (rules). The study's use of text messaging was achieved by texting the students' guardians/parents' mobile phone requesting them to forward school guidance and counselling texts to their son or daughter's mobile phone (object). The majority of participating schools used iDAttend infrastructure to send bulk texts to students' parents (subject).

During a research meeting (May 2014) the SGCs generated five specific topics that could be sent to students by text. These topics were emailed (June 2014) to SGCs to be texted to students. The topics included:

- requesting students to contact their SGC if they were considering changing their study program (subjects, tertiary/vocational pathways and career choice);
- reminding students to check their emails for school guidance counselling emails;

- information on the Career Hunter app;
- alerting students to look at the School Guidance and Counselling web page of the school website; and
- notifying students that the SGC Year 11/12 blog was about to be on-line.

SGCs were also encouraged to text other topics of their own choice. School D and F did not use iDAttend to text parents however they used social media functionality, school Facebook and/or Twitter. The SGCs of these schools were encouraged to send the topics as alerts.

Student mobile texts and social media featured as part of the intervention, as both of these are forms of communication that can be accessed through mobile phones. The literature reported the high rate of mobile phone ownership by young people in Australia (Australian Bureau of Statistics, 2011a). Even though iDAttend, Facebook or Twitter technology were part of some of the participating school's software facilities, prior to the intervention SGCs rarely used this technology in their school guidance and counselling delivery to students.

Throughout all phases of the intervention the researcher was in regular contact with SGCs. This ensured open communication that resulted in the research timeline and the interventions being achieved and the majority of problems being overcome. One problem was the need to replace the discussion forum with blog software. This required the researcher to provide additional training to SGCs and follow-up communication. During the July research meeting a number of SGCs wanted to learn how to use *Sticky Notes* (messages that can be posted on a computer). One SGC addressed this demonstrating how to use this tool. Regular contact with SGCs also encouraged each SGC to be committed to the research. The researcher ensured that emails were regularly sent on an individual and whole group basis. Individual SGCs also initiated emails to the researcher. Telephone and face-to-face communication occurred frequently

instigated by both individual SGCs and the researcher. Regular meetings were held as a whole group (see Figure 3.3). The meetings included: informing SGCs of upcoming significant digital technology activities, clarifying information, problem solving ways to overcome issues, outlining steps on how to use particular digital technologies, sharing ways SGCs had used digital technology, and sharing digital technology successes.

4.4 In Summary

This chapter has outlined the aims and rationale of the intervention as well as the specific detail and procedures in the planning and development of all three phases of the study's intervention: pre-intervention, SGC intervention and school implementation intervention. Activity Theory was central to the formation of the conceptual framework of the intervention. This chapter has described in detail the three day professional development program that was used to enhance SGCs' competencies with and dispositions towards the use of technology. Each of the intervention phases has also been guided by Knowles's (2005) adult learning model and Sabella, Poynton and Isaac's subscales of school guidance and counselling technology competencies. Furthermore, the chapter has detailed other project actions such as the use of specific SGC teams to design parts of the school implementation and the generation of documents that were also integral in the planning, development and implementation of the nine school intervention activities. The next chapter will outline the results of the intervention.

Chapter 5.
Results

5.1 Overview

Chapter 5 will outline the results of the study, starting with the demographic data related to the subjects involved in the study. Details of the demographic data will be followed by a summary of codes used for referencing participants' statements. For clarity and ease of reference, the results will then be presented for each of the six research questions in turn, integrating the quantitative and qualitative data analyses from the survey questionnaires, semi-structured focus group interviews, blog, School Guidance Counsellor (SGC) electronic diaries, SGC research meetings and observations. This study employed an intervention by time and used a repeated measures design.

5.2 Demographic Data

The participants involved in this study were 9 SGCs and 123 Year 11/12 students from 6 secondary schools (3 urban and 3 rural) on the central Queensland coast of Australia. Demographic data were collected through the pre-intervention surveys from both SGCs in Items 2-7 and Year 11/12 students in Items 2-10.

5.2.1 SGC participants.

The 9 SGCs involved in this study provide school guidance and counselling services to Year 11 and 12 students across the 6 participating schools. The SGCs ranged in age from 41 to 58 years, with a mean age of 48.6 years; 6 were female (67%). Their years of experience as qualified SGCs ranged from 1-13 years (mean 8.5 years). The years in which they had completed their school guidance and counselling qualification ranged

from 1999-2012. Table 5.01 displays the demographic data collected from the SGC participants through the pre-intervention survey.

Table 5.01

Demographic Characteristics of SGC Participants (N=9)

Characteristics	**(N=9)**	**%**
Gender		
Male	3	33
Female	6	67
Age Range		
40-45 years old	4	45
46-50 years old	2	22
51-55 years old	2	22
56-60 years old	1	11
Numbers of years school guidance counselling experience (developmental, preparatory to year 12 or secondary)		
1-5 years	3	33
6-10 years	2	22
11-13 years	4	45
Numbers of years secondary school guidance counselling experience		
1-5 years	5	56
6-10 years	1	11
11-13 years	3	33

5.2.2 Student participants.

The 123 student participants involved in this study were in Year 11 or 12 from the 6 participating schools; 33% were male and predominantly born in Australia (94.3%). Further, 4.1% of student participants identified themselves as having Aboriginal and Torres Strait Islander heritage; 57.6% of the students were Year 11, with the remainder

in Year 12. Over 95% reported that English was the main language spoken at home. The majority (54.5%) of students reported that their mother's highest level of education was primary (N=4) or secondary school (N=63). About one third (35%) of students reported that their mother had completed TAFE or university courses. The remainder (10.5%) of participants reported "other" or "not applicable." Approximately half (50.5%) of the students reported that their father's highest level of education was primary (N=4) or secondary school (N=58). Approximately a third (27.7%) of the student group reported that their father had completed TAFE or a university course. The remainder (21.8%) of participants reported "other" or "not applicable."

The six schools were all public co-educational state secondary schools (Years 7-12) located on the central Queensland eastern seaboard. This region is characterised by high unemployment 9.4% overall (Australian Government Department of Employment, 2015) with 21.6% youth unemployment (Buncentre, 2015, June 19). A total of 22.5% of families with children under 15 years have neither parent employed (Queensland Government Statistician's Office Queensland Treasury, 2015). The area is also recognised for low socio-economic levels; 48.6% fall into the most disadvantaged quintile; and the median personal income is $423 per week (Queensland Government Statistician's Office Queensland Treasury, 2015). Thirty-nine percent of persons' highest level of schooling was Year 11 or 12 (Queensland Government Statistician's Office Queensland Treasury, 2015).

The student participant group who completed the study were a heterogeneous mix varying in gender and year level (Year 11 or 12). Student data which was incomplete was extracted from the data set. Table 5.02 displays demographic data from the final complete data set.

Table 5.02

Final Data Set: Demographics of Student Participants (N=123) by School

		Participants		Gender			
		No.	%	Male		Female	
School	**Year level**			**No.**	**%**	**No.**	**%**
A	11	17	13.7	7	41	10	59
	12	15	12.6	5	33	10	67
B	11	9	7.3	2	22	7	78
	12	8	6.5	2	25	6	75
C	11	9	7.3	2	22	7	78
	12	14	11.3	2	14	12	86
D	11	22	17.7	8	36	14	64
	12	6	4.8	4	67	2	33
E	11	9	7.3	4	44	5	56
	12	5	4.1	2	40	3	60
F	11	5	4.1	1	20	4	80
	12	4	3.3	2	50	2	50
Total		**123**	**100**	**41**	**33**	**82**	**67**

Note. Numbers in bold denote total number or percentages of student participants with complete data sets.

5.3 Coded Participant Statements

The following sections of this chapter will report the results of each research question. The referencing of qualitative comments throughout this chapter has been summarised using the following coding system to clearly identify where, when and from whom each comment was collected: *Pre* – pre-intervention, *Po* – post-intervention, *S* – survey, *I* –

interview, *RM* – research meeting, *D* – Diary, *Bl* – blog, and *Part* – participant. The use of *Part* is noted for references to SGC surveys and interviews and student interviews.

5.4 Results for Research Question 1: What digital technology devices are SGCs and secondary students using a) at school, and b) away from school that involved the school guidance and counselling service? (Engeström: Mediating Tools)

The results for research question 1 are divided into two parts 5.4.1 (for *at school*) and 5.4.2 (for *away* from school), and then combined to answer research question 1.

Research question 1 aims to identify the different digital devices used by SGCs and students during the school guidance and counselling process. In order to investigate this research question SGCs and Year 11/12 students were asked identical questions on the pre- and post-intervention surveys and during the pre- and post-interviews. The surveys asked participants to select digital devices (mediating tools) from the 14 provided options (closed categorical questions) which they had used over the last four months that involved guidance processes either *at school* (SGC Item 8, Student Item 13) or *away* from school (SGC Item 9, Student Item 14). During the interviews participants were asked to talk about digital devices they used over the last four months that involved guidance processes either *at school* (SGC Item 1, Student Item 1) or *away* from school (SGC Item 2, Student 2).

5.4.1 *What digital technology devices are SGCs and secondary students using at school that involved school guidance and counselling service?*

With respect to what digital technology devices were used by SGCs at school that involved the school guidance and counselling service to Year 11/12 students, a comparison of the pre- and post- means indicated varied results in SGCs' frequency of use of digital technologies. Table 5.03 displays the means, standard deviations and

significant differences for each of the digital devices listed in the surveys at pre- and post- intervention.

Table 5.03

Digital Technology Devices used by SGCs (N=9) at School, that Involved the School Guidance and Counselling Service with Year 11/12 Students

	Pre-test		Post-test	
Digital device	**Mean**	**SD**	**Mean**	**SD**
Printer	1.00	0.00	0.89	0.33
Laptop computer	1.00	0.00	1.00	0.00
Scanner	0.67	0.50	0.56	0.53
Portable data storage	0.67	0.50	0.56	0.53
Desktop computer	0.44	0.53	0.44	0.53
Projector	0.33	0.50	0.22	0.44
Mobile phone	0.33	0.50	0.89*	0.33
iPad	0.22	0.44	0.67	0.50
Digital still camera	0.11	0.33	0.11	0.33
Android tablet	0.00	0.00	0.00	0.00
Web cam	0.00	0.00	0.00	0.00
Video game console	0.00	0.00	0.00	0.00
Digital video camera	0.00	0.00	0.00	0.00
iPod touch	0.00	0.00	0.11	0.33

* significant at $p < .05$

A Wilcoxon Signed Rank Test that compared the use of the 14 digital technologies pre- to post- intervention revealed a significant increase only in the level of use of SGCs using mobile phones in the School Guidance and Counselling service for Year 11/12 students, $Z = 2.00$, $p = .046$. The increase in level of use of mobile phones was of the magnitude of 56%.

A Leximancer analysis was also conducted on SGC and student text (interviews, electronic diaries, research meetings, blogs and observations) combined. This analysis was the first Leximancer analysis conducted on the qualitative data collected. The initial analysis was conducted in this way in order to identify key concepts and themes within the study. These concepts would be applied to the remaining four Leximancer analyses. All "filler" concepts (irrelevant words, brackets and numbers) were excluded and the second phase of the analysis was conducted which generated a refined concept group of the twenty-eight most commonly used terms related to the study from most used to least used. Leximancer counts the number of times the term appears in separate chunks in the 'discourse' of the qualitative data. The concept list was drawn from the transcriptions examining each change of speaker dialogue and the appearance of the terms in separate chunks of speech, not just a count of how often a term occurred. Cluster themes are generated by the Leximancer analysis determining major themes and terms within these major themes.

The analysis of SGC and student text (interviews, electronic diaries, research meetings, blogs and observations) was also inclusive of interviewer text collected during the interviews which enabled the researcher to a) examine interviewer concepts, b) determine links between concepts, and c) view the balance and bias of the interviewer talk. The analysis revealed that participant talk centred on three major themes or concept clusters: *student*s, *phone*, and *emails* (Figure 5.1). As indicated in the concept map interviewer talk was most closely associated with the concept cluster of *students*. Student and SGC talk were most closely associated with the concept cluster of *phone*. The close spatial proximity of the *phone* cluster to the speakers (SGCs and students) indicates that *phone* dialogue was important to SGCs and students as it featured strongly in their discourse. The Leximancer analysis shown in Figure 5.1 indicated that the concept cluster *phone* had a connectivity rating of 23%. Connectivity is referring to the relative importance of the cluster to the major cluster (being the top cluster at 100%). In this case the major concept cluster was *students* (100%). This indicated the relative importance of the *phone* theme which rated second of the three themes: *students*, *phone* and *email*.

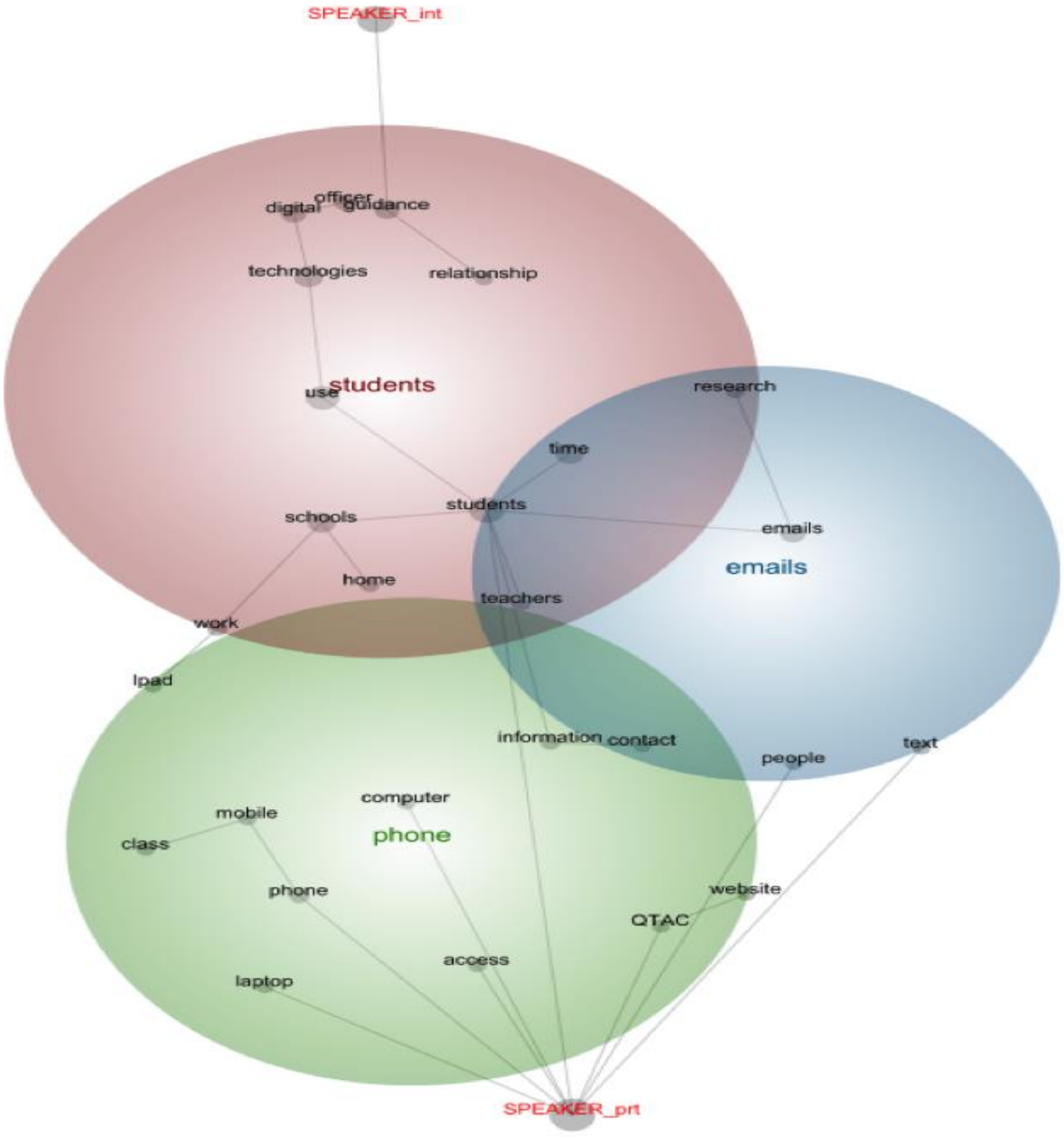


Figure 5.1 Concept Map of the Leximancer analysis of all file text for SGCs and Year 11/12 students, depicting the major themes extracted.

The Leximancer analysis also revealed the relevance rating for *phone* was 6%. Relevance is the percentage frequency of text segments which are coded with that concept, relative to the frequency of the most frequent concept in the list (Leximancer,

2015). In this analysis this referred to the frequency of the use of the term *phone* by students and SGCs when compared to the frequency of the most commonly used term *students* (100% relevance). Of the 28 most used terms, "phone" rated the 10th most commonly used term by students and SGCs. In this analysis at post-intervention participants also used the term "mobile" at 4% relevance. The *phone* cluster also shows a line drawn between the concepts "mobile" and "phone" and both terms are very close together. This indicates that when SGCs and students spoke or wrote about these terms they were used very close to each other usually in the same sentence. At post-intervention *phone* was a major concept cluster that featured quite strongly in both participants' written and verbal comments.

The term "mobile phone" occurred frequently in the text. The use of mobile phones by SGCS was reflected through the thematic analysis of the qualitative data. The SGCs were asked in both interviews (pre- and post-) which digital tools they had used *at school* with the school guidance and counselling service (Item 1). At pre-intervention none of the SGCs stated the use of mobile phones however two participants (5 and 9) stated using them post-intervention. Similarly SGCs indicated that they were using mobile phones to communicate with students, record data and access information. The term "mobile phone" and the use of mobile phones were evident in SGC comments such as:

> "On the tertiary trip I had the school mobile phone and students phoned me on that" (SGC Part 9, Po I).

> "Over the course of this project, I have found that I have been intentional in my use of technology – using my mobile phone to photograph notes" (SGC Part 5, D3).

> "My school emails are connected to my personal mobile phone…" (SGC Part 1, RM).

The thematic analysis also indicated that SGCs spoke of their use of digital devices in the interviews (Item 1). Noticeably at the pre-intervention interview SGCs spoke of their use of computer programs, not devices. At the post-intervention interview there

were a greater number of SGC responses indicating a more extensive range of devices being used: iPod, mobile phones, iPad and fax machine.

A Leximancer analysis (Figure 5.2) of all semi-structured focus group interviews revealed five main concept clusters: *students, access, digital, guidance* and *class*. The use of digital technology devices and software terms such as "iPad, laptop technologies, emails" along with terms such as "relationship, work, time, students, website" and "schools" dominated the SGC dialogue at pre-intervention. At post-intervention the SGCs were using terms such as "text, access, contact" and "email" and they appeared more focused on access issues rather than the technologies themselves. The concept map shows that SGCs' responses were most closely associated with the concept cluster of *digital* at pre-intervention and with the cluster of *access* at post-intervention. The student responses were more closely aligned with *guidance* with terms used such as "guidance" and "officer" at pre-intervention, and the cluster of *class* at post-intervention with most commonly used terms such as "guidance, class" and "emails." The concept cluster *access* with 10% connectivity was second major cluster when compared to the other thematic clusters: *students, digital, guidance* and *class*. Of the 27 most used terms, "access" rated the 10th most commonly used term.

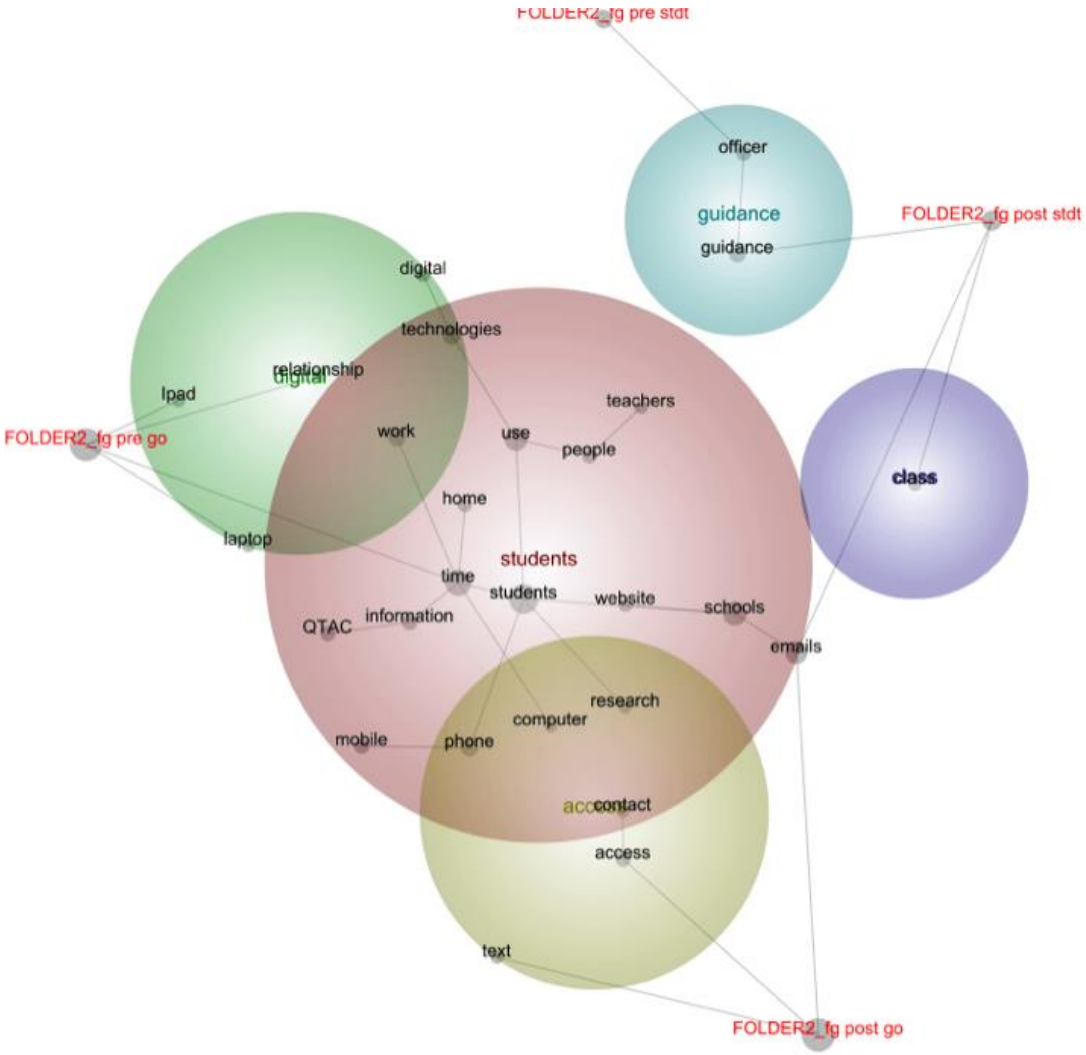


Figure 5.2 Concept map of the Leximancer analysis of pre- and post- focus group interviews from SGCs and Year 11/12 students, displaying the five main thematic clusters.

In explanation, at pre-intervention SGCs appeared to be more focussed on the digital devices themselves; what they were and how to physically use the devices *at school* with students. At post-intervention there was a definitive shift by SGCs to wanting to *access* technology and students through their digital devices. It was apparent at post-intervention that the SGCs' emphasis became more focussed on using digital devices in a practical manner as tools for specific purposes to enhance their school guidance and counselling service to; *access* information (programs, apps, websites and emails); *access* secure storage of data and; *access* of students and communication with them. At post-

intervention SGCs were shaping how they could use digital technologies and were becoming concerned when there were problems with access. Examples of comments where *access* was a central theme at post-intervention for SGCs are:

> "I use OneNote and the fact that it is all together and easy to access it is much better than writing notes on student in files" (SGC Part 6, Po I).

> "I could imagine if the website was there, then on Year 11/12 parade I could encourage students to make sure they got their QTAC applications in and to refer to our website information such as scholarships and residential colleges. It may encourage students to go to the Guidance website" (SGC Part 9, Po I).

> "When I thought they were more reluctant to receive a referral through Child and Youth Mental Health Services, I found they were more likely to access online services" (SGC Part 2, Po I).

> "The wireless set-up at School D allowed you to access it in the common room but not from the offices, including mine" (SGC Part 1, Po I).

> "There are some websites you can't access during school hours. Year 12s cannot access the Real Life website" (SGC Part 1, Po I).

> "These students don't access their emails. You can direct them to them but it is uncertain if they will access them" (SGC Part 9, Po I).

Students also outlined digital devices that they used *at school* that involved the school guidance and counselling service. Table 5.04 displays the means, standard deviations and significant differences for each of the digital devices stated in the surveys at pre- and post- intervention.

Table 5.04

Digital Technology Devices used by Year 11/12 Students (N=123) at School, that Involved the School Guidance and Counselling Service

	Pre-test		Post-test	
Digital device	**Mean**	**SD**	**Mean**	**SD**
Laptop computer	0.79	0.41	0.81	0.39
Desktop computer	0.51	0.50	0.56	0.50
Printer	0.41	0.50	0.39	0.50
Projector	0.24	0.43	0.13*	0.34
Portable data storage	0.20	0.40	0.20	0.40
Mobile phone	0.11	0.32	0.15	0.36
Scanner	0.08	0.27	0.07	0.26
iPad	0.07	0.26	0.08	0.27
Digital still camera	0.07	0.26	0.06	0.23
Android tablet	0.05	0.22	0.05	0.22
Digital video camera	0.04	0.20	0.02	0.15
iPod touch	0.04	0.20	0.05	0.22
Web cam	0.02	0.13	0.02	0.15
Video game console	0.00	0.00	0.02	0.13

* significant at $p < .05$

A Wilcoxon Signed Rank Test compared the use of the 14 digital technologies pre- to post- intervention (Item 13, Student Survey). There was a significant reduction in students' use of projectors at the post-test on the student surveys (pre- and post-), $Z = 2.34$, $p = .020$. The decrease in the level of use of projectors was of the magnitude of 11%.

The thematic analysis of the student qualitative data indicated the use of projectors by students in the pre-survey but not in the post-survey results. Interestingly, the student comments to this question appeared to be more in line with how SGCs used projectors, not students, for example.

> "The Guidance Officer used a projector when giving a career presentation" (Student Pre S).

> "Our Guidance Officer gave us a PowerPoint presentation for Year 11 subject selection" (Student Pre S).

A Leximancer analysis was conducted on all student post-survey open-ended text. The analysis was conducted on the survey as it contained considerably more data than the student interviews and blogs. The analysis revealed three concept clusters*: use*, *websites* and *easy*. Figure 5.3 displays the three major clusters extracted from the Leximancer analysis of student post-intervention survey text.

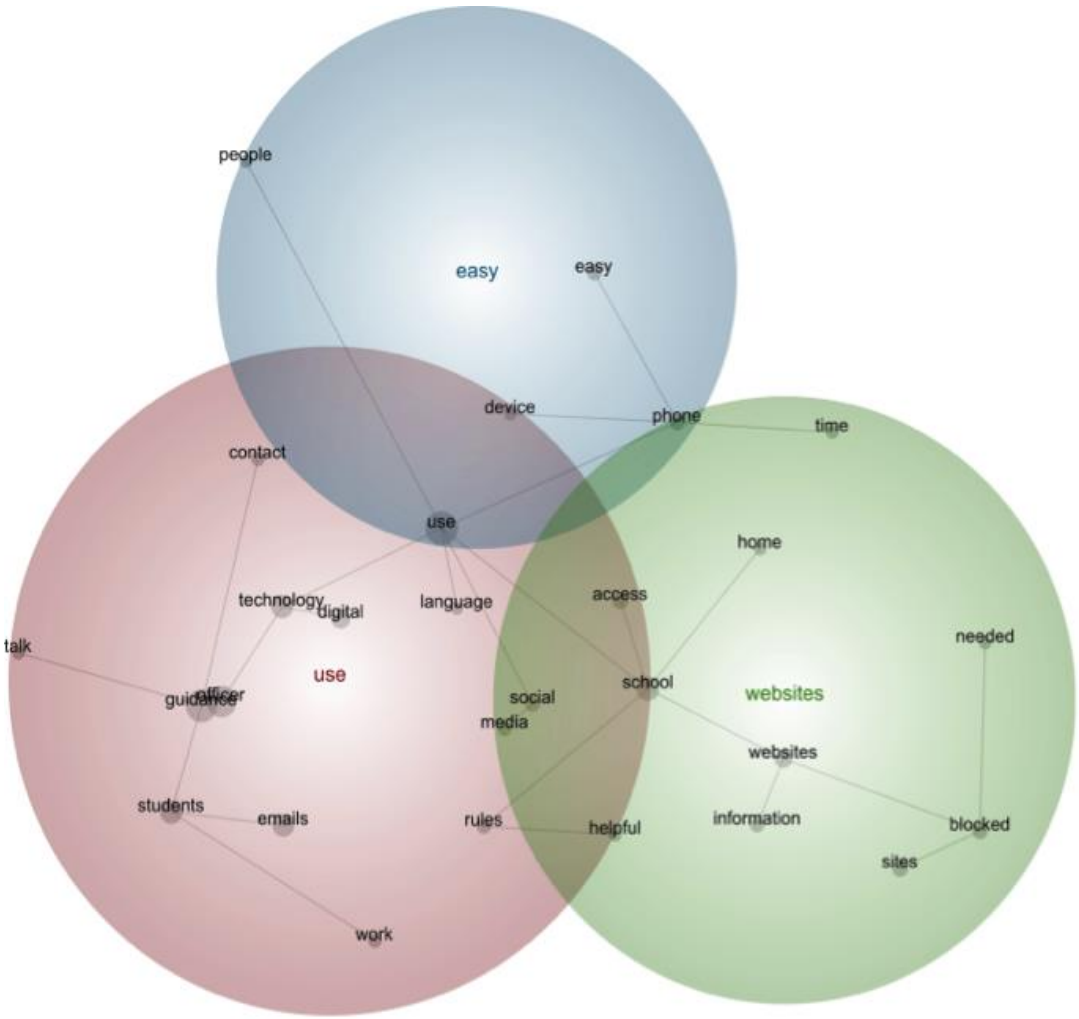


Figure 5.3 Concept map of the Leximancer analysis of student post-intervention survey, displaying the three main thematic clusters of terms.

Student responses were most commonly associated with the concept cluster *use* in raw data of the post-intervention surveys. In explanation at post-intervention students appeared more focused on the use of digital technologies with the SGC and commented on useful devices such as laptop, mobile phone, tablet and iPod. *Use* was identified as the major cluster of the analysis and was the hottest (red-purple) visually represented cluster highlighting *use* as a considerably important theme. Within the *use* cluster the terms "digital, technology, guidance officer," and "students" are in close proximity to the *use* cluster label indicating all of these terms were frequently linked in students' written responses and associated with the theme *use*. Furthermore there is a line linking these concepts, indicating that each concept is strongly associated with each other and their considerable importance in the *use* cluster. The *use* cluster also shows a line drawn between the concepts "digital" and "technology" and both terms are very close together. This indicates that when students wrote about these terms they were used very close to each other usually in the same sentence. For example, "The guidance officer used digital technology to communicate more with the students which built the community" (Student, Po S). The concept *use* occurred 262 times in separate chunks of discourse (not merely a word count) and was the highest rating term.

The *use* theme was also prevalent with students using digital technology devices. In the post-intervention surveys students reported using a range of technology devices such as laptop, iPad, iPod, mobile phone and tablet. This was demonstrated in student responses, for example:

> "Being able to use my laptop at school and being able to check my emails on it" (Student Po S).

> "iPad, I can use it in many different ways to help access many apps, sites and emails etc." (Student Po S).

> "iPod because I can listen to music to calm me down …" (Student Po S).

> "I use my mobile phone as I have access to the internet, email and music" (Student Po S).

> "I like the tablet that was supplied by the school because I can take it and use it at home" (Student Po S).

The following section will report on the results of digital technology use *away* from school and then summarise the results for research question 1.

5.4.2 *What digital technology devices are SGCs and secondary students using away from school that involved the school guidance and counselling service?*

The study also sought to find out *which* digital technology devices SGCs and Year 11/12 students were using *away* from school that involved the Year 11/2 school guidance and counselling service to see if there were differences or similarities to devices used *at school*. Table 5.05 displays the means, standard deviations and significant differences for each of the 14 digital devices listed in the SGC surveys.

Table 5.05

Digital Technology Devices Used by SGCs (N=9) Away from School, Involving the School Guidance and Counselling Service with Year 11/12 Students

	Pre-test		Post-test	
Digital device	**Mean**	**SD**	**Mean**	**SD**
Laptop computer	1.00	0.00	1.00	0.00
Printer	0.56	0.53	0.78	0.44
Portable data storage	0.56	0.53	0.56	0.53
Mobile phone	0.56	0.53	0.78	0.44
Projector	0.33	0.50	0.11	0.33
iPad	0.33	0.50	0.67	0.50
Scanner	0.33	0.50	0.56	0.53
Desktop computer	0.33	0.50	0.11	0.33
iPod touch	0.22	0.44	0.11	0.33
Digital video camera	0.11	0.33	0.00	0.00
Digital still camera	0.11	0.33	0.11	0.33
Android tablet	0.00	0.00	0.00	0.00
Video game console	0.00	0.00	0.00	0.00
Web cam	0.00	0.00	0.00	0.00

* significant at $p < .05$

The Wilcoxon Signed Rank Test revealed no significant differences between the pre- and post-intervention results.

The SGCs were asked in both interviews which digital technology devices they used *away* from school that involved their school guidance and counselling service to students (Item 2). A thematic analysis was applied to the SGC interview qualitative data. At the pre-intervention interview Participants 2, 8 and 3 reported they used iPads, Participant 7 used a mobile phone (iPhone) and Participant 5 used a laptop. Six months later in the post-intervention interview, four SGCs answered this question. Participant 7 used a mobile phone, Participant 6 used a computer and radio, Participant 4 used a

laptop, and Participant 3 used an iPod. Following the intervention it appeared that more SGCs were extending the range of digital devices they used *away* from school involving the school guidance and counselling service. This was apparent as the four increases in means in Table 5.05 (printer, mobile phone, iPad, and scanner) were equal to or larger than the decreases in means (projector, desktop computer, iPod, video camera). The thematic analysis indicated some of the SGCs' comments in their use of devices *away* from school:

> "I used an iPod because there were two pod-casts that I listened to in the car that related to various topics to do with the school guidance and counselling role" (SGC Part 3, D2).

> "I also use a SD card at home to save my work on and then back up these documents at work when I return to school" (SGC Part 5, RM).

> "I listened to a health report on the radio whilst driving home in the car. *All in the Mind. The Health Report*." (SGC Part 6 Po I).

The pre- and post- student surveys asked students to identify digital technology tools that students were using *away* from school that involved the school guidance and counselling service (Item 14). Table 5.06 displays the means, standard deviations and significant differences for each of the digital devices listed in the surveys at pre- and post- intervention.

Table 5.06

Digital Technology Devices used by Year 11/12 Students (N=123) Away from School, that Involved the School Guidance and Counselling Service

	Pre-test		Post-test	
Digital device	**Mean**	**SD**	**Mean**	**SD**
Laptop computer	0.81	0.39	0.86	0.35
Desktop computer	0.33	0.47	0.38	0.49
Printer	0.28	0.45	0.24	0.43
Mobile phone	0.22	0.42	0.25	0.44
Portable data storage	0.20	0.40	0.19	0.39
iPod touch	0.13	0.34	0.11	0.32
iPad	0.10	0.30	0.09	0.29
Android tablet	0.09	0.29	0.08	0.27
Scanner	0.08	0.27	0.06	0.23
Digital still camera	0.07	0.26	0.07	0.25
Digital video camera	0.07	0.26	0.03	0.18
Video game console	0.07	0.26	0.06	0.23
Web cam	0.03	0.18	0.02	0.13
Projector	0.02	0.15	0.01	0.09

* significant at $p < .05$

The Wilcoxon's Signed Rank Test that compared the 14 digital technology devices used by students *away* from school indicated that there were no significant differences between pre- and post- tests.

The students were asked in the post-intervention survey "Which is your favourite digital device and why?" (Item 15b). The majority of responses indicated the laptop (40%), followed by mobile phones (28%) and then desktop computers (9%).

Furthermore, the nine students in the pre-intervention interviews were asked in Item 2 to nominate whether or not they had their own mobile phone. The responses clearly indicated that all (100%) of participants owned mobile phones.

5.4.3 Summary.

Quantitative results demonstrated that there was a significant increase in SGCs' use of mobile phones *at school*. At post-intervention quantitative results demonstrated a significant reduction in the use of projectors *at school* by students across the intervention period.

The research question also aimed to identify what digital devices were being used by SGCs and students *away* from school involving school guidance and counselling. SGC and student results indicated that at post-intervention there were no significant changes in the quantitative results.

The analysis of qualitative data indicated that at pre-intervention SGCs focussed specifically on the digital technology devices; their functions; how to use them, and; how they could use them in their role. Following the school implementation, it was evident that SGCs had become more focussed on wanting to *access* information, software and secure data storage through digital technologies. Additionally SGCs had also become concerned with the *access* of digital technologies to support, inform and communicate with students. At post-intervention SGCs were continuing to shape how they could use digital devices to help them in their role and improve the school guidance and counselling service to students.

Although the quantitative data indicated there were few significant differences between pre- and post- intervention, it is evident from the qualitative evidence that there was a shift in the practices of SGCs' and students' use of digital devices.

5.5 Results for Research Question 2

5.5.1 In what ways and how often are SGCs and secondary students using digital technologies that involved school guidance and counselling. (Engeström: Mediating Tools)

Research question 2 aimed to identify the different ways SGCs and students were using digital technologies while involved in the school guidance and counselling program and their frequency of use of digital technologies for specific applications. The results of the SGC and Year 11/12 student pre- and post-intervention surveys, interviews, SGC electronic diaries, research meetings, blogs and observations were used as evidence to investigate this research question. Students and SGCs were asked similar questions. The surveys outlined specific ways of using digital technologies and participants were asked to select the frequency in which they used these in the school guidance and counselling service in the past four months (SGC Item 11, Student Item 16). They were required to use a five-point Likert scale (0 times=1, 1-3 times=2, 4-6 times=3, 7-9 times=4, 10 times or more=5) to indicate the frequency they used specific technologies. The surveys also asked participants to respond to open-ended questions in order to identify other additional ways they had used digital technologies that involved school guidance and counselling in the past four months (SGC Item 12, Student Item 17). In order to confirm the results from the surveys as well as encourage the participants to provide more in-depth information about their use of various digital technologies, the same question was asked of both groups in the interviews (SGC Item 4 and 5, Student Item 4 and 5). The texts collected from the SGC diaries, research meetings, blogs and observations were also analysed to provide evidence of how digital technologies were used between the SGCs and student participants.

This question will commence with the results from the SGCs' followed by the students'. Firstly, SGCs' and students' frequency of use of digital technologies for specific applications will be reported. The frequency of use of digital technology's quantitative results not only describe how often digital technology applications were used but also

provide a common base of some of the ways digital technologies were used by SGCs and students. The thematic analyses of diaries, research meetings, surveys and interviews will identify key qualitative data that were examples of how digital technologies were used by SGCs and students.

SGCs were asked to outline their frequency of use of nine specific digital technologies in both the pre- and post-surveys (Item 16) in school guidance and counselling in the past 4 months. Table 5.07 displays the means, standard deviations and significant differences of the nine digital technologies listed in the surveys that involved school guidance and counselling roles in the past four month, at both pre- and post-intervention.

Table 5.07

Frequency of Digital Technologies Used by SGCs (N=9) in the School Guidance and Counselling Service with Year 11/12 Students

	Pre-test		Post-test	
Digital technologies	**Mean**	**SD**	**Mean**	**SD**
I used the Internet	4.44	1.13	5.00	0.00
I used some computer programs e.g., Word, OneNote	4.11	1.36	4.67	1.00
I used email	3.22	1.72	4.33	1.32
I used mobile phone calls	2.44	1.74	2.11	1.69
I used apps	1.56	1.13	2.89*	1.54
I used text messaging	1.33	0.50	2.22	1.30
I used a blog	1.22	0.67	2.11	0.93
I used social media e.g., Facebook, Twitter	1.22	0.44	1.33	0.71
I used the Guidance web page on the school website	1.11	0.33	1.89	1.27

* significant at $p < .05$

A Wilcoxon Signed Rank Test revealed a significant increase for the SGCs' use of apps in their school guidance and counselling service, $Z = 2.23$, $p = .026$.

Qualitative data from the SGC diaries, research meetings, surveys and interviews were combined and analysed to identify how the SGCs were using apps in their service delivery during and post-intervention. Prior to the intervention the majority of SGCs had not used apps with students. The SGCs reported using a variety of apps with students as described in the intervention chapter of this thesis. They reported using mental health apps for example, iCounselor Depression, iCounselor Anxiety, iCounselor Anger, iCope Self-harm, Unstuck and Smiling Mind and career apps including Career Hunter and Career Test; all of which they were introduced to during the professional development intervention sessions. They indicated that the use of apps helped engage, encourage and support students. Specific comments such as the following highlight students' responses to apps, as reported by the SGCs, and some of the uses of apps by SGCs particularly for mental health and careers counselling:

> "I keep going back to the iPads and apps. They [students] were more likely to engage in iPad activities - the visual component, being able to touch the screen and do things… When they would go away they were more likely to follow up the activities and sessions themselves" (SGC Part 2, Po I).

> "The students love the interactive side of apps, the touching and hands-on experiences of using apps in their learning" (SGC Part 1, RM).

> "I showed this particular boy the ReachOut website. He has extreme high anxiety. At home he has actually downloaded the ReachOut breathing app on his own phone" (SGC Part 2, RM).

> "I use apps that target Mental Health such as Smiling Mind to help students with anxiety" (SGC Part 7, Po S).

> "I informed students on how to download appropriate apps to support their social and emotional development as a self-help tool, however, not as a stand-alone tool, for example, iCope - Thoughts of self-harm" (SGC Part 2, Po S).

> "Also I've been going to the My futures and Job outlook web sites and using the Career Test app to help students with researching careers" (SGC Part 9, D2).

To further tease out how SGCs were using digital technologies during and post- school implementation intervention, SGC responses to the open-ended questions were categorised according to Sabella, Poynton and Isaac's technology competencies subscales (2010): 1) Data Management, 2) Communication and Collaboration, 3) World Wide Web, 4) Operating Systems, 5) Website Development, and 6) Ethics. Qualitative comments were found to align with four of the technology competencies subscales and these subscales were used to categorise comments made by SGCs as described in the next section.

5.5.1.1 ***Data management***: SGCs used various forms of computer software to store information, assist with data organisation and monitor student performance.

SGCs specifically commented on the value of storing data in OneNote, which was software that none of the SGCs had used prior to the intervention, for example:

> "I think OneNote is fantastic. I can't imagine not using it as my main form of record keeping of case notes. I particularly like how easy it is to just add emails from Outlook to a student's notes (SGC Part 7, D1).

> "I am glad I have learnt to use OneNote. I find this really useful, especially being able to save emails to the page" (SGC Part 9, D1).

Two SGCs highlighted the accessing of student information through TrackEd a software package designed to track and monitor each student's data (academic, career, Overall Position, absenteeism and OneSchool) and TracQer which monitors a student's QCE progress. This was demonstrated in comments such as:

> "We use TrackEd on our iPads and it is like a summary page, everything about a student from all of these sources [absenteeism, academics, career, OneSchool]" (SGC Part 3, Po I).

5.5.1.2 ***Communication and collaboration***: The use of digital technologies for communication and collaboration was evident in SGCs' reports of how they used emails, text messaging, mobile phones and social media.

In the research meetings all SGCs reported that they had been sending out the study's weekly emails to students during the school implementation intervention. SGCs indicated they used emails to provide career information, communicate with and support students. Some specific comments such as the following highlight the use of email:

> "When I helped students with their resume, I would then email it to them" (SGC Part 7, Po I).

> "Year 12 students are increasingly emailing questions to me regarding scholarships and QTAC applications" (SGC Part 1, D3).

> "The guidance officers were continuously emailing and keeping in touch to make sure there weren't any problems with regards to work loads and stress levels" (Student Po S).

> "I think with us sending out the group emails to students it has raised the awareness of the range of things we do" (SGC Part 5, Po I).

SGCs indicated that they used text messaging to inform and contact students and they also reported how students had used text messages in face-to-face sessions, for example:

> "I have regularly sent emails and text messages to students in the group" (SGC Part 3, D1).

> "I sent to the office my text messages and the dates to send out texts to students through iDAttend. The Career Hunter app information has just been sent to students through a text" (SGC Part 8, RM).

> "I used the school mobile phone to text students on the tertiary trip to find out where students were and to remind them when the bus was leaving" (SGC Part 6, RM).

> "During sessions with me students were inclined to send a text to their parents there and then if they needed information to place in their QTAC application" (SGC Part 8, Po I).

SGCs reported both their use of mobile phones and students' use of mobile phones in school guidance and counselling sessions. Mobile phones were predominantly used for

communication, access and recording of information. The SGCs reported the use of mobile phones in comments, for example:

> "Communicating with students via text [group texts using mobile phones] while on excursions has been a more efficient and less stressful way of reminding them of where and when they need to meet than chasing around after them in person. The students themselves appear to respond better to it" (SGC Part1, D3).

> "Students are at ease with the use of technology. They used their phone to show me sites and information. They took photographs of decision making trees we had generated together. During our sessions they also used playlists of songs for relaxation" (SGC Part 5, D3).

> "I also had some students take a photograph of my laptop page rather than write it down" (SGC Part 4, Po I).

> "With making appointments an increasing percentage of students say I will just put it in my mobile phone as an electronic reminder rather than use paper" (SGC Part 9, RM 3).

> "Mobile phone usage allows me to contact other Guidance Officers directly via voice call and messaging" (Part 2, RM).

Two schools possessed the functionality to send out alerts on their school Facebook page. Prior to the intervention none of the SGCs had used School Facebook or Twitter in their role. At post-intervention some of the SGCs reported that they used this technology to inform students of career information:

> "I requested our school personnel to send out a message via Twitter and Facebook, notifying our Year 12 students that QTAC [tertiary] applications had opened" (Part 9, D2).

5.5.1.3 ***World wide web***: The majority of the SGCs made specific comments in reference to accessing websites on the Internet at pre- and post- intervention. At post-intervention SGCs indicated that they accessed websites to assist students in applying for tertiary courses, research careers and jobs, and supporting students in mental health:

"QTAC tertiary applications. They either did their QTAC application with me or at home on their computer, going on line and doing it" (SGC Part 6, Po I).

"I have made a conscious effort to be using the laptop or iPad in conjunction with career counselling. I have been going to the QTAC website, instead of the booklet. Also I am going to the My futures and Job outlook web sites and using either the Career Test app or the Career Match program our school accesses via the CQU website, when helping students decide what careers might be suitable for them" (SGC Part 9, D2).

"I have found that I refer to the mental health Smiling Minds app and website at least once a week and it is generally well received by students" (SGC Part 1, D1).

5.5.1.4. ***Multi-media***: SGCs discussed the specific use of media in their work at post-intervention for counselling, communicating with students and undertaking their own professional learning. Some of the specific ways SGCs used multi-media included:

"Sometimes I use YouTube clips in counselling sessions" (SGC Part 6, D1).

"One thing I have used on my iPad is called Chalk Pad and so instead of using the whiteboard you use the iPad and draw with your finger" (SGC Part 3, Po I).

"I use the Intranet within the school – for school notices" (SGC Part 9, Po S).

"I watched the DET Intellectual Disability webinar on my laptop last week" (SGC Part 2, D3).

The students were also asked to outline their frequency of use of 11 specific ways of using digital technologies in school guidance and counselling, in the past 4 months, both on the pre- and post-intervention surveys (Item 16). Qualitative data were also collected through open-ended questions in the surveys (pre- and post-, Item 17), as well as the student interviews (Item 4 and 5) and blogs, to identify how student use had changed as a result of the intervention.

Students were required to use a five-point Likert scale (0 times=1, 1-3 times=2, 4-6 times=3, 7-9 times=4, 10 times or more=5) to indicate the frequency they used specific

technologies. Table 5.08 represents the means, standard deviations and significant differences for students' frequency of use of 11 specific ways of using digital technologies, pre- versus post- intervention.

Table 5.08

Frequency of Digital Technologies Use by Year 11/12 Students in the School Guidance and Counselling Service

Digital technologies	**Pre-test**		**Post-test**	
	Mean	**SD**	**Mean**	**SD**
I used email with our guidance officer	1.45	0.66	2.24*	1.10
I used Internet sites suggested by our guidance officer	1.42	0.77	1.76*	0.95
I used the Internet with our guidance officer	1.31	0.63	1.60*	0.81
I used the Guidance Year 11/12 Blog with our guidance officer	1.20	0.48	1.25	0.58
I used apps suggested by our guidance officer	1.19	0.47	1.31	0.69
I used the guidance section on the school website	1.17	0.40	1.37*	0.72
I used some computer programs with our guidance officer	1.17	0.46	1.38*	0.73
I received text messaging from my guidance officer	1.13	0.42	1.28	0.76
I used social media (e.g., Facebook, Twitter) alerts from our guidance officer	1.08	0.30	1.28*	0.73
I used apps together with our guidance officer	1.07	0.36	1.16*	0.50
I used my mobile phone to call our guidance officer	1.02	0.20	1.13*	0.51

* significant at $p < .05$

The Wilcoxon Signed Ranks Test revealed significant increases for: use of computer programs with the SGC, $Z = 2.80$, $p = .005$; reading of social media alerts from the SGC, $Z = 2.84$, $p = .004$; use of Internet sites suggested by SGC, $Z = 3.52$, $p = <.001$; use of the Internet with the SGC, $Z = 3.85$, $p = <.001$; use of the School Guidance and Counselling web page on the school website, $Z = 3.07$, $p = .002$; use of apps with SGC,

$Z = 1.95$, $p = .048$; mobile phone calls to the SGC, $Z = 2.05$, $p = .040$; and the use of emails with the SGC, $Z = 6.34$, $p = <.001$.

The Wilcoxon Signed Ranks Test demonstrated a significant increase in students' use of emails with the SGCs. A Leximancer analysis of all qualitative data from the student pre- and post- surveys was conducted as the surveys contained the greatest quantity of student raw data. The analysis revealed four main concept clusters: *use*, *emails*, *schools* and *websites*. The analysis identified *emails* as one of four major cluster concepts. The analysis indicated that the student responses at pre-intervention (T1) were most closely associated with the theme of *school* and *use* (using, used) whereas responses at post-intervention (T2) were associated with three concept clusters, *school*, *websites* and *emails*. Figure 5.4 is a concept map that visually displays the four major clusters and the relationship between sub-themes extracted from the Leximancer analysis of the Year 11/12 students' pre- and post-intervention survey comments.

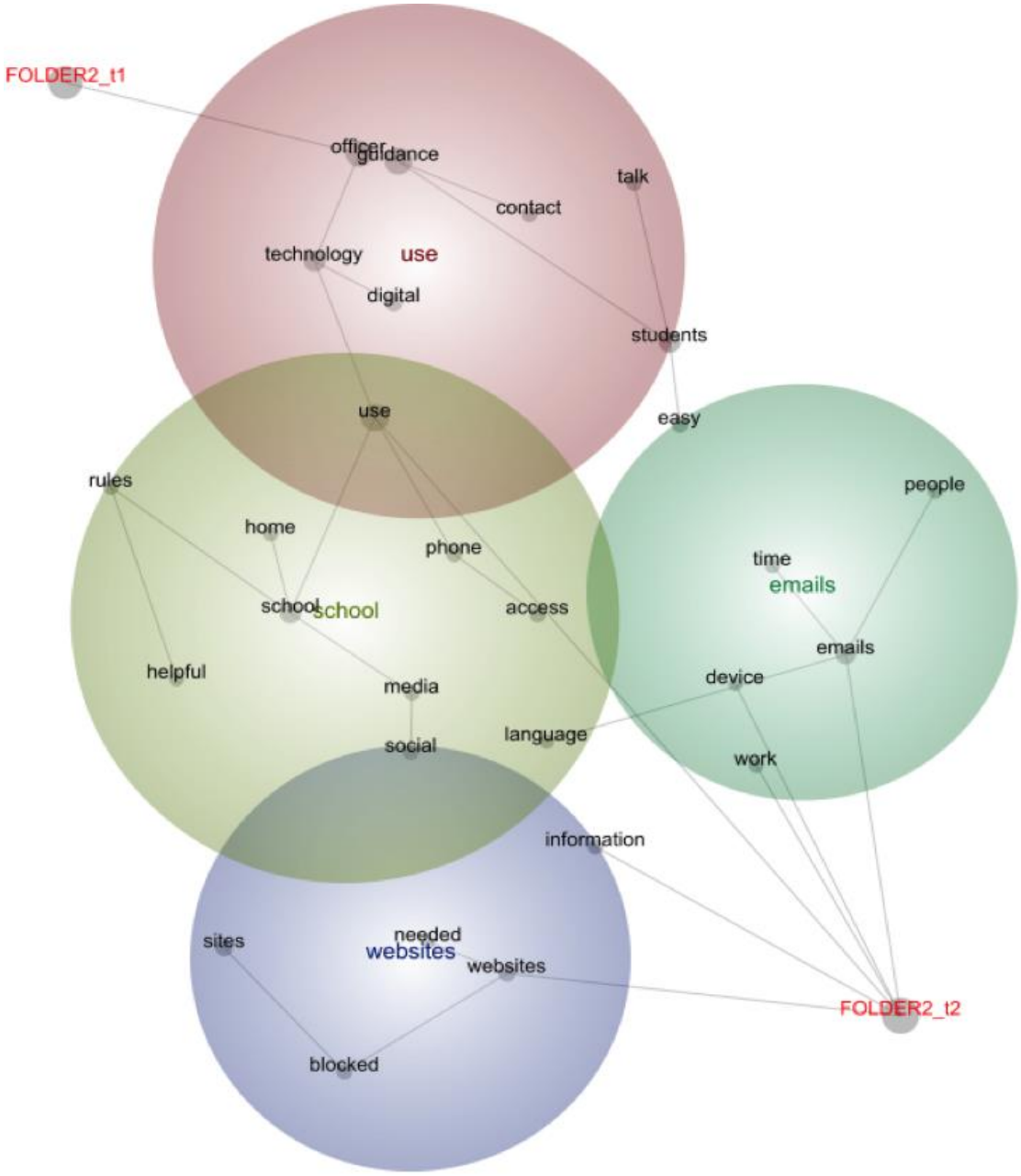


Figure 5.4 Concept map of the Leximancer analysis of Year 11/12 students' pre- and post- surveys, displaying the major clusters of terms.

In Figure 5.4 the Leximancer model indicates that Folder2_t1 refers to the positioning of the students at the pre-intervention survey and Folder2_t2 refers to the post-intervention survey. The thematic cluster of *school* was situated between the three other concept clusters at pre- and post- intervention sharing some common terms. The cluster *emails* featured as 22% connectivity. This indicated the relative importance of the *email*

cluster was third when compared to the major cluster *use* (100%). Furthermore the *emails* and *school* cluster intersect indicating that students were also speaking about emails in reference to school. The concept map visually illustrates the *emails* cluster is in close proximity to students at Time 2 indicating the significance of this theme to student talk at post-intervention. The analysis also revealed the relevance rating for *emails* was 14% indicating the frequency of the use of the term *email* by students. At post-intervention students email talk was dominated by terms such as "time, device, work, people" and "easy." Of the 27 most used terms, *email* rated the 6th most commonly used term by students. At post-intervention the *email* theme featured strongly in student survey comments and statements.

The importance of the *emails* was noted not only in the students' survey text but also in combined interviewer, student and SGC text responses within interviews, electronic diaries, research meetings, blogs and observations. In Figure 5.1 the relative importance of the *emails* cluster concept was third when compared to the other two clusters *students* and *phone*. The analysis also revealed the relevance rating for *emails* was 16%. Of the 27 most used terms, "emails" rated the 5th most commonly used term by students and SGCs. This is a similar result to Figure 5.4 where it rated 6th. In explanation, SGCs were sending regular emails to students during the school implementation intervention and more students were emailing SGCs asking questions and seeking help. During pre- to post- intervention the email theme featured strongly in both participants' qualitative comments and text. Somewhat like the analysis of students' survey text it was a concept cluster of considerable importance.

The use of emails with SGCs was also described by students in the post-intervention interviews and surveys. The use of emails was evident in the thematic analysis of the interviews and surveys qualitative data. Student comments indicated that emails were primarily used to access information from the SGC and provide information to the SGC.

At post-intervention students discussed receiving information emails from SGCs and replies to email questions. This was demonstrated in comments like:

> "I mostly used email. I asked questions and always received a reply from the guidance officer" (Student Po S).

> "Our guidance officer regularly sends emails offering students help with any issues" (Student Po S).

> "The guidance officer was constantly informing students via email and through notices of certain events and advice and tips on strategies that can be useful before exams" (Student Po S).

SGCs also commented that students also sent emails to them requesting and providing information, for example specific comments such as:

> "I have been getting a lot more student email questions around scholarships, careers and academics such as subject changes." (SGC Part1, RM).

> "Students have used emails to book appointments, send documents to me to check such as scholarship applications and keep me up to date with their health issues and absences etc." (SGC Part 5, D3).

> "I have had students emailing me about appointments and arranging extension of assignments through special consideration and Education Assistance Scheme applications" (SGC Part 6, RM).

The Wilcoxon Signed Ranks Test demonstrated significant increases in students' use of Internet sites suggested by the SGC and use of the Internet with the SGC. Students accessed websites both at and away from school. These actions involved the use of the Internet which in turn involved the students accessing websites. Although "websites" was a minor theme at pre-intervention, at post-intervention student text featured the "website" theme much more frequently. Their dialogue was more associated with usefulness of career and mental health websites and the frustration of "blocked websites." Earlier in this chapter, a Leximancer analysis of the student post-intervention survey (Figure 5.3) responses indicated the concept cluster *website* as a major theme. The *website* cluster featured as 29% connectivity. This indicated the

relative importance of the website cluster was second when compared to the other clusters; *use* and *easy*. The analysis also revealed the relevance rating for *website* was 35%. This indicated the frequency of the use of the term *website* by students when compared to the frequency of the most common term *use* (100% relevance). Of the 28 most used terms, "website" rated the 8th most commonly used term by students. Certainly at post-intervention it is clear that *website* was a major theme common to student survey dialogue.

Qualitative data from the student surveys and interviews were analysed to identify themes of how students were using the Internet. Students indicated that they used the Internet to research career options, view academic results and lodge tertiary applications information. The following specific comments highlight their use of the Internet with school guidance and counselling:

> "With my guidance officer, we used the OneSchool website to check my educational stats [statistics such as grade marks and assessments] and we have also used the Internet to research university courses for my future studies" (Student Po S).

> "The guidance officer helps me regularly, involving technology. Just recently I used the guidance officer's computer to lodge my QTAC application. This was very helpful" (Student Po S).

The thematic analysis highlighted that SGCs also described the use of websites in supporting students' mental health and researching topics through comments such as:

> "I have been using Smiling Minds a little bit more and the students are engaging in it especially the meditation online" (SGC Part 1, RM).

> "I developed a plan for a student who was self-harming. Together we also looked up resources and started an online chat with Kids Helpline. The student was engaged and stated that he didn't realise that it would be so easy. This was also a great lesson for me and opportunity to use this service" (SGC Part 5, D1).

> "Once again the more familiar I have become with the iPad the more I use it and when at home I will look up sites etc. while I am sitting there. As I have access

> to a university eLibrary I can also find research articles for things I am interested in" (SGC Part 5, D3).

Qualitative data from the student surveys and interviews were used to identify how students were using Internet sites recommended by the SGC. The thematic analysis indicated that students described how they used the Internet sites to access information on careers and for support with mental health. Some of the specific comments made by students indicating their use of Internet sites recommended by their SGC include:

> "I have used my laptop to go look at the career sites provided by the guidance officer" (Student Po S).

> "Our guidance officer provides websites which helps us to make our day that little better or our life that little bit easier [mental health]" (Student Po S).

The Wilcoxon Signed Ranks Test demonstrated a significant increase in students' use of computer programs with the SGC. The thematic analysis revealed that SGCs and students used computer programs with each other such as word processing and Microsoft Outlook 2010. Students indicated how they used computer programs to communicate with the SGC and to record information. Students reported the use of computer programs in the post-intervention surveys in comments such as:

> "I have used email to contact my guidance officer …" (Student Po S).

> "I used an iPad to type down what the guidance officer has said" (Student Po S).

The Wilcoxon Signed Ranks Test demonstrated a significant increase in students' use of the mobile phone to call the SGC. The Leximancer analysis of SGC interviews, diaries and research meetings as well as student interviews and blogs presented in the Figure 5.1 concept map revealed *phone* was the second major cluster and in very close proximity to the speakers; students and SGCs. Both participant groups focussed on the usefulness of mobile phones and the difficulties of "access" of mobile phones in the school environment. Students were concerned with mobile phones being banned at school. A number of SGCs recommended the need for SGCs to be provided with DET mobile

phones as a digital technology to assist them in their school guidance and counselling role.

At post-intervention students also reported the increased frequency of use in using mobile phones to call their SGC. A filtering of the data did not reveal any specific comments from students regarding the use of the phone to call SGCs however the mobile phone theme was definitely apparent in student dialogue. Students indicated their perceived importance of the mobile phone in comments such as:

> "Student mobile phones need to be used more at school" (Student Po S).

> "It is my favourite device because you can call, text, play games, music and use it as a camera" (Student Po S).

> "My favourite digital device would have to be the mobile phone. It is so easy to access information from and it is so portable. Its size allows me to carry it on my person at all times. It is the first thing I grab in the morning and the last thing I touch before bed" (Student Po S).

5.5.2 Summary.

Research question 2 focussed on how SGCs and students were using digital technologies in school guidance and counselling and their frequency of use of digital technologies. The qualitative results indicated that SGCs and students' digital technology use increased over the study. The use of technologies by SGCs was indicated in statements that reflected Sabella, Poynton and Isaac's (2010) technology competencies subscales. Generally, SGCs found the use of OneNote was very effective for organising emails and information about student cases. Some SGCs commented that there had been a notable increase in the number of students asking questions through emails that resulted in increased two-way communication between students and the SGC. Some SGCs also highlighted how mobile phones were a more effective way in communicating with students. Interestingly, some SGCs reported that students were willing to use their mobile phone to show the SGCs useful websites and record notes from their session with the SGC.

The frequency of use of specific digital technologies by SGCs also indicated what digital technologies they were using and how they were using these technologies in their service to students. SGCs' quantitative results demonstrated that the use of apps significantly increased. At post-intervention SGCs reported using a variety of counselling, mental health and career apps.

Student quantitative data were collected to assess the frequency of use of 11 stated ways of using digital technologies in the school guidance and counselling service. The results demonstrated that eight of the 11 stated ways of using digital technologies significantly increased. In particular, specific use of digital technologies such as email and websites rated as the most frequently used digital technologies. Furthermore, qualitatively these two digital technologies were frequently mentioned by students. However, it was noted that some SGCs questioned whether students were checking their email accounts regularly without prompting.

5.6 Results for Research Question 3

5.6.1 How does an enhanced use of digital technologies affect SGCs' and secondary students' perception of school rules relating to the use of digital technologies? (Engeström: Rules)

In collecting data for research question 3, SGCs and Year 11/12 students were asked to comment in the pre- and post- surveys through a series of open questions, and during the pre- and post- interviews about their perceptions of the rules that pertain to the use of digital technology. Qualitative data were also collected through the SGC research meetings and diaries. All collected data for this research question were in the form of qualitative data. The open-ended questions in the surveys questioned all participants about the rules they needed to follow when using technology in the school setting (SGC Item 13, Student Item 18), helpful and unhelpful digital technology rules (SGC Item14 and 15, Student Item 19 and 20) and how digital technology rules could be improved to

assist the school guidance and counselling service (SGC Item 16, Student Item 21). Item 6 of the interviews also asked SGCs and student participants about the rules they needed to follow, those rules that were helpful and unhelpful and ways of improving rules that applied to digital technology. In the post-intervention interview SGCs were asked to identify changes in rules that had occurred during the intervention period.

SGCs were asked to outline digital technology rules they needed to follow in school guidance and counselling (pre- and post- surveys Item 13). Similarly they were asked the same question on the pre- and post- SGC interviews (Item 6). The thematic analysis of the transcriptions by the researcher indicated an emergence of four themes namely: maintaining data confidentiality, following policy requirements, ensuring safety, and work technology entering SGCs' private lives.

1) *Maintaining data confidentiality* - SGCs indicated specific rules that involved maintaining confidentiality in storing data on digital technology devices, with comments such as:

   "When using technology we need to be professional in what we record. It is also highly important that all student-related information is confidentially stored on OneSchool, OneNote and guidance files" (SGC Part 7, Pre S).

2) *Policy requirements* - The SGCs commented on specific rules that required the need to follow policy such as:

   "Our technology rules state that we cannot contact students through their private emails, mobile phones etc." (SGC Part 3, Pre S).

   "Rules covered by the Code of Conduct and Student Protection guidelines" (SGC Part 6, Pre S).

3) *Safety* - Rules were perceived by SGCs to help keep students and SGCs safe. SGC comments included:

   "Rules keep students and staff safe" (SGC Part 8, Pre S).

"Technology rules ensure everyone is safe (SGC 5, Po S).

4) *Work technology entering SGCs' private lives* - This final group included rules that kept the private world separate to the professional world of the SGC including statements such as:

"Not providing your personal mobile number to students" (SGC Part 7 Pre I).

"Also we cannot have students as 'friends' on Facebook" (SGC Part 3, Pre S).

Rules that were considered helpful were also identified by SGCs through the interviews (pre- and post-, Item 6) and pre- and post- surveys (Item 14). The thematic analysis indicated that SGCs predominantly reported that most digital technology rules were appropriate and helpful. This was demonstrated in rule comments such as:

"I guess they are all there really to protect us in the long run…" (SGC Part 8, Pre I).

"90% of them are helpful" (SGC Part 7, Pre S).

SGCs were asked during the pre- and post- interviews (Item 6) and surveys (Item 15) to speak about unhelpful rules that constrained their school guidance and counselling service. The thematic analysis indicated a range of unhelpful rules indicated by SGCs that constrained them in their work including:

1) *Mobile phones* - SGCs commented on concerns that the Department of Education and Training (DET) rules did not allow SGCs to have direct contact with students via devices such as mobile phones and the need to use their own personal mobile phones as these are not provided to SGCs by DET. This was demonstrated in comments such as:

"On the other hand, when we send a text, we have to send it to the parent and with parents busy lives they don't always remember to pass it on [to their son/daughter] as they know their teenager manages their own phone. Also our school has a ban on mobile phones in the school policy, not that students follow it. This is what I mean by the incongruence we are encouraging students to use

digital technology with teachers SGCs etc. but we are banning their favoured device" (SGC Part 5, Po D).

"I know a lot of us have our own personal mobiles being used for work. There is a concern that I have that it is our personal number but you do give that number out in the school environment" (SGC Part 2, Pre I).

2) *Websites* - Another concern by SGCs included DET's ruling that there are specific websites that are blocked however some of the sites blocked restrict students' learning. SGCs made comments such as:

"Not being able to access particular sites can get in the way of working with students, and locating information on a variety of issues" (SGC Part 6, Pre S).

"Occasionally a site will be blocked by DET. This is not helpful" (SGC Part 7, Po S).

3) *Government funding* - SGCs identified another unhelpful rule included the future termination of government funding of technology devices for students. Parents would need to supply their student's devices. SGC comments included:

"There has been a change in funding. A lot of schools are going to 'Bring Your Own' device" (SGC Part 3, Po I).

"The kids will all have different devices. There will be lots of problems …" (SGC Part 6, Po I).

"So what if they [students and parents] honestly can't afford it? They are flat out getting their uniforms" (SGC Part 6, Po I).

SGCs were also asked to nominate ways that rules could be improved to help them with their work (Item 6 pre- and post- interviews and pre- and post-surveys, Item16). The thematic analysis revealed that SGCs recommended introducing rules such as:

1) *Student contact* - Some SGCs recommended changing the rules so that SGCs could be given the option to contact students directly through students' digital devices. Comments included:

"It would be really useful if you could email a student's nominated email account" (SGC Part 9, Po I).

"Allowing direct mobile phone communication with students through texts and phone calls" (SGC Part 1, Po S).

"Allowing students to be contacted directly as an alert to their private mobile phone regarding educational information and reminders" (SGC Part 2, Po S).

2) *Mobile phone access* - Some SGCs also suggested system rule changes where SGCs could be given the option of greater access to a school mobile phone. This was demonstrated in comments such as:

"If there was more access to a school mobile phone that would improve the situation" (SGC Part 8, Po I).

"All rules have a purpose, however when we don't have access to a school mobile phone it can make contacting them difficult. It can also mean that we are unable to take photographs to record special events" (SGC Part 6, Pre S).

"We are provided with a computer for teachers. In order to do our job we need to have access to a mobile phone or similar device." (SGC Part 5, Pre I).

Earlier in the chapter a Leximancer text analysis (Figure 5.2) of all SGC and student interviews also indicated a direct connection with *access* and *mobile phones*. SGC responses were most closely associated with the theme of *students* at pre-intervention and with the theme of *access* at post-intervention. The SGC post-intervention interview indicated that following the school intervention SGCs were more concerned about access issues rather than how to use digital technologies. The dominant cluster *students* shared some common concepts (intersecting portions) with both *digital* and *access* clusters including the terms "phone" and "contact." The *access* cluster was the second major cluster for SGCs at post-intervention. In this analysis of the 27 most used terms by SGCs and students, *access*, was the 10th most commonly used term, "phone" rated 8th and "contact" rated the 21st most used term. The terms "phone" and "contact" are also physically located in the *access* cluster.

The *access* cluster also shows a line drawn between the concepts "contact" and "access" and both terms are physically very close together. This indicates that when SGCs and students spoke about these terms they were used very close to each other usually in the same sentence, such as "There was a lot more contact with students electronically, information sharing and accessing websites." (SGC Part 4, Po I).

"Access, phone" and "contact*"* are all in very close spatial proximity to the speaker (SGCs) at post-intervention. This highlights the importance of these concepts in SGCs' language at post-intervention. The *access* cluster and "phone" and "contact" terms are highlighted in the SGCs' responses to rules involving inability to contact students' mobile phones. A number of SGCs recommended changes in DET rules that would allow the SGC to be provided with their own work mobile phone and the ability to access students' mobile phones to contact students.

Item 6 of the SGC post-interview asked SGCs about rules they had noticed that had changed in the past four months. The thematic analysis of the transcripts found that SGCs did not identify any new changes in rules however they did identify where rules had been breached in order for the SGCs to effectively and efficiently undertake their school counselling and guidance role. These included comments such as:

> "Maybe an email may have gone to a personal address from a DET account and maybe there has been contact with a student on a mobile phone, on a non-DET mobile phone as they contacted that phone first" (SGC Part 1, Po I). DET technology rules state that school personnel are to send emails to students' school email addresses, not students' personal email addresses.
>
> "I used my personal mobile to text student mobiles on a tertiary trip. DET technology rules state that school personnel are not allowed to text to students' mobile phones" (SGC Part 2, Po I).
>
> "I took a sporting team photo on my personal mobile phone" (SGC Part 9, Po I). Technology rules outlined by DET indicate that student photographs can be taken by a staff member if there is written authorisation allowing visual image of a student to be taken and visual images are taken on a school camera, not a personal mobile phone.

Students were asked in interviews (pre- and post-, Item 6) and surveys (pre- and post-, Item 18) to identify digital technology rules they needed to follow in school guidance and counselling. The thematic analysis of the text indicated four rule groups, ensuring safety, using social media, respecting others, and using digital devices.

1) *Safety*: Somewhat like SGCs, students also indicated rules that protected students, keeping them safe. These were indicated in comments including:

   "Don't use inappropriate sites" (Student Part 4, Pre I).

   "Always remain on safe and reliable sites" (Student Pre I).

2) *Social media*: Students identified rules involving the use of social media such as:

   "If there is a photograph of you in your school uniform or the school emblem you are not to post it on social media" (Student Part 1, Po I).

   "Not to go on any social media at school" (Student Po S).

3) *Respect*: Students also identified specific rules involving respectful language with others. An example of comments included:

   "When using email use appropriate language" (Student Part 6, Pre I).

4) *Use of digital technologies*: This final group of rules identified involved the use of digital technology devices at school. Examples of students' comments included:

   "No gaming at all during class. No phones either. We are not supposed to have phones in class" (Student Part 2, Po I).

   "Do not use mobile phones at school" (Student Pre S).

Data were collected from both student pre- and post- surveys (Item 14) and interviews (Item 6) asking students to identify helpful rules. Somewhat like SGCs, students in the

main viewed school digital technology rules to be appropriate and necessary. This was demonstrated in comments such as:

> "All of the rules were helpful" (Student Pre S)

> "A large majority of these rules are helpful because they stop students who may have been doing the wrong thing" (Student Pre S).

Students were asked during the pre- and post- interviews (Item 6) and pre- and post-surveys (Item 20) to speak about unhelpful rules that constrained them. Somewhat like SGCs, students also identified websites blocked by DET. In the post-intervention survey 43% of students identified the restriction of websites as being unhelpful. This was demonstrated in comments such as:

> "Visiting websites that I needed for assignments and they were blocked by the school for some reason. It was extremely frustrating and made my assignments more difficult to finish" (Student Po S).

> "The school blocks websites that you need to use for research. You want to go on a website and you are not allowed" (Student Part 3, Po I).

The themes *blocked* and *websites* are also evident in the Leximancer analysis of student pre- and post- survey statements. As indicated in the concept map (Figure 5.4), student responses at pre-intervention were most closely associated with the concept cluster of *use* (using, used) whereas post-intervention students' responses were most closely associated with *websites* and *emails*. The proximity of the clusters to Time 1 (student pre-intervention) and Time 2 (post-intervention) indicate the degree of importance of the themes at both time periods in the analysis. The major cluster was *use* as indicated by the hottest (red-purple) visually represented cluster highlighting *use* as a considerably important theme. The cluster *website* was revealed as the fourth major cluster of the pre- and post- student survey text. Within the *website* cluster the words "website, blocked" and "sites" are in close proximity to the *website* cluster label indicating all of these terms were frequently linked in students' written responses and associated with the cluster *website*. Furthermore there is a line linking these concepts, indicating that each concept is strongly associated with each other and their considerable importance in the

website cluster. This was evident in student post-survey comments such as "Some important *websites* are *blocked* on the school networks that are not offensive at all" and "Technology rules could be improved by reviewing the *sites* that are *blocked*."

The Leximancer analysis provided a word frequency count on student survey comments pre-intervention and post-intervention. The term "website" appeared 154 times in separate chunks of discourse being the 9th most common term from 28 identified terms. The term "blocked" occurred 90 times being the 15th highest used term in this analysis. The analysis highlights the significance of the concept "blocked" within the *websites* cluster in students' survey responses and students' perception of "blocked" websites as being frustrating and unhelpful.

Students were also asked how to improve digital technology rules. The pre- and post-interviews (Item 6) and surveys (pre- and post-, Item 21) asked this question. Students identified the need to improve the rules governing website access. Student comments included:

> "Maybe they could unblock the websites that we really need" (Student Part 2, Pre I).

> "The school digital technology rules could be improved by having a wider range of access to websites" (Student P S).

Like SGCs some students identified the need to allow SGCs to directly contact students. Specific comments included:

> "Text messages sent to myself and my parents with reminders for school" (Student Pre S).

> "The school digital technology rules could be improved by allowing us more access to social media sites, so that students who need to speak to a guidance officer, but don't want to do it face-to-face, can have access to the sites that they already use to speak to the guidance officer" (Student Po S).

5.6.2 Summary.

Research question 3 aimed to identify SGCs' and students' perception of school rules relating to the use of digital technologies. All data collected to answer this question were qualitative. The analysis of SGC transcriptions indicated four themes related to rules: maintaining confidentiality, following policy requirements, ensuring safety, and work technology entering SGCs' private lives. Generally SGCs found most technology rules to be appropriate and necessary. SGCs identified a number of unhelpful rule themes: inability of SGCs to contact students directly through their mobiles, blocked websites, and reduced government funding of student devices. SGCs reported rules that could be improved to assist their work included the ability to contact students through their personal email addresses and mobile phones, and SGCs being provided with DET mobile phones. Although there are technology rules for all DET staff to comply with, SGCs identified times when they breached these rules in order to assist students.

Following the intervention SGCs' and students' comments and statements indicated that both groups of participants were thinking more about rules compared to the pre-intervention. Responses from students regarding technology rules at school indicated four themes associated with safety, social media, respect, and use of digital technologies. Like SGCs, students highlighted that most technology rules at school were appropriate however *blocked* websites was frequently mentioned by students as being an unhelpful rule that required changing. Allowing students to use social media with the SGC and allowing direct texting to students' and parents' mobile phone were indicated by some students as possible ways to further improve school technology rules.

5.7 Results for Research Question 4

5.7.1 How do secondary students' and SGCs' technological duties and responsibilities change through the use of enhanced digital technologies in the school guidance and counselling context? (Engeström: Division of Labour)

In order to answer research question 4, SGCs and students were asked questions in pre- and post- interviews and surveys about their digital technology duties and responsibilities. Associated comments stated in SGC research meetings were also collected. Data collected focussed on participants' experiences in the past four months (pre- and post- intervention). The surveys (SGC, Item 18, Student Item 23) outlined specific digital technology responsibilities and duty statements and participants were asked to rate these using a five-point Likert scale. The open-ended questions in the surveys also asked participants (open-ended questions) to comment about additional responsibilities and duties they had undertaken (SGC, Item 19, Student Item 24). The surveys (SGC Item 20, Student Item 25) asked participants about whether they anticipated their digital technology duties and responsibilities would change (pre-intervention) and if so, how they actually did change (post-intervention). The surveys required a binary response (Yes/No). Participants were also asked to comment through open-ended questions (pre- and post- surveys) about digital technology duties and responsibilities that caused difficulties for them (SGC, Item 22, Student, Item 27) or helped them in the school guidance and counselling service (SGC, Item 23, Student, Item 26). Item 7 of the interviews also asked SGCs and students about digital technology duties and responsibilities: What were they? Would they change through increased use of digital technology through the school guidance and counselling service? What change took place and what were the helpful and unhelpful duties and responsibilities?

SGCs were asked to rate nine digital duties and responsibilities statements using a five-point Likert scale (*Strongly disagree*=1, 2, 3, 4, 5=*Strongly agree*). Table 5.09 displays the means, standard deviations and significant differences for the nine statements listed

in the surveys that involved digital duties and responsibilities in the school guidance and counselling service in the past four months at pre- and post- intervention.

Table 5.09

SGCs' Specific Digital Technology Duties and Responsibilities

SGC duties and responsibilities	Pre-test		Post-test	
	Mean	**SD**	**Mean**	**SD**
I provided up to date information	4.00	1.32	5.00*	0.00
I used digital technologies face to face	3.67	1.32	4.67	0.50
I maintained student confidentiality of student data in a secure digital location	3.78	1.30	4.33	1.19
I responded to electronic requests	3.56	1.24	4.33	0.87
I provided an item for the school newsletter	2.44	1.81	4.00	1.50
I used apps that complemented and were suitable for my guidance intervention	1.56	0.88	3.78*	1.20
I organised a guidance newsletter	1.78	1.30	3.56*	1.74
I provided information for the Guidance web page on the school website	1.67	1.32	3.56*	1.51
I managed, monitored and maintained a Year 11/12 Blog	1.00	0.00	3.33*	1.23

* significant at $p < .05$

A Wilcoxon Signed Rank Test compared the nine statements pre- to post- intervention and indicated significant increases for five of the nine SGC statements; provided information for the School Guidance and Counselling page on the school website, $Z = -2.23$, $p = .026$; organised a guidance newsletter, $Z = -2.22$, $p = .026$; provided up to date information, $Z = -2.06$, $p = 0.39$; managed, monitored and maintained a Year 11/12 blog, $Z = -2.59$, $p = .010$; and used apps that complemented and were suitable for my guidance intervention, $Z = -2.53$, $p = .011$.

Comparing pre- to post- intervention, the Wilcoxon Signed Rank Test revealed a significant increase by SGCs in providing information for the School Guidance and

Counselling web page on the school website. SGCs made comments highlighting the importance of the Guidance web page, including:

> "The Guidance Officer is the key person for managing the Guidance page on the school website. It provides valuable information to students, families and wider community about the role of the Guidance Officer, the school setting and how they can be accessed" (SGC Part 2, RM).

> "I think the Guidance page on the school website is a fantastic idea for sharing up to date career, well-being and academic information with all students" (SGC Part 9, D1).

SGCs indicated that they had organised Guidance newsletters for students. Comparing pre- to post- intervention the Wilcoxon Signed Rank Test revealed that this was a significant increase. Some SGCs highlighted the need to provide information through Guidance newsletters and outlined necessary components of newsletters. This was demonstrated through comments such as:

> "I am of the opinion that it is important for the Guidance Officer to provide information to students and their families through Guidance newsletters. Information that I believe is important includes: career and further study information, key dates for open days and applications, tips for success at school and beyond, and suggestions and ideas for supporting health and well-being"(SGC Part 6, RM).

The Wilcoxon Signed Rank Test reported a significant increase by SGCs in their agreement that they had provided up to date information. The thematic analysis of qualitative data indicated that SGCs provided current information through emails which was demonstrated in comments such as:

> "Providing current information for the tertiary trip through student emails" (SGC Part 2, Po I).

Using the thematic analysis, qualitative data were used to identify how SGCs responded to electronic requests. SGCs commented on the increase in student requests for information through emails. This was demonstrated in comments such as:

> "I have been getting a lot more student emails around scholarships etc." (SGC Part 1, RM).

> "There are a number of students who I don't see face-to-face who email me about tertiary and academic questions and I email them back" (SGC 6, RM).

In Item 20 of the surveys, SGCs were asked closed questions (Yes/No) about whether their digital technology duties and responsibilities would change (pre-intervention survey) and whether they did change (post-intervention survey). Prior to the intervention the majority of SGCs predicted that their duties and responsibilities would change and at post-intervention just over half of SGCs responded that they had changed. The Wilcoxon Signed Rank Test did not reveal this to be a significant change however. SGCs indicated in their statements that their responsibilities and duties had increased and this was demonstrated in comments such as:

> "My responsibilities have increased through the school web page, the blog, Twitter, student emails, guidance newsletter and blog" (SGC Part 9, Po S).

SGCs were also asked to comment through open-ended questions (pre- and post-surveys and research meetings) about digital technology duties and responsibilities that constrained them (SGC, Item 22). The thematic analysis was applied to the qualitative data which revealed a number of themes. Some SGCs identified how the increase in digital technologies had elevated their work responsibilities and duties due to greater technology access *away* from school (for example, from home) as well as increased technology access of the SGC by students. SGCs indicated that the greater access of digital technologies *away* from school resulted in extended working hours and increased workload in SGCs' private lives. This was demonstrated in SGC comments, such as:

> "The increase in technology is intruding more and more into our private time. There are huge advantages but ultimately everybody is working longer" (SGC Part 9, Po I).

> "I know when I have a day off that I check my emails. I know if I don't and I get there on the Tuesday, I will have 64 emails" (SGC Part 7, RM).

During the post-intervention interview SGCs particularly indicated their increased responsibility for entering student data into DET's student data system, OneSchool. All 9 SGCs (post-intervention survey) indicated increased responsibility for inputting data into OneSchool. SGC's comments included:

> "Increased significantly. OneSchool requirements have increased a lot. You have to upload contacts. You have to upload Educational Support Plans onto OneSchool" (SGC Part 6, Po I).

> "All intellectual disability and speech and language impairment verifications are now on OneSchool" (SGC Part 8, Po I). SGCs are required to input data and reports into these verifications.

SGCs perceived they had a responsibility to use more digital technology with students however the thematic analysis indicated that SGCs reported that their duties were constrained by technology accessibility, student access and technology support. SGC comments included:

> "Internet accessibility and speed have sometimes constrained my service" (SGC Part 2, Po S).

> "I don't have wireless access in my office" (SGC Part 9, RM).

> "I think that the majority of my students didn't access the emails" (SGC Part 9, Po I).

> "I don't think everybody opens their emails and reads their emails. But because I was sending them out and they do access their emails for school they have seen the ones from me. It hasn't increased the awareness of all but it has for some" (SGC Part 1, Po I).

> "There is a problem of trying to access the information technology person to help out" (SGC Part 1, RM).

The concept cluster *access* was also the second major cluster in the Leximancer analysis of SGC and student interview dialogue as displayed in Figure 5.2. *Access* was particularly associated with SGCs talk at post-intervention which was reflected in the concept map showing the cluster's closes spatial proximity to the speakers 'post GO'

(post-intervention SGC)." *Access* was the second major concept cluster in the combined analysis of all SGC and student interviews.

Following the intervention SGCs were asked how digital technology duties and responsibilities had helped them in the school guidance and counselling service (post-intervention survey, Item 23). The thematic analysis was applied to the qualitative data which revealed a number of themes. At post-intervention SGCs highlighted the importance of technology responsibilities and duties improving effectiveness, efficiency, managing workload and flexibility in providing information, through statements such as:

> "Technology duties enhance the effectiveness of my work: fast, time efficient, cost efficient" (SGC 8, Po S).

> "Expediency. Managing a growing workload and expectation, continued improvements and access to technology have allowed me to expedite my service provision and productivity" (SGC Part 4, Po S).

> "Provided information at times other than when I was on campus – or when students were at school. Students didn't have to miss class to attend an appointment" (SGC Part 5, Po S).

Year 11/12 students on both surveys (pre- and post-) were also asked to rate 11 statements listed in the surveys about their digital technology duties and responsibilities using a five-point Likert scale (*Strongly disagree*=1, 2, 3, 4, 5=*Strongly agree*). Table 5.10 displays the students' means, standard deviations and significant differences for the 11 specific digital technology duties and responsibilities.

Table 5.10

Year 11/12 Students' Specific Digital Technology Duties and Responsibilities

Student duties and responsibilities	Pre-test		Post-test	
	Mean	**SD**	**Mean**	**SD**
When I used digital technologies to do with guidance I used polite and courteous language	3.11	1.72	3.35	1.64
I checked my school email for guidance emails	2.40	1.24	3.02*	1.29
The information and suggestions I learn from digital technologies through guidance, I try to apply to my life	2.37	1.31	2.75*	1.43
I used digital technologies face to face with guidance officer	1.76	0.98	1.89	1.18
I checked the school website for guidance items	1.64	0.95	1.89*	1.13
I read the Year 11/12 Guidance Blog	1.59	0.95	1.66	0.99
I checked my mobile phone for texts from guidance officer	1.33	0.79	1.44	0.89
I checked social media for messages from guidance officer	1.31	0.75	1.45	0.95

* significant at $p < .05$

The Wilcoxon Signed Ranks Test compared the eight statements pre- and post-intervention and revealed significant increases in student duties and responsibilities that involved; checking emails from the SGC, $Z = 3.77$, $p = <.001$; checking the school website for guidance items, $Z = 2.16$, $p = .031$; and, applying information and suggestions learnt from the school guidance and counselling digital technologies, $Z = 2.47$, $p = .013$.

The significant increase in students' agreement that they checked their emails for guidance emails was demonstrated in the student post-intervention survey questions in comments such as:

> "I made sure to check my emails for regular updates and the guidance officers sent regular emails to the students" (Student Po S).

> "I took the time to read the emails that my guidance officer sent" (Student Po S).

The importance of *emails* was highlighted in the Leximancer analysis of student pre- and post- survey text (Figure 5.4) which was represented earlier in the chapter. The analysis identified *email* as the second major cluster of the analysis. Students particularly used the term "email" in their survey responses in the post-survey being the 6th most commonly used term by students.

It was interesting to note that the responsibility of checking school emails appeared inconsistent amongst students as indicated by the thematic analysis. At the pre-intervention interview four of the nine students commented how they infrequently checked their school emails, for example:

> "Once every three weeks" (Student Part 2, Pre I).

> "Once every 6 months" (Student Part 1, Pre I).

Similarly the theme of inconsistent checking of school emails was also emphasised in the post-interview by some students, for example:

> "I never use my school email" (Student Part 1 and 3, Po I).

The significant increase in students' agreement that their responsibilities and duties in applying information and suggestions learnt from the SGC were demonstrated in the qualitative data. The thematic analysis identified a number of themes. The student data indicated how the increases were in areas that involved academics, mental health and applying for universities. This was demonstrated in student comments such as:

> "I took what the guidance counsellor offered regarding study and mental health, into account" (Student Po S).

> "My guidance officer ensured we had our Queensland Tertiary Admission Centre applications done on time. We went through the website process together" (Student Po S).

> "Emails were provided giving us some useful information about certain topics, and I was able to apply these in use with other people" (Student Po S).

Students were also asked questions (Yes/No) in Item 25 in the surveys whether their digital technology duties and responsibilities would change (pre-intervention) and whether they did change (post-intervention). Prior to the intervention two thirds of the students predicted that their duties and responsibilities would change whilst at post-intervention 29% of students stated they had changed. The students were more likely at pre-intervention to affirm that their duties and responsibilities in using digital technologies would change compared to post-intervention. Of particular importance a Wilcoxon Related Samples Test represented in Table 5.11 revealed that this was a significant decrease.

Table 5.11

Wilcoxon's Related Samples Tests for Students' Level of Agreement (N=123) about Change in Duties and Responsibilities (Pre- versus Post- intervention)

Students' duties and responsibilities	**Z**	**Asymp. Sig. (2-tailed)**
Do you think your duties and responsibilities will change/have changed in using more digital technologies with your guidance officer and what they provide for students	5.50	<.001*

* significant at $p < .05$

Students were also asked to comment through open-ended questions (pre- and post-surveys) about digital technology duties and responsibilities that constrained them (Student, Item 27). Almost one-third of students reported in the post-survey that technological responsibilities and duties did not constrain them.

A thematic analysis indicated that some students in the post-interviews and surveys reported how their technology responsibilities and duties were constrained by lack of access to technologies. These students indicated that the constraints primarily involved the use of school emails. Examples of their comments included:

> "I use my home email as it is easier and more reliable than school email. You know you can always access home email" (Student Part 1, Po I).

> "Sometimes your school email doesn't load" (Student Part 2, Po I).

> "Digital technology duties and responsibilities make it difficult with working with the guidance officer because most things are emailed and the emails aren't always working" (Student Po S).

Students were asked how their digital technology duties and responsibilities helped them in the school guidance and counselling service (Student Interviews Item 7 and Student Surveys Item 26). Students outlined a range of ways that they believed their technology duties and responsibilities helped them in school guidance and counselling. These included:

> "Technology duties and responsibilities help prepare us for the world outside school life by learning how to use different technology" (Student Pre S).

> "Checking emails allows easier communication" (Student, Po S).

> "The technology allowed easy communication, specifically when the guidance officer is at another school" (Student, Po S).

> "Making an effort to take it in, focus on it. If you are receiving an email from Mrs X [SGC] like 'Motivation for school kids,' actually take it in" (Student Part 3, Po I).

5.7.2 Summary.

The SGC quantitative data indicated mixed results. SGCs indicated at post-intervention that their technological duties and responsibilities had not changed. However, additional quantitative data demonstrated significant increases in five SGC digital technology duties and responsibilities following the intervention. Both SGC and student survey data demonstrated a significant increase in their responsibilities and duties associated with the School Guidance and Counselling web page on the school website.

SGCs qualitatively reported a range of duties and responsibilities had particularly increased including responding to emails, especially student emails and recording data on OneSchool. Comments from the SGCs highlighted how prior to and during this research study there had been an increase in DET tasks that required the use of technology. They further indicated that this had extended their working hours and workload, resulting in SGCs using technology in their private lives attempting to keep pace with work commitments. SGCs commented on constraints to their duties and responsibilities such as technology accessibility, student access and technology support. SGCs highlighted the importance of technology responsibilities and duties improving effectiveness, efficiency, reducing workload and providing information to students, parents and professionals.

Quantitative measures showed that students' responsibilities and duties had significantly increased, namely: applying information (academic, mental health and careers) to their lives, viewing the school website for school guidance and counselling items, and checking for school guidance and counselling emails. However there were some students' and SGCs' comments that noted the checking emails by students was not always consistent. Some students also qualitatively identified that technology access, particularly the access of school email, constrained their duties and responsibilities due to technological access difficulties.

5.8 Results for Research Question 5

5.8.1 What changes occur in the secondary students' and SGCs' sense of community and relationships with one another from the enhanced use of digital technologies in the school guidance and counselling context? (Engeström: Community)

Several instruments, both quantitative and qualitative, were used to answer this research question. Both SGCs and Year 11/12 students were asked questions on the pre- and post- interviews and surveys about how their use of digital technology impacted on their

sense of the school guidance and counselling community and relationships with each other. Comments stated in SGC research meetings were also used to investigate this question. Data collected focussed on participants' experiences in the past four months (pre- and post- intervention). All participants were asked on each of the surveys to rate statements relating to their sense of the school guidance and counselling community (SGC Item 24, Student Item 28) and relationships (SGC Item 25, Student Item 31) using a five-point Likert scales. Items 8 and 9 of the interviews (pre- and post-), also asked participants to discuss the impact of digital technologies on their relationship with each other and sense of the school guidance and counselling community.

The SGCs were asked on both surveys (Item 24) to rate their sense of the guidance and school counselling community in the past four months. SGCs rated two statements "feeling part of the guidance community" and "feeling there was a good sense of guidance community." A Wilcoxon Signed Rank Test was conducted on both statements' which indicated no significant differences for either statement. Table 5.12 indicates the SGCs' means, standard deviations and significant differences for the community statements.

Table 5.12

SGCs' Perceptions of the School Guidance and Counselling Community

Community statements	**Pre-test**		**Post-test**	
	Mean	**SD**	**Mean**	**SD**
I felt part of the guidance community.	3.89	0.78	4.33	0.71
I felt that there was a good sense of guidance community.	3.78	0.97	4.22	0.67

* significant at $p < .05$

Qualitative data collected through SGC interviews, research meetings and surveys were used to identify how digital technologies used in this study impacted on their sense of guidance and counselling community. The thematic analysis was applied to this

qualitative data. At the post-intervention interview all 9 SGCs agreed that digital technologies positively added to the guidance community in the school. Their perception of the guidance community was reflected in comments particularly where the interaction became two-way with students, for example:

> "It actually feels that there is a community now, in sending the information out to them they are coming back to you. It is more of a community than just someone on the outside" (SGC Part 1, Po I).

> "Yes, before I would send out something and that would be it. Now it seems that you get more involved and maybe because I have been sending out more things electronically, people (students and staff) will send back saying "Oh yes my student is going well," or "What do you want me to do with this?" (SGC Part 3, Po I).

The study also investigated if changes had occurred in the SGC and Year 11/12 students' relationship as a result of the enhanced use of digital technologies. SGCs were asked on Item 25 of the surveys to rate using the five-point Likert scale the three relationship statements. Table 5.13 indicates the SGCs' means, standard deviations and significant differences for the relationship statements.

Table 5.13

SGCs' Perceptions of their Relationship with the Year 11/12 Students

Relationship statements	**Pre-test**		**Post-test**	
	Mean	**SD**	**Mean**	**SD**
I felt that the majority of Year 11/12 students knew I was the guidance officer	3.89	1.17	4.56	0.53
I felt I had a good relationship with the Year 11/12 students	3.56	1.13	4.33	0.71
I felt connected to the Year 11/12s	3.44	1.24	4.22	0.67

* significant at $p < .05$

A Wilcoxon Signed Rank Test was conducted which indicated no significant differences between the pre- and post- intervention results.

Qualitative data collected through SGC interviews, research meetings and surveys were used to identify how the use of the range of digital technologies discussed in this study impacted on their relationships with students. The thematic analysis was applied to the transcript data which revealed a number of themes. SGCs described how they improved their relationships with students through their own personal acceptance of technology, encouraging students to respond digitally and allowing students to teach technology to the SGC. This was demonstrated in comments like:

> "I have learnt a lot from my students and believe that my relationship/rapport with some students has been because of my acceptance and encouragement about the use of technology" (SGC Part 5, D3).

> "I have added an extra dimension to emails by asking students to reply with a comment. I think this has strengthened the relationship that I have with the students" (SGC Part 5, D2).

> "Accept that technology is the way of the future. Be comfortable when a student guides you through career web sites. Learning together is a great tool in relationship building, in resourcing relevant information and in developing student efficacy" (SGC Part 7, Po S).

A Leximancer analysis of SGC and student interviews was visually displayed in Figure 5.2 earlier in this chapter. The Leximancer analysis identified *digital* to be the third major concept cluster at pre-intervention for SGCs and this cluster contained the term "relationship." In this analysis containing 27 most used terms, "relationship" rated the 20th. At pre-intervention SGCs were speaking about the building of their relationships with Year 12s during their career decision-making year and the perceived benefits of digital technologies enhancing their relationships with students. Although the term "relationship" was quite prevalent in SGC pre-intervention dialogue, this was less the case at post-intervention where SGCs were more concerned with the themes of *students* and *access*.

A Leximancer analysis was conducted of all SGC research meetings, diaries, blogs and observation text data. This Leximancer analysis indicated that the term "relationship," was not a concept cluster. The analysis (Figure 5.5) revealed that the relevance rating

for “relationship” was only 2%. This indicated the frequency of the use of the term “relationship” by SGCs when compared to the frequency of the most commonly used term “students” (100% relevance). This Leximancer analysis rated the top 26 most used terms by SGCs and “relationship" rated 26th. This analysis indicated that “relationship” was a term of minor relevance in SGC research meetings, diaries, blog and observational data.

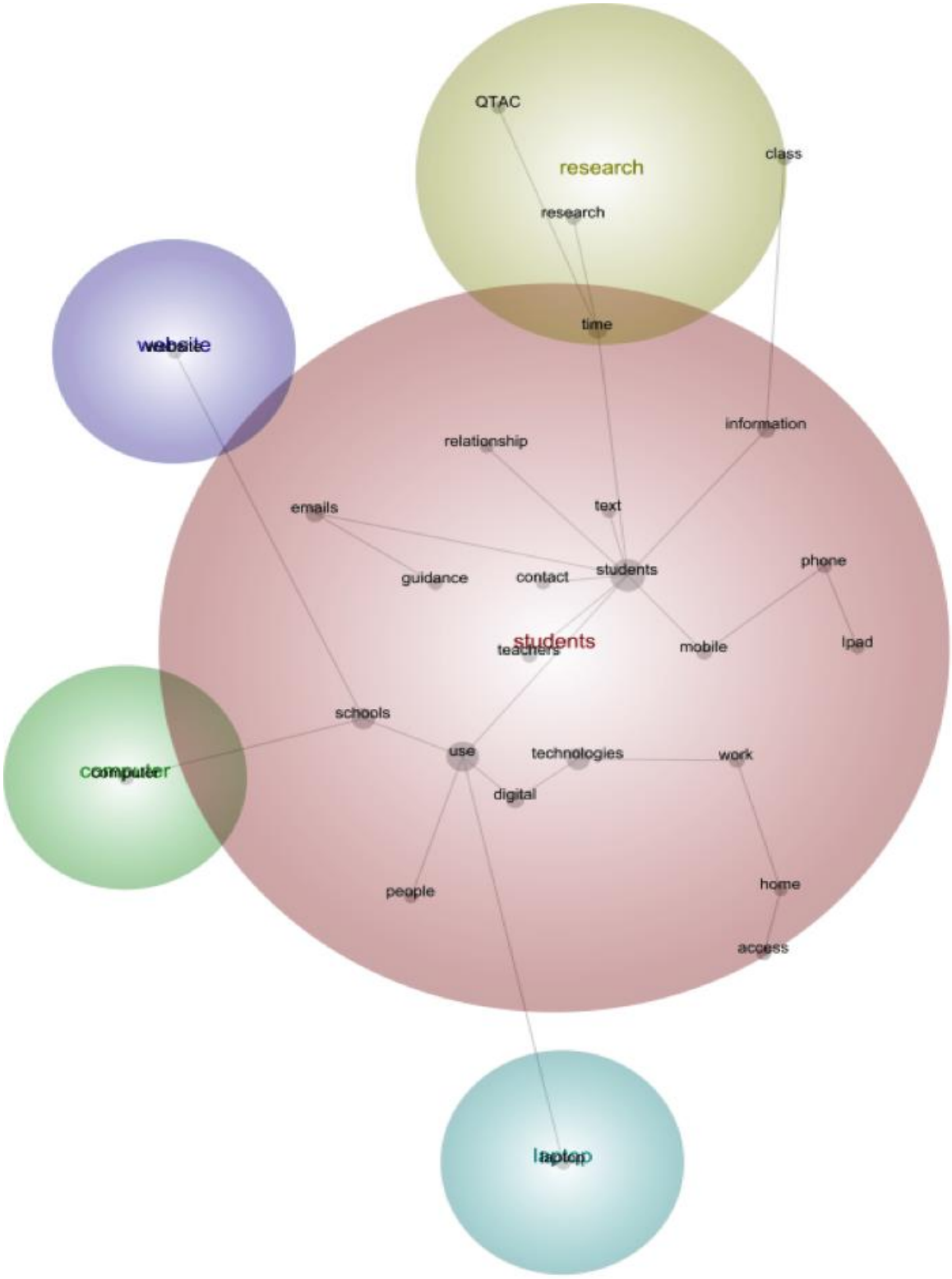


Figure 5.5 Concept map of the Leximancer analysis of SGC research meetings, diaries, blogs and observation text, extracting the major clusters.

A thematic analysis indicated that some SGCs also questioned whether digital technologies improved the relationship with students through comments such as:

> "I just think that the last four months especially with Year 12s you are closest to those students because you are doing all of the QTAC; what they are doing after Year 12; university and TAFE. You probably have more contact with Year 12s then more than any other time. I don't think it has anything to do with the technology you use; it is just the time of the year that the Year 12s and SGC relationship strengthens" (SGC Part 9, Po I).

> "I don't think digital technologies strengthen the relationship, it compliments it" (SGC Part 2, Po I).

> "It can improve the service but the fundamentals of guidance and counselling such as face-to-face contact and the development of the relationship are still very important" (SGC Part 6, Po S).

The student surveys (pre- and post-, Item 28) also asked students to rate using a five-point Likert scale (*Strongly disagree*=1, 2, 3, 4, 5=*Strongly agree*) their sense of the school guidance and counselling community in the past four months. Table 5.14 indicates the Year 11/12 students' means, standard deviations and significant differences for both community statements.

Table 5.14

Year 11/12 Students' Perceptions of the School Guidance and Counselling Community

	Pre-test		**Post-test**	
Sense of community statements	**Mean**	**SD**	**Mean**	**SD**
I felt that my guidance officer's use of digital technologies built a stronger guidance community	2.23	1.23	2.41	1.17
I felt that I was part of our school guidance community	2.20	1.19	2.41*	1.14

* significant at $p < .05$

A Wilcoxon Signed Rank Test indicated a significant increase in Year 11/12 students feeling part of the school guidance and counselling community ($Z = 1.97$, $p = .049$).

Students provided suggestions of how SGCs could use digital technologies to build on the school guidance and counselling community. Examples of comments included:

> "Email more regularly" (Student Po S).
>
> "Use social media such as Facebook" (Student Po S).
>
> "I think starting a Facebook page would be good. It's easily accessible for all students, and it's somewhere that many students go regularly" (Student Po S).
>
> "Texting more regularly" (Student Po S).
>
> "The guidance officer could build the school guidance and counselling community by making a website which has a chat system, which is easier to use" (Student Po S).

Students were asked on both of the surveys (pre- and post-, Item 31) to rate using a five-point Likert scale their relationship with their SGC and had the use of digital technologies built a stronger relationship in the past four months. Table 5.15 indicates the Year 11/12 students' means, standard deviations and significant differences for both relationship statements.

Table 5.15

Year 11/12 Students' Perceptions of their Relationship with the SGC

	Pre-test		Post-test	
Sense of community statements	**Mean**	**SD**	**Mean**	**SD**
I felt that my guidance officer's use of digital technologies built a stronger relationship with me	2.04	1.13	2.33*	1.13
I felt I had a good relationship with my guidance officer	2.49	1.24	2.77*	1.22

* significant at $p < .05$

As illustrated in Table 5.15, at post-intervention the students were more likely to agree to both statements about their relationship with the SGC at their school. More generally, both at pre- and at post-intervention, student responses were also somewhat negative in the 2-3 range. As indicated in Table 5.16, the Wilcoxon analysis indicated that following the school implementation, students were significantly more likely to agree to both statements about the improved quality of the relationship with their SGC post-intervention.

Table 5.16

Wilcoxon's Related Samples Tests for Level of Agreement about Students' (N=123) Relationships with the SGCs (Pre- versus Post- intervention)

Relationship statements	**Z**	**Asymp. Sig. (2-tailed)**
I felt that my SGC's use of digital technologies built a stronger relationship with me	-2.83	0.005*
I felt I had a good relationship with my SGC	-2.56	0.010*

* significant at $p < .05$

Despite the significant increases for both statements there were limited qualitative data from students to validate their survey responses. Some students reported positive relationship benefits in using digital technology with SGCs whilst other students reported an absence of relationship with SGCs. This was demonstrated in comments, for example:

> "I like how the guidance officers are using digital technologies. It is a very good way to build the relationship between students and the guidance officer" (Student Po S).

> "I don't have a relationship with the officer" (Student Po S).

Students suggested other ways of using digital technologies that could further improve the relationship between SGCs and students.

> "Sending more emails perhaps personalised emails" (Student Po S).
>
> "Have a Facebook page" (Student Po S).
>
> "Guidance officers could improve relationships by using technology that kids use daily such as phones and social networking sites" (Student Po S).
>
> "They could improve relationships through direct texting and blogging" (Student Po S).
>
> "Maybe when you log onto your computer and iPad you could use a chat room with your guidance officer. You see her face and you log onto it if you needed to talk to her about something" (Student Po I).

A Leximancer analysis was applied to all student and SGC interview text. This was represented in Figure 5.2. The results indicated that the term "relationship" occurred 19 times and was not a concept cluster. This Leximancer analysis indicated that this term was linked predominantly to SGC pre-intervention interview text. The analysis indicated that the term "relationship" was used infrequently in the interviews occupying as a minor part of participant text or dialogue.

5.8.2 Summary.

The SGCs' quantitative results following the intervention period indicated that there were no significant differences in their perceptions of the school guidance and counselling sense of community and relationships. SGCs' qualitative results were mixed. There were qualitative comments that indicated that they felt more connected to the students, known by students and that they had good relationships with students. Some SGCs commented that digital technologies that encouraged two-way communication between the SGC and the students, and which allowed students to teach and model technology to the SGC, were ways that had improved their relationships with students. However there were some SGCs who questioned whether technologies actually improved relationships with students, but rather "complemented" the relationship.

At post-intervention students' results confirmed there was a significant increase in students' perception that the use of digital technologies had built a stronger school guidance and counselling community. Furthermore there were significant increases in students feeling part of the school guidance and counselling community and having a good relationship between themselves and SGCs.

The students suggested that the use of Facebook, chat rooms, texting, and more emails were other possible ways to further build the school guidance and counselling community and improve their relationships with the SGC.

5.9 Results for Research Question 6

5.9.1 What changes in the school guidance and counselling service result from the enhanced use of digital technologies amongst SGCs and secondary students? (Engeström: Object)

In exploring this research question quantitative data were collected through all surveys and qualitative data were collected through interviews, SGC electronic diaries and research meetings. It was not possible to conduct the Wilcoxon Signed Rank Test measure as the quantitative items for this question appeared only in T2, thus not allowing a comparison of frequencies between pre- and post- intervention. In the post-interview (Item 11) and post-surveys SGCs commented through open-ended questions about observed student changes (Item 26), school changes (Item 27) and school guidance and counselling changes (Item 28) that resulted from the intervention. Students also responded to a question (post-survey, Item 34) about school and guidance counselling changes. SGCs and students were also asked to state changes within themselves (SGC post-survey, Item 28b, Student post-survey Item 39). SGCs and Year 11/12 students were asked whether they felt digital technologies could improve (SGC pre-survey, Item 29, student pre-survey, Item 35) and had improved the school guidance and counselling service (SGC post-survey, Item 29, Student post-survey Item 35). SGCs

and students were also asked on the post- surveys (SGC Item 30b, Student Item 36) to outline specific ways that digital technologies had improved the school guidance and counselling service. In Item 34 of the SGC post-survey, participants were asked to rate on a five-point Likert scales twelve possible digital technologies benefits as a result of using digital technology in the school guidance and counselling service in the past four months. The student post-survey asked (Item 40) participants to rate on a five-point Likert scales 7 possible benefits as a result of using digital technologies in the school guidance and counselling service in the past four months. Finally, students were asked (Item 42) what advice they would give to all Queensland school guidance counsellors regarding the future use of digital technologies with Year 11 and 12 students.

SGCs were asked questions (Yes/No) to predict whether they felt digital technologies could improve the school guidance service (SGC pre-survey, Item 29). One hundred percent of SGCs agreed with this statement. In the post-survey SGCs were asked if digital technology had improved the school guidance and counselling service (SGC post-survey, Item 29). The results indicated that all of the SGCs affirmed this to be the case at post-intervention.

Qualitative data through the post-interview (Item 11) and post-surveys asked SGCs to comment through open-ended questions about observed student changes (Item 26), school changes (Item 27) and school guidance and counselling changes (Item 28) following the intervention. The analysis of the transcriptions by the researcher indicated an emergence of a range of specific themes depicted in the SGC responses: student changes, school changes, school guidance and counselling changes, SGC profile, and self.

1) *Student changes*: SGCs emphasised increased student engagement and student initiated email communication following the intervention. This was demonstrated in comments like:

> "Students became more engaged in the counselling process when using iPads as a support tool for example, CBT 4 Kids" (SGC Part 2, Po S).

"Students are more likely to email questions and requests. Students have been more open to engaging in mindfulness [mental health] activities. Some students are more prepared to engage with online services than one-to-one" (SGC Part 1, Po S).

"They emailed me about all sorts of questions such as careers. One student sent me three links asking me to look at the three courses and what I thought about them. Also I had students sending me emails when they were sick during exam time asking to make arrangements for doing it later. With QTAC I also had quite a few students email me their Education Adjustment and scholarship applications. I haven't had this before. There were even students who I didn't know that I developed email communication with" (SGC Part 4, Po I).

In the post-interview all SGCs agreed that during the school implementation intervention students were more likely to contact the SGC using email.

2) *School changes*:

i) SGC role: The greater understanding of the SGC role by others (students and staff) was highlighted by SGC's through comments such as:

"Students show an improved understanding of the SGC role:- breadth and depth" (SGC Part 4, Po S).

"The school probably sees the role of guidance more clearly" (SGC Part 3, Po S).

ii) School technology processes: One SGC identified during the intervention where school technology processes changed as a result of this study:

"There has been a knock on effect because now the school has set up whole year level email lists for 8s, 9s, 10s, 11s and 12s. They are encouraging staff to communicate through email with their students as well" (SGC Part 1, RM 1).

"Year level email lists have been established for the entire school. Year level coordinators are also engaging in increased email communication with students particularly in the junior school" (SGC Part 1, Po S).

iii) Efficiency: SGCs also emphasised the more efficient and quicker response to school guidance and counselling requirements. Examples of this included:

"There is faster response to concerns; recorded data is easily accessible and consequently, utilised. Teaching staff and students can quickly contact guidance via email, with the response time being faster and more effective" (SGC Part 8, Po S).

"I think my guidance services have been improved with technology as it has helped to … manage information more efficiently and productively" (SGC Part 1, Po S).

"Digital technology is a time efficient, cost effective, and fast medium to interact with our clientele. Our job is to reach them. This medium is out there and everyone is using it. It works and we can utilise it too" (SGC Part 8, Po S).

3) *School guidance and counselling changes*: A range of themes were reported by SGCs in respects to changes in the school guidance and counselling service:

i) Communication: The communication theme was reported by SGCs through responses such as:

"There are more avenues of communicating with students" (SGC Part 6, Po S).

"I think my guidance services have been improved with technology as it has helped to communicate with students…" (SGC Part 1, Po S).

"Emailing students improved communication with students. Information was able to be distributed in a more timely way. As an itinerant guidance officer, I did not have to wait to return to school to be able to pass the information on to students" (SGC Part 5, Po S).

ii) Access and contact: Increased student access of the SGC service and contact with the SGC was reported by SGCs and was demonstrated in comments like:

"It has increased student access to guidance…" (SGC Part 1, Po S).

"Anecdotal information shows more students were willing to access the service of the guidance officer" (SGC Part 2, Po S).

"There has been increased contact by student email and the student notices directing them to the email or this is happening, or that is happening" (SGC Part 1, Po I).

> "I found that it was easier and faster to contact each other, the teachers, and staff" (SGC Part 8, Po I).

Access was also a major concept cluster in the Leximancer analysis of SGC and student interviews (Figure 5.2). The cluster *access* was the second major cluster intersecting with the major cluster *students*. At post-intervention SGCs' text were most closely associated with *students* and *access*. The term "access" was the 10th most used term from a total of 27 terms. The Leximancer analysis suggests that *access* was an important theme particularly for SGCs at post-intervention, indicating that the term "access" was quite prevalent in their interviews.

4) *SGC profile*: The SGC profile was stated by SGC in comments such as:

> "The Guidance Officer profile is recognised - newsletters and notices read and talked about and commented on in the wider community" (SGC Part 8, Po S).

> "Emailing information and links to students on a regular basis has helped raise awareness of guidance services" (SGC Part 5, Po S).

> "Exposure to what SGC's do and how I can help" (SGC Part 5, Po S).

5) *Self*:

> i) Technology confidence: SGCs emphasised they experienced greater confidence in using technology through comments such as:

> "I have more confidence in using technology, actively looking for ways to incorporate technology in my service" (SGC Part 5, Po S).

> "I am more confident with IT overall but then sometimes less confident because I realise what I don't know. I now enjoy using technology more in my private life" (SGC Part 2, Po S).

> ii) Improved digital technology knowledge and skills. This was demonstrated in comments like:

> "I have improved my technological knowledge and skills through access to the PD and additional resources namely an iPad" (SGC Part 4, Po S).

"Technological applications have become automatized, namely, email notifications, email checking, texting ability, blog creation and maintenance" (SGC Part 8, Po S).

iii) Increased use of technology: Greater inclination to use digital technology was highlighted in examples such as:

"I am more inclined to use technology than previously" (SGC Part 7, Po S).

"I am more likely to email students relevant information as it comes in…" (SGC Part 1, Po S).

"Would I be right in saying that you have all used more technology in the past 4 months?" (Interviewer, Po I). All SGCs agreed with this statement.

In the SGC post-survey (Item 34), participants were asked to rate on a five-point Likert scales (*Strongly disagree*=1, 2, 3, 4, 5=*Strongly agree*) 12 possible digital technology benefits as a result of using digital technology in the school guidance and counselling service in the past four months. Table 5.17 outlines the means and standard deviations of each of the statements. Item 34 was only asked in the SGC post-survey, not the pre-survey and therefore it was not possible to make a comparison of T1 and T2 data.

Table 5.17

SGCs' (N=9) Level of Agreement of Possible Digital Technology Benefits

Digital technology benefits in school guidance and counselling	**Number**	**Mean**	**SD**
I am more confident in using digital technologies	9	4.56	0.53
I am more skilled at using digital technologies	9	4.56	0.53
I feel that Year 11/12 students understand more about what the guidance officer does	9	4.11	1.27
I am more enthusiastic about my guidance role	9	4.00	1.50
I believe that Year 11/12 students have more knowledge about careers than previous cohorts	9	3.89	1.27
I have noticed that Year 11/12 students are more willing to see the guidance officer about mental health problems	9	3.78	1.30
I have noticed that Year 11/12 students are more willing to see the guidance officer about personal problems	9	3.78	1.30
I feel more creative in my guidance interventions	9	3.78	0.97
I have noticed an increase in Year 11/12 student self-referrals	9	3.67	1.32
I have stronger relationships with the Year 11/12 students	9	3.67	1.23
I feel that this has resulted in improved academic learning for Year 11/12 students	9	3.44	1.01
I believe that my counselling has improved	9	3.44	0.88

As indicated in Table 5.17, SGCs appeared most likely to agree that: "I am more skilled at using digital technologies" or that "I am more confident in using digital technologies." Both of these statements were evident in SGCs' qualitative statements as evidenced earlier in this research question. SGCs appeared least likely to agree that: "I believe that my counselling has improved" or that "I feel that this has resulted in improved academic learning for Year 11/12 students." More generally SGCs' responses were somewhat positive within the 3 – 5 range on the 5 point range.

Students were asked to rate (Yes/No) a statement in the pre-survey (Item, 35) about whether what the SGC does with students and provides for students would improve through the greater use of digital technologies. Four in five students (81%) agreed with this statement. At post-intervention (post-survey, Item 35), Year 11/12 students were asked whether what the SGC does with students and provides for students did improve through the greater use of digital technologies (Yes/No). Slightly fewer students (73%) agreed that the SGC's increased use of digital technologies had improved what the SGC does with students and provides for students within the school guidance and counselling service.

Students were asked to make statements through the post-interview (Item 11) and post-surveys about what changes that had occurred to themselves (Item 39) and what changes in school guidance and counselling (Item 34) had occurred following the school implementation. The thematic analysis indicated an emergence of four *change* categories 1) receiving information, 2) applying information, 3) increase in emails, and 4) increase in communication.

1) *Receiving information*: Students made comments such as:

> "I have started getting more emails from my guidance officer with a lot more useful information" (Student Po S).
>
> "The guidance officer has changed because we are getting more frequent emails to update us with things that we need to know" (Student Po S).
>
> "It has helped to spread advice to a greater array of students" (Student Po S).

The Leximancer analysis of SGC and student interviews (Figure 5.2) indicated that "information" was not a major concept cluster however it was a term that was linearly linked with *students* the major cluster, indicating that both terms were used in close proximity in chunks of speech. For example, "It could be good for some parents to get the same information so they can talk about the email with the student" (SGC Part 9, Po I). The relevance rating for "information" was ranked at 8%, the 11th most used term

from a total of 27 terms. The term "information" was quite frequently occurring in students' and SGCs' dialogue and talk.

2) *Applying information*: Students made statements such as:

> "I was able to relate some information to my life and it has improved some of my perspectives" (Student, Po S).
>
> "I'm more organised and happier with my future" (Student, Po S).
>
> "I stay a lot calmer and relaxed when it comes to exam time as I just think about the tips provided by the guidance officer" (Student, Po S).

3) *Emails*: The increase in the number of school guidance and counselling emails was noted by students through comments, for example:

> "I have received a greater number of emails" (Student Po S).
>
> "We have been sent more emails around our health and how to take care of ourselves." (Student Po S).
>
> "A lot of the students go on their laptops more frequently to see if they have any helpful emails from the guidance officer" (Student Po S).

4) *Communication*: Students made comments regarding improvements in communication processes such as:

> *"*The communication has become easier" (Student Po S).
>
> "It allows the guidance officer to text or communicate with people easily and many people at once" (Student Po S).
>
> "It has kept the communication stronger instead of coming back and booking appointments" (Student Po S).

Students were asked on the post-surveys (Student Item 36) to outline specific ways that digital technologies had improved the school guidance and counselling service. The thematic analysis of the transcriptions indicated an emergence of four categories.

Somewhat like the "changes" questions discussed above, there was an overlap of common categories (receiving information, applying information, and communication) including an additional category, accessibility.

1) *Accessibility*: Students outlined improved accessibility to the SGC through comments like:

> "More reachable, more information" (Student Po S).
>
> "It is easier to contact them" (Student Po S).
>
> "It has bridged the gap, made it more exciting and interesting for the students. It has made the counsellor more approachable and likable" (Student Po S).

2) *Receiving information*: Students indicated improvements in the quantity and quality of information, location and access to information. Examples of comments included:

> "More information about things that are on offer for us to use" (Student Po S).
>
> "Better knowledge of what we can do in life" (Student Po S).
>
> "Helps me find information" (Student Po S).
>
> "Gives us information at any time rather than having to make an appointment" (Student Po S).

3) *Applying information*: In the surveys, students reported the application of new school guidance and counselling information through comments like:

> "It's like he/she knows what the students are feeling so they send out emails of the issues we go through which help us and therefore we incorporate those steps into our lives to make ourselves better" (Student Po S).
>
> "I have been able to study more efficiently due to the Study Tips websites I was given from the guidance officer" (Student, Po S).

4) *Communication*: Students indicated increased communication with the SGCs. Student comments included:

> "There is more communication and it is easier" (Student Po S).

> "It is a lot easier to communicate as not everyone can go to the guidance officer so they can just send an email" (Student Po S).

> "We hear from her more" (Student Po S).

At post-intervention students were asked to think about their SGC using digital technologies (Post-survey, Item 40) in the last four school months. Students were asked to rate seven statements in terms of the response most like them. Students did so using a five-point Likert scale (*Strongly disagree=1, 2, 3, 4, Strongly agree=5*). The mean student ratings were somewhat negative, as the means were <3 on a 5 point scale. Students rated the highest "I have more knowledge about careers." Students appeared most strongly in agreement about having more knowledge about careers and understanding more about what the SGC does. They appeared least strongly in agreement about having a stronger relationship with the guidance officer. Table 5.18 shows the means and standard deviations of each of the statements.

Table 5.18

Year 11/12 Students' Level of Agreement of Possible Digital Technology Benefits

Digital technology benefits in school guidance and counselling	Number	Mean	SD
I have more knowledge about careers	123	3.05	1.44
I understand more about what the SGC does	123	2.81	1.22
If I had a personal problem I would be more willing now to see the SGC	123	2.74	1.32
I would be more likely to book an appointment with the SGC	123	2.71	1.31
I feel more connected to the SGC	123	2.54	1.17
I feel that my learning at school has improved because of the SGC's use of digital technologies	123	2.48	1.20
I have a stronger relationship with the SGC	123	2.43	1.20

Item 40 was only asked in the student post-survey, not the pre-survey and therefore it was not possible to make a comparison of T1 and T2 data.

The final question (Item 42) of the post-survey asked what advice students would give to all guidance officers in Queensland regarding the use of digital technologies with Year 11 and 12 students. This question focussed on ways that SGCs could use technologies to further impact on their service to students in the future. Students made comments such as:

> "Use YouTube, apps, iPads, mobile phones and chat forums with students" (Student Po S).

> "Use video, skype and more emails" (Student Po S).

> "The Guidance Officer should use student mobile phones more" (Student Po S).

> "Use mobile phones, apps and personal emails" (Student Po S).

"Give students iPads with direct links to Beyond Blue to access. Also, being able to access the guidance officer outside of school hours, such as on a mobile phone or through Facebook" (Student Po S).

"To communicate with them more by emailing the students more information about different careers as well as things that students need to consider about their current lifestyle" (Student Po S).

"Create an Instagram or Facebook page with career choices and the interesting details about it that will encourage more students to seek advice from the guidance officer about their future careers" (Student Po S).

"Make a website with everything they need to tell us about" (Student Po S).

"Have PowerPoint slides showing outside the guidance officer's room" (Student Po S).

"Try to use all forms of devices" (Student Po S).

"The introduction of technology is extremely important to teenagers of today's society. The use of apps and websites, songs and videos should be used to engage the student and relax them however should never become more important than speaking one on one. The ideas of communicating via email or text in non-school times is good for those who may need constant support and encouragement. I think guidance officers should chat with each student as to what uses of technology they enjoy using and work that into their time together" (Student Po S).

"Guidance officers need to understand how students use technologies by themselves" (Student Po S).

"Learn more about the digital devices they are using" (Student Po S).

"Be creative" (Student Po S).

5.9.2 Summary.

Research question 6 investigated changes that occurred as a result of the intervention. All SGCs predicted quantitatively that the enhanced use of digital technologies would improve the school guidance and counselling service and following the intervention all SGCs reported that the intervention had improved the service. SGCs qualitatively reported that as a result of the intervention students were more engaged and overall there were improved communication channels with students. SGCs felt that the SGC profile in the school had been enhanced and students had a greater understanding of the SGC role. Furthermore, SGCs felt there was improved access of the school guidance and counselling service by students and the service was more efficient. SGCs also commented that they had noticed changes within themselves such as greater confidence in using technology, improved technology skills and knowledge, and increased use of technology in their work. Quantitatively, digital technology confidence and skills and student's understanding of the SGC role rated particularly high at the conclusion of the intervention. SGCs reported as a result of the intervention the least beneficial areas were improved academic outcomes for students and improved counselling processes.

The majority of students predicted quantitatively at pre-intervention that the school guidance and counselling service would improve due to the enhanced use of technologies. At post-intervention almost three quarters of students agreed that technologies had actually improved the school guidance and counselling service. Student qualitative data indicated changes as a result of the intervention. They had received more information from SGCs and they were applying this information. Students also reported that communication processes had improved with the SGC, particularly through emails. Finally, students felt that the research had led to improved access of the SGC. Quantitatively, students highlighted that increased knowledge of careers and understanding more about the SGC role as some of the greatest benefits from the intervention.

Although students outlined benefits of the intervention they felt that there was room for even more advances in the use of digital technologies by SGCs. They recommended to

all SGCs in Queensland of the need to understand their students' use of technology, learn more about the digital devices students are using and use a variety of digital technologies particularly mobile phones, iPads and social networking.

The following chapter will discuss the results of the study.

Chapter 6.

Discussion

6.1 Introduction

The aim of this study was to implement a School Guidance Counsellor (SGC) professional development program and a school implementation program based on enhancing the use of digital technology in the school guidance and counselling service and assessing the changes that might occur. The concern was that while digital technologies continue to increase considerably in work, home and recreational environments, SGCs are in danger of failing to keep up with their student clients in the use of digital technologies. The ramification for SGCs could likely result in them becoming increasingly disconnected from students. Despite the SGC participants being relatively recently trained it would have been expected that they would have received considerable pre-service training in the use of digital technologies, however personal communications and the researcher's experience within the profession indicated that this was not the case. The researcher's hypothesis was that an intervention program to enhance the use of technologies by SGC's would enact changes to the school guidance and counselling service.

Activity Theory was used as the conceptual and methodological framework in the research design to investigate the six research questions. The researcher believed that Activity Theory provided the best approach to prove or disprove the hypothesis that the enhanced use of digital technologies by SGC's would positively impact on the school guidance counselling service.

This chapter will discuss the results of the four-month school intervention program.

6.2 The Impact of the Digital Technologies in School Guidance and Counselling Research Project

6.2.1 Research question 1: What digital technology devices are SGCs and secondary students using a) <u>at school</u>, and b) <u>away</u> from school that involved the school guidance and counselling service? (Engeström: Mediating Tools)

At post-intervention there was a significant increase in SGCs using mobile phones *at school* to provide school guidance and counselling services. Qualitative data indicated that SGCs used mobile phones for communication, access of information and recording information. Some activities included; telephoning and texting students, parents and colleagues; accessing the web; and using the camera to take photographs. The significant increase in SGCs using mobile phones at school may be due to their increased confidence with using technologies as a result of the professional development activities. The significant increase may have also resulted as SGCs realised that other SGCs had used the school mobile phone to phone and text parents, professionals and colleagues thus encouraging them to use it in their own circumstances.

As indicated in the qualitative data, SGCs were predominantly using their own personal mobiles for school guidance and counselling whilst school mobile phones were used less frequently. The literature has also recommended that SGCs use mobile phones in their work (Barnes, 2008; Harris-Bowlsbey, 2013). The importance of mobile phones in school guidance and counselling was also emphasised by the *ICT Skills 2: ICT and Training for E-Guidance Practitioner Project* (Cogoi et al., 2009) that developed training modules for SGCs that incorporated the use of mobile phones. Furthermore Rainey et al. (2008) stressed that their clients were becoming more sophisticated in their use of technology such as mobile phones and SGCs needed to keep current with them. This is also supported by Albion et al. (2011) who endorsed the need for teacher preparation programs to introduce new ICTs that are likely to be increasingly used by students.

Student surveys and interview qualitative data indicated the importance of mobile phones to students. The students indicated that the mobile phone was their second most favourite device. The importance of mobile phones to adolescents is emphasised by Campbell and Glasheen (2009) who reported that young people treat the mobile telephone as an essential necessity of life indicating that mobile phones are meeting specific needs of adolescents.

Despite students' high affinity for owning a mobile phone (Australian Bureau of Statistics, 2011a) the quantitative results did not indicate significant differences in students using mobile phones for school guidance and counselling activity during the study. This student result is most likely due to many schools having mobile phone policies that restrict or ban student mobile phone use at school resulting in the students continued use of familiar digital devices that they used at pre-intervention.

At post-intervention the student survey results indicated that there was a significant decrease by students in the level of use of data projector that involved the school guidance and counselling at school. This result is somewhat confusing as the qualitative comments from students concerning data projectors pertained to SGCs' using data projectors in their presentations to students. Perhaps students felt that being present at the data projector presentation was also indicating use on their behalf.

Generally the deficiency of significant increases in the use of fourteen digital devices is not surprising given that students were not targeted with a training program or technology support. The target group of the professional development and the study was SGCs' enhanced use of digital devices. Given that SGCs had also been involved in the information sessions, digital technology professional development, SGC and principal meetings and research meetings, it was not surprising that at post-intervention, SGCs were speaking more about digital technology than were students. Furthermore unlike school guidance counsellors, students were not supplied with iPads for this study. Additionally the use of mobile phones by students particularly for receiving texts from

the school guidance counsellor was solely reliant upon their parents forwarding the texts. Perhaps there were limited numbers of parents who undertook this task.

During the course of the study SGCs' digital technology needs changed in terms of their use of digital technology devices and software. The qualitative results of the study indicated that at the pre-intervention stage SGCs were focussing on the digital technologies tools more from a mechanical perspective; learning about the devices and software; how to use them; what sequence of steps to follow; and what the devices could do. When the school implementation concluded, the post-intervention qualitative data indicated that there was a positive shift as SGCs' confidence, knowledge and competencies improved with the use and access of the devices and software (mediating tools). From an Activity Theory perspective SGCs' technology knowledge and learning were indicating early signs of a developmental shift from external to internal, from the mechanical to automatic. This developmental shift highlights the fourth principle of Activity Theory that knowledge is developmental at both the societal and individual level and learning proceeds from the external to the internal (Cole, 1999; Gordon, 2006; Kaptelinin, 1996; Kuutti, 1991; Larkin, 2010; Wertsch, 1981).

At post-intervention it was apparent that SGCs were concerned with their *access* to digital technologies. SGCs had become more reliant on the use and access of digital technology in their role. This occurred in a variety of ways including access to 1) particular devices and software (mediating tools), 2) information, 3) ways to secure confidential data, and 4) ways to communicate with students. At post-intervention it was clear from the research meetings, interview and survey that SGCs were most concerned when technology tools were unable to be fully accessed either by them or students. The SGCs' concerns for *access* were noted in examples such as Wi-Fi access, blocked websites, students not accessing emails and future changes in student access of digital devices. These concerns highlighted Activity Theory's tensions and contradictions (Sweeney, 2010) where the SGC's expectations of the technology tools and the object of the activity were stifled by external barriers.

6.2.2 Research question 2: In what ways and how often are SGCs and secondary students using digital technologies that involved school guidance and counselling. (Engeström: Mediating Tools)

The results for this research question revealed the use of apps by SGCs increased significantly during the intervention. This is not surprising in that SGCs were each provided with an iPad and professional development in how to use and download apps. The use of apps was the only SGC significant difference in the frequency of use of the nine digital technologies investigated. This could possibly be understood from the perspective of SGCs' perceptions of technologies. Perhaps the SGCs as a collective group may continue to be cautious and wary of technology. Within the literature some authors have claimed that personality types who are attracted to school guidance and counselling are wary of technology (Myrick & Sabella, 1995). Sabella (2003) highlighted that some SGCs see computer technology as an evil force. Australian researchers Glasheen and Campbell (2009) also commented that many school guidance counsellors were reluctant to fully engage with new technology.

A further explanation could involve SGCs attitudes to specific technologies such as OneSchool. Many of the SGCs' identified particular concerns, feeling that some components of digital technology had added pressures to their role particularly the recording of student information and intervention data on OneSchool. SGCs stressed that the recording of data on OneSchool had added additional work to their working day. Ruttiman's (2015) survey of DET personnel in Queensland identified that the administrative processes and the record-keeping demands of OneSchool was a significant concern for union members in terms of wasting time and being a burden for professionals. The OneSchool concerns may have led to some negative SGC attitudes. This is consistent with Hayden et al. (2008) research which concluded that school guidance counsellor attitude is the second most concerning drawback in the proliferation of computer use amongst this profession. Furthermore, Glasheen (2014) also stressed that one of the reasons resulting in SGCs being hesitant in undertaking online counselling with students was due to their demanding workload.

A third possible influencing factor was the timing of the completion of pre-service SGC training courses. Two-thirds of the SGC participants completed their preparation course more than 10 years ago. Rainey et al. (2008) identified that school guidance counsellor preparation courses also influenced SGC use of technology. These authors determined that some SGCs could be less comfortable using technology compared to those who had more recently received training in the use of technology in their preparation course. Kurantz (2002) also emphasised that technology is intimidating for SGCs who have not received preparation in the use of technology in their work. The importance of including technology in SGC preparation programs has been highlighted in the literature (Carlson et al., 2006; Glasheen & Campbell, 2009; Glasheen et al., 2013; Grosshandler, 2012; Hayden et al., 2010; Hayes, 2008; Holcomb-McCoy, 2005; Rockinson-Szapkiw et al., 2013; Roddy, 2013; Vinluan, 2011). The literature indicates that there are inconsistencies in the level of technology training that is occurring in SGC pre-service education programs from integrated technology competencies in undergraduate counselling courses (Yusop et al., 2008), to the provision of elective technology subjects. Each of the SGC participants in the researcher's study received a master's degree in Guidance and Counselling from a Queensland university. At this stage none of these institutions has technology subjects that are mandated.

The frequency in the use of apps by SGCs increased significantly across the duration of the study. SGCs accessed apps through iPads as a wireless device in order to target technologies that were being currently used and accessed by students. The downloading of apps by Australian teenagers is increasing considerably (Raco, 2014). Pierce (2012b) also recognised the proliferation in the use of apps by schools. The importance of SGCs becoming more sophisticated in the use of various forms of technology such as wireless devices was stressed by Rainey et al. (2008). Furthermore, Bright (2015) emphasised the use of apps with adolescents as a more usable interface. The significant increase in the use of apps is not surprising given that all SGCs were provided with iPads to access apps. They were also provided with professional development that supported their learning and use of this mediating tool. It appears that through these processes the SGCs were able to increase their confidence, efficiency and effectiveness in using apps. SGCs

became more comfortable with iPads and apps. This relates favourably with Rainey et al. (2008) research which found that SGCs' perceived competence increased with the more experience that SGCs had with a specific aspect of technology. This supports Paisley and McMahon's (2001) earlier conclusions that increased efficiency and effectiveness would only occur for those school counsellors who are comfortable with its use.

Conversely, the results of this research question indicated that students recorded significant increases in the frequency of use of 8 digital technologies. In the main, students appeared to be prepared to engage in the majority of digital technologies used by SGCs. This may possibly be understood from the perspective that at pre-intervention the frequency of use of digital technologies by SGCs was minimal. During the school implementation there was a sudden increase in the use and variety of digital technologies used by SGCs which captured the student interest and increased communication and relationships with the SGCs. This in turn may have resulted in more significant changes in the frequency of use of digital technologies by students. Furthermore, the desire of young people to take up new technology mediums is consistent with Haxell's (2015) study where adolescents positively used a new medium (SMS texting) to access support through Youthline in New Zealand.

A further outcome of this research was the significant increase in the frequency of use of emails and websites by students. A Leximancer analysis (Figure 5.4) of student pre- and post- surveys also identified the major concept clusters of *website*s and *emails*. These results correspond with Raco's (2014) findings that 90% of Australian adolescents have internet access at home. Furthermore, in 2010/11 emails continued to be used by 78% of 15-17 year olds (Australian Bureau of Statistics, 2011). The overall frequency of websites and emails use by students may also reflect that these activities are frequently used by SGCs. Fernandez et al (2009) and Grosshandler (2012) found that SGCs frequently used the Internet and email in their work. Furthermore SGCs in the researcher's study continued to build on the use of digital technologies and were more confident and familiar with what they had been using in their role prior to the

intervention. This hypothesis is congruent with Rainey et al. (2008) findings regarding the specific use of a technology and Roddy's (2013) comprehensive conclusions regarding SGCs' comfortableness with a specific technology. Furthermore, this corresponds with Carlson et al. (2006) who determined that a SGC's exposure and experience with specific technologies may increase their usage.

It was interesting that students' frequency of receiving messages from the SGCs did not increase significantly. This research was reliant upon parents forwarding the SGC's iDAttend texts to their son or daughter's mobile phone. If a parent chose not to forward the text consequently it would not be received by the student. Possibly the results are indicative that only a moderate number of parents complied with this request. Or perhaps text messages are such a part of adolescents' life that they did not remember the texts from SGCs.

6.2.3 Research question 3: How does an enhanced use of digital technologies affect SGCs' and secondary students' perception of school rules relating to the use of digital technologies? (Engeström: Rules)

It is apparent that the SGC role in schools is considerably different from a class teacher's. The role is different in that it is regarded as unique (Hayden et al., 2008) and focusses on the support of students in the academic, personal/social and career domains (American School Counselor Association, 2016; Department of Education Training and Employment Queensland, 2012; Paisley & McMahon, 2001) including emotional, behavioural, mental health and crisis intervention support (Department of Education Training & Employment Queensland, 2014). Although the role is different from a class teacher's, technology rules in schools remain the same for both teachers and SGCs.

The DET technology rules are the same for all teaching personnel. It is the researcher's observations that SGCs are treated as teachers in reference to technology rules when they are in fact counsellors and consultants, working privately and closely with a more diverse range of students, personnel and families. This is particularly evident in supporting students with social/ personal needs; SGCs are required to communicate very

closely with students. There appears to be a need for some different technology rules for SGCs, for example, SGCs being given permission to text and phone student mobile phones directly when appropriate, such as in times of personal crises. It was identified in this study that the students' second favourite device was the mobile phone and this is indicated in the take up of phones by Australian adolescents (Australian Bureau of Statistics, 2011a; Glasheen & Campbell, 2009; Raco, 2014). Furthermore, perhaps DET could provide each SGC the option of whether they would like a DET provided mobile phone. This also corresponds with Hayden, et al. (2008) who concluded that SGCs should be given the same technology that students are using.

If SGCs were given permission to email students' personal accounts and SGCs chose to use DET provided mobile phones, there is a very low risk of student protection issues as SGCs work frequently with student protection and confidentiality in their role (Department of Education Training & Employment Queensland, 2014). SGCs are often accessed by school administration when they need advice regarding student protection and confidentiality concerns. Furthermore, there is a DET central register that records every email made within the system. There are also processes to access text and phone registrations that school personnel make on DET devices. It could be contended that technology rules greatly affect the contact, communication and the relationships between SGCs and students. The importance of rules is also emphasised by Kaptelinin and Nardi (2006) who advocate that in Activity Theory, rules facilitate, build and change relationships between people.

Another teacher rule identified by SGCs that causes them difficulties is that DET will allow the installation of 3G or 4G on only one device per eligible employee (SGCs are part of this group). Perhaps this decision is related to cost. All of the SGCs have chosen to place 3G on their laptops, not their iPad. This presented difficulties for a number of SGCs as they experienced Wi-Fi connection problems in schools when using their iPad. This rendered the use of iPads in some schools as non-usable in the SGC's office causing frustration and tension. Some of the SGCs' solution was to move to another part of the school with better Wi-Fi connection. This is an example highlighted by

Activity Theory that when tension and contradictions occur it is the mechanism for development in the activity system (Sweeney, 2010) and is likely to result in change in that activity. This difficulty is consistent with research by Barnes (2008) who identified in the Connexions program in the United Kingdom that there was a lack of realistic budgets to integrate technology. Anderson (2002) and Paisley and McMahon (2001) confirmed that technology is expensive. Masagca and Londerio (2008) also concluded that the uptake of ICT for school counsellors was very much related to economic aspects, costs, and the issue of commercialism.

The SGC group identified employer policies that are likely to be a barrier to the school guidance and counselling service. The federal government provided funding for schools that enabled the bulk purchase of information technology devices (tools) for students, for example laptops, tablets and iPads. A change of government has resulted in the funding being greatly reduced forcing schools to rethink how technology devices will be provided to students. A number of the participating schools in this study are utilising a policy of "Bring Your Own Device" (laptops, tablets and iPads only) or a leasing approach in 2016. The difficulty with both of these approaches is that it is likely to place the cost on parents and guardians which may lead to some students not having technology devices or not the optimum device for the school context. A major concern in this regional area is that families are financially challenged (Queensland Government Statistician's Office Queensland Treasury, 2015) and there is high adult unemployment (Australian Government Department of Employment, 2015). The likely impact on the school guidance and counselling service is that it may restrict the SGC from connecting with and forming relationships with all students through the use of technology. Furthermore the use of "Bring Your Own Device" is likely to present difficulties with software compatibility given the large range of android devices.

The theme of *blocked website* was apparent in both student and SGC data. Both groups highlighted how there were some websites blocked by DET that have the potential to assist students' research, learning and well-being. Studies have indicated that websites (Internet) are frequently used by SGCs (Fernandez et al., 2009; Grosshandler, 2012).

Similarly the high usage of the Internet by adolescents has been outlined earlier. It appeared that both groups of participants seemed frustrated and confused as to why some websites were blocked and others not. Again this highlights Activity Theory's tensions and contradictions. SGCs are likely to benefit from further professional development in this area as there is the facility through DET (2015) to request a website to be unblocked provided a case can be made that the website is of value to students.

There were instances during the study where SGCs disclosed that they had breached some technology rules such as directly texting or phoning students' mobile phones or emailing students' non-school email address. These are examples of *contradictions,* (Engeström, 2001), a term used in Activity Theory to explain inconsistencies and discrepancies in the implementation in activity. When contradictions of rule implementation occur this can result in tensions as rules become "blurred." In these instances it appears that SGCs have made conscious decisions to "bend" the rules as this was deemed the most practical and efficient means to meet the students' needs at that time. The resulting SGCs' resolutions are another example of how tensions and contradictions can lead to change within an activity (Sweeney, 2010) and principle four of Activity Theory which states that human goals and motives direct all activity and activity systems (Cole, 1999; Gordon, 2006; Kaptelinin, 1996; Kuutti, 1991; Larkin & Finger, 2010; Wertsch, 1981).

6.2.4 Research question 4: How do secondary students' and SGCs' technological duties and responsibilities change through the use of enhanced digital technologies in the school guidance and counselling context? ((Engeström: Division of Labour)

Research question 4 focussed on Activity Theory's division of labour which defines the tasks and responsibilities of the subjects engaged in an activity (Ball Anthony, 2012). In this study this was referred to as "digital duties and responsibilities." Following the school implementation SGCs reported significant increases in five of the nine technological duties and responsibilities whilst students' results demonstrated that three technological duties and responsibilities had significantly increased. Interestingly when

SGCs were asked at post-intervention (binary Yes/No) whether their duties and responsibilities had changed just over half of them responded that they had changed. This result is contrary to the five significant increases in technological duties and responsibilities in response to SGC survey Item 18 and the qualitative data indicating changes in digital duties and responsibilities. Perhaps the differences in results can be understood from the perspective that the more specific statements in Item 18 have helped the SGCs target their thinking as opposed to the more general nature of Item 20.

Both SGCs and student data indicated significant increases of technological duties and responsibilities in the use of the School Guidance and Counselling web page on the school website. The finding indicates that the SGC intervention and school implementation intervention were successful in increasing SGCs' work with web page development and students' access of their school's website. The literature (Reynolds & Kitchens, 2007; Van Horn & Myrick, 2001) has indicated the importance of school websites in promoting school guidance and counselling. Holcomb-McCoy's (2005) findings indicated that SGCs' use of web page development tended to be quite restricted and limited.

The "email" concept was a common theme throughout this study. Student survey data revealed that there was a significant increase in agreement in their responsibilities and duties to check their school inbox for SGC emails. A number of SGCs reported that there was a noticeable increase in students emailing them as a result of the intervention. Through the school intervention, SGCs had increased their sending of emails to students and students had significantly increased their responsibilities and duties of checking their school inbox for school guidance and counselling emails.

Previous research indicates that SGCs use email in their job (Carlson et al., 2006; Sabella, 2003) and are highly comfortable in using email (Carlson et al., 2006). Sabella's recommendation for SGCs to use emails was well supported by the literature. Although the study by Carlson et al. used an instrument that had not been extensively validity tested, the study was large (381 SGCs) with a relatively moderate 43% return.

In the researcher's current study some SGCs reported that responding to student emails had added additional duties and responsibilities to their role. Some of these SGCs appeared particularly concerned that digital technologies such as emails to students could add pressures to their job, namely that large numbers of students would have access to their email address. These SGCs were concerned that students having their email address could possibly result in more students emailing them, resulting in increased workload for the SGC. Additionally, SGCs were concerned that if students at risk emailed them out of school times the SGC may miss the email or find the email when it was too late, possibly resulting in student injury. Reticence about the usefulness of emailing students is noted in a study by Beidoğlu et al. (2015) who revealed that SGCs reported that it was "Somewhat useful" to have an email exchange with students. This study was a smaller study (61 SGCs) and focussed on SGCs' opinions not their actual behaviours. Contrary to previous research the current researcher's intervention had led to increased SGC emailing to students whereas findings from Holcomb-McCoy (2005) found that school guidance counsellors infrequently used email to contact students. Holcomb-McCoy's study involved 222 SGCs and measured their actual technology behaviours, not opinions. However Holcomb-McCoy's study used an instrument called the Technology Competencies Scale of which reliability and validity were unknown. The SGCs' responsibility and duty of using email is reflected in Fernandez et al. (2009) whose research indicated that SGCs use of emails for administrative tasks was one of the most predominant uses of technology by SGCs.

Qualitatively SGCs outlined technological duties and responsibilities that had helped the school guidance and counselling service. The qualitative data indicated that SGCs' technological responsibilities and duties had improved efficiency of their work, expediency and productivity of their service as well as access to information by clients. These themes are reinforced in the literature. Researchers have highlighted the use of technology by SGCs in order to manage large student numbers (Hayden et al., 2008; Jellins, 2015; Sabella & Booker, 2003). Hayden et al. (2010) cited that the competent use of technologies by SGCs would result in more effective and efficient personnel. Jellins (2015) and Sobrado et al. (2010) claimed that technology would lead to increased

productivity. Finally a number of authors (Flood & Pelling, 2008; Patrick & Flanagan, 2008; Pyle, 1984; Sabella & Booker, 2003; Yonan et al., 2011) have stressed that the use of technology leads to greater access of information by clients.

SGCs outlined duties and responsibilities involving technology that had constrained the school guidance and counselling service through increased emails, extended working hours and increased workload outside of work hours. This corresponds with Barnes (2008) who cited concerns of increased workloads in the *ICT Skills 2 Project* in the United Kingdom, indicating a possible increase in activity for professionals rather than a decrease. Both the researcher's study and Barnes highlight that there are also challenges in using technology in the SGC role. Furthermore as discussed in the literature review the requirements of OneSchool (which was not part of this study's intervention) was highlighted qualitatively as a technological duty and responsibility that had greatly increased SGCs' workload. This is consistent with the findings from Ruttiman (2015, p. 10) who found from his large study that participants saw the recording of data on OneSchool as being one of the "biggest wasters of time" for DET personnel.

6.2.5 Research question 5: What changes occur in the secondary students' and SGCs' sense of community and relationships with one another from the enhanced use of digital technologies in the school guidance and counselling context? (Engeström: Community)

The results of this question at post-intervention indicated that the sense of school guidance and counselling community and relationships had significantly increased for students. This is a positive finding that corresponds with Cogoi et al. (2009) who advocated the need for guidance practitioners to acquire specific ICT-based competencies to improve their relationship with their clients. Other researchers such as Sobrado et al. (2010) also advocate the importance of technologies such as the Internet to help establish relationships (2010).

The positive results of the students' sense of community and relationships may be explained by changes in how SGCs were undertaking their role. Through the

intervention SGCs were having more technological contact with students, resulting in more communication. Unlike teaching personnel, SGCs do not routinely see students in a designated class either daily or a number of times per week. The student ratio to SGC is very high (Hayden et al., 2008; Paisley & McMahon, 2001) compared to teachers. The SGC role is significantly different to other staff in the school. Students generally make their own determination as to whether they see the SGC. Exceptions to this include whole year level assemblies, critical safety concerns or specific whole class lessons, such as career lessons. SGCs' face-to-face involvement with a student tends to be short-term and infrequent limiting connection and relationships with students. It is possible that a student may complete all of his/her secondary schooling with only one face-to-face meeting with the SGC.

Increased communication during the school implementation has helped improve the sense of community and relationships. This aligns with Hayden et al. (2010) findings which highlighted that technology is the most efficient means of communicating with students, parents and colleagues. The importance of technology in assisting communication has been highlighted for over two decades in the literature. An earlier study by Sabella (1996) emphasised the need for SGCs to take advantage of rapid communication and networking with individuals and groups.

It appears that technology has the capacity to reach large numbers of students quickly and efficiently enabling the development of relationships between students and the SGC. The study's data indicates that technology has the capacity to develop relationships and connections with large numbers of students who may never visit the SGC office. Communication and contact between SGCs and students had increased along with students' perception of relationships and sense of community. In some ways this study has challenged the notion that technology is dehumanising (Bright, 2015). Technology can work alongside face-to-face communication with students complementing the school guidance and counselling service.

One SGC contended that relationships with Year 12 students naturally increase as the SGC spends more time and contact with them regarding career choices and increased relationships were not a result of the use of technologies. Career planning in Year 12 is an annual process in the SGC's role. It is understandable that more direct contact with students is likely to impact relationships, either positively or negatively. It is difficult to further determine to what extent the SGCs' perception of improved relationships with the study's Year 12 students was the result of the study's intervention and how much was attributable to the increased interaction between Year 12 students in the career planning process. Furthermore, it is more complex given that the Year 12 representation in this study consisted of 43% of all student participants. In order to resolve this question the instruments of this study would require modification and a more diverse age range of students would need to be studied.

There were limited qualitative data from students regarding their relationship with the SGC. At post-intervention, some students reported that they did not have a relationship with the SGC. It is possible that these students may not have accessed the technologies that the SGCs used or did not fully understand the term "relationship" possibly thinking that this referred to a "personal" relationship.

Another SGC stressed the importance of face-to-face contact with students in developing relationships. This study focussed purely upon the impact of enhancing digital technologies use in the school guidance counselling service and has not researched either an increase or decrease of face-to-face SGC intervention. This would effectively be a separate study. However this comment does reflect the importance face-to-face interaction and intervention with clients that the school guidance and counselling profession continue to profess. The importance of face-to-face interactions by SGCs and within their role had been noted by Glasheen et al. (2010), Barnes (2008) and Cogoi et al. (2009).

The results of this research question also highlight principle one of Activity Theory that activity is socially mediated (Cole, 1999; Gordon, 2006; Kaptelinin, 1996; Kuutti, 1991;

Wertsch, 1981). The increased communication between SGCs and students appeared to generate relationships and increased interaction between SGCs and students. The mediating tools outlined in the study have acted as platforms within the intervention activities leading to increased communication and relationships between the participants in the social context of the school.

6.2.6 Research question 6: What changes in the school guidance and counselling service result from the enhanced use of digital technologies amongst SGCs and secondary students? (Engeström: Object)

This research question refers to the object of study, namely the changes to the school guidance and counselling service following the intervention. This is directly related to principle three of Activity Theory - Human goals and motives direct all activity/activity systems (Cole, 1999; Gordon, 2006; Kuutti, 1991; Larkin, 2010; Wertsch, 1981). All items for this research question were collected at T2 only and thus it was not possible to conduct analyses using Wilcoxon's Related Samples Tests.

Following the intervention period all SGCs agreed that the school guidance and counselling service had improved and approximately three quarters of students surveyed also agreed. This finding also aligns with the literature by Carlson et al. (2006), Sears and Granello (2002) and Kurantz (2002) who stated that the use of technology would improve SGCs' program and delivery of services.

Another outcome of the research at post-intervention found that SGCs strongly agreed that they were more confident and skilled in using digital technologies. This result is similar to the research results of Rainey et al. (2008) who found from their large study (640 SGCs) that SGCs' perceived competence increases with the more experience that SGCs had with a specific aspect of technology. An even larger study, *The Computers for Teachers* (Department of Education Training & Employment, 2006) project concluded that there was improved confidence in participants' use of technology through professional development and provision of computers to participants. In the researcher's

current study the results also reinforced that SGCs used more technology in their work resulting in increased perceived confidence, competence and skill development.

At post-intervention, SGCs highly agreed that they felt that students understood more about the SGC role. The SGCs' result corresponds with Sabella and Booker (2003) who advocated that technology could help others understand the SGC role. At post-intervention students indicated a slightly negative ratings (2-3 on the Likert scales 1-5) in agreement to feeling they had a better understanding of the SGC role. Perhaps this may have resulted from students' inconsistent checking of SGC emails, the inability of four schools to build the School Guidance and Counselling page on the school website and the limited up-take of the blog by students.

Both students and SGCs agreed that the use of technology had resulted in students having more knowledge about careers. This aligns with a long history of using technology in careers within school guidance and counselling (Bright, 2015; Hambley & Magnusson, 2001; Haring-Hidore, 1984; Harris-Bowlsbey, 2013; Harris-Bowlsbey & Sampson, 2005; Hayden et al., 2008; Kivilghan et al., 1994; Pyle, 1984). Hayden et al. (2008) have noted that SGCs' most extensive use of computers has been in the area of career development. Furthermore the increase in students' knowledge about careers is not surprising given that career development is a core domain of the SGC role internationally (American School Counselor Association, 2016; Department of Education Training & Employment Queensland, 2014).

Students as clients of the guidance and counselling service are crucial providers of data that can help guide the future use of technologies in school guidance and counselling. The student participants of this study recommended that the SGCs in Queensland could continue to learn more about digital technologies, particularly understanding students' use of technology and the need to use a variety of digital technologies with students. Some students highlighted the need to access students' mobile phones, use iPads and tap into social networking.

6.3 Summary

Initially SGCs appeared apprehensive and anxious in attending the face-to-face professional development, however whilst being guided and supported in their learning these emotions appeared to be replaced by confidence, enthusiasm and curiosity. Organised SGC technology professional development, collaboration and planned follow-up for an entire district SGC staff appears to be an effective way of encouraging change for all SGCs especially those who may be reticent or are opposed to online professional development mediums. The data indicates that SGCs appeared to increase their confidence, competence and efficiency with technologies learnt during the SGC professional development. The use of these technologies by SGCs appeared to increase communication with students that in turn enhanced the SGC – student relationship and sense of school guidance and counselling community. Furthermore the use of technologies by SGCs appears to be a potentially effective and efficient means of establishing the foundations for relationships with the whole student cohort. Given that SGCs do not have regular classes, technology can help form a relationship with all students in all year levels relatively quickly. However, even though SGCs increased their use of digital technologies there was some data that indicates apprehension and caution by some of the SGCs to fully commit and engage the use of technologies in the school guidance and counselling role. This is possibly due to a number of factors 1) the increased use of technologies may lead to SGCs missing a "call for help" from a student at risk, 2) the increased use of technologies may lead to increased work for the SGCs who are already working a complex role with demanding workloads and high student ratios, and 3) technologies are 'blurring' the 'work' and 'home' boundaries adding to SGCs' workload which in turn could place mental health pressures on SGCs.

It appears that students would benefit from SGCs being able to access students through the use of software and devices students are currently using for example, apps, texting and mobile phones, when appropriate. The use of apps in school guidance and counselling offers new opportunities in supporting students and this provides opportunities for further research. The use of directly texting students presents

opportunities and challenges for SGCs and requires further investigation. Some SGCs are using their own personal mobile phones more in their role. Perhaps DET could provide a DET mobile phone designated solely to school guidance and counselling and each SGC could make their own personal and professional choice as to whether they use the mobile phone and to what extent. Given the SGC workload and complexity and sensitivity of the role, the introduction of new technologies into the SGC role needs to be carefully considered to ensure that technologies are supporting students and assisting SGCs in their service delivery. It is particularly clear that SGCs need to be supported and guided through more regular professional development about digital technology and its integration in their role.

The final chapter will present conclusions for this thesis including how the study relates to school guidance and counselling, how the study has contributed to the literature, practical recommendations and the possibilities for future research.

Chapter 7.
Conclusion

7.1 Preamble

Chapter 7 is the final chapter of this thesis and will draw together significant concluding elements of the research as it relates to the education field and the school guidance and counselling profession. The elements that will be discussed include identifying that the aims of the study have been achieved, the study's contribution to literature and research communities, practical recommendations that could be applied to the school guidance and counselling field, research design improvements that could be made to this study and how this study could be the platform for future research studies.

7.2 Examination of the Aims

The purpose of this study was to design and implement a School Guidance and Counselling (SGC) professional development program and a school implementation program based on enhancing the use of digital technology in the school guidance and counselling service and assessing changes that might occur. As part of the aims, the study focussed on increasing SGCs' confidence, competence, understanding and efficiency in using digital technology through the use of digital devices and software. The study also aimed to reduce the gap between SGCs and students' use of technology.

The results of this study have been detailed in Chapter 5 which has outlined the outcomes of the research. The results have indicated that there have been changes in all six elements of Activity Theory within the school guidance and counselling service. In light of the study's results, the aims of this research have been achieved. The professional development program positively assisted SGCs to develop confidence,

competence and knowledge in using a range of digital technology devices and software. The school implementation provided SGCs with meaningful and practical ways to apply these technology skills in their service to students. The study increased the SGCs' use of digital technologies in their role. Students have engaged in the school implementation with the majority reporting that the use of digital technologies had improved the school guidance and counselling service.

7.3 Contribution to Knowledge/Theory

The design and form of the SGC professional development program was instrumental to the success of the program. A significant number of the dimensions that changed were directly attributable to the SGC professional development program. This program guided and influenced the planning and implementation of the school implementation program. Furthermore, the ongoing support to SGCs that was provided throughout the professional development program and the school implementation was crucial to the success of the study.

The benefits of implementing this study incorporating the SGC professional development program and school implementation program can be summarised as follows:

- SGCs expanded their knowledge of digital technologies.
- Increased SGCs' competencies in the use of digital technologies.
- SGCs became more proficient and efficient in the use of technologies.
- Increased SGC's confidence in using technologies.
- Students were exposed to a greater range of school guidance and counselling knowledge and information.

- Enhanced the communication between SGCs and students, and
- Improved relationships between the students and their SGC.

This study was an original custom designed intervention project that set about meeting a local district's need. This study has implications for state, national and international systems. The professional development program and school implementation program formed a foundation to increase SGC's competencies with, and dispositions towards using digital technologies in the service. This program helped facilitate change in students' knowledge, understanding and application in careers and mental health.

The innovative use of SMS texting by SGCs to students via their parents' mobiles added a new approach to SGC to student communication, and to the literature. A review of the literature was unable to find any Australian literature references relating to the use of student SMS texts in schools at a regional, state, national or international level. The researcher analysed the Department of Education and Training (DET) technology rules concerning texts to students and designed a solution that complied with both DET and the study's ethics applications. Texting students through their parents was a means to further enhance student knowledge and communication, but such activity was constrained by system rules

The building of a Guidance website has commenced as a result of the study's intervention activities and this has implications for DET school guidance and counselling. At post-intervention the researcher has negotiated with DET web services to establish a stand- alone Guidance website that all six local secondary schools could access. After consulting the Queensland school guidance and counselling discussion group, it was noted that this is the first time that a specific school guidance and counselling website has been constructed in the DET system. The establishment of this website has the potential to be adopted by other SGCs and senior guidance counsellors in other regions of the state. School guidance and counselling personnel would then be able to develop, manage and monitor school guidance and counselling information from one central website.

As part of the study's methodology, a range of uniquely designed data collection instruments (surveys, interviews and diaries) have been used in this study. The formation of these instruments was guided by the theoretical foundations of Activity Theory. These instruments could be adapted for future studies that involve technology, school personnel and students.

Similarly, a range of custom designed intervention activities were developed for the research. The planning framework (Data Management, Communication and Collaboration, World Wide Web, Operating Systems, Website Development and Ethics) for each of the nine school implementation activities were guided by the practical and theoretical experience of highly regarded school guidance and counselling technology researchers Sabella, Poynton and Isaacs (2010). The intervention activities and the process for their development could be adapted for use in future studies.

This project is the first study to apply Activity Theory methodology to a school guidance and counselling professional development intervention program using technology as a mediating tool. The researcher was unable to find in the literature review any reference to Activity Theory being used in school guidance and counselling or in SGC technology professional development programs applied in school contexts. The study has added insights about the use of Activity Theory across a broader range of disciplines – now including that of school guidance counselling.

The literature review has indicated the majority of studies in school guidance and counselling have been directed at the SGC and the system they serve. The great majority of the literature has primarily focussed on the need for, use of and impact of technologies on SGCs as practitioners, school systems and professional school guidance and counselling bodies. However there is significantly less literature focussing on the students as clients and their perceptions of the use of technologies in school guidance and counselling. This study has added to this body of knowledge.

7.4 Practical Recommendations

The practical recommendations that have emerged from this study evolved from the major themes and research results. The study's recommendations emanate from the successes and challenges of the professional development program, school implementation program, rules that limit communication, the use of emails, specific devices, the building of the Guidance web page on the schools' website, technology pressures that increase the SGC workload and connectivity issues.

The success of this study in terms of increased SGC knowledge, competencies and efficiency in the use of digital technologies highlights the importance of DET encouraging customised SGC training in technology followed by a school implementation in other education regions in Queensland. SGCs appeared to relate enthusiastically to the face-to-face presentation of the professional development program. The preference for face-to-face interactions by SGCs with students is also noted by Glasheen et al. (2010) and is viewed as integral to the SGC role (Barnes, 2008; Cogoi et al., 2009). Perhaps this is also a preferred learning medium for SGCs. Finally, there were four essential elements of the intervention model that requires implementation including 1) a custom designed face-to-face SGC professional development program, 2) collaboration with SGCs to plan the school implementation intervention activities, 3) implementation in the school setting, and 4) frequent communication and support of SGCs, listening to successes, discussing their problems, and generating solutions.

The study identified a number of technology rules in schools that are possibly limiting communication between SGCs and students. The rules centre on sending emails to students and the use of social media. In this study the major way that SGCs used technology to contact students was through school email. Feedback from the SGCs and the student interviews indicated that some students' access of their school email account was inconsistent. There is a need to train students to forward emails from their school account to their preferred account. DET could also consider the option of providing

SGCs with the authority to send emails directly to students' preferred email address; their school or personal email address. Another factor inhibiting communication between SGCs and students is the limited manner in how social media is able to be used by schools. A recommendation from the study is for further research to be conducted in schools in trialling the use of social media platforms in the school guidance and counselling role. This research could identify implications and ways social media could be used that students and SGCs see as being practical, of a low student protection risk and not adding to the SGC workload.

There are three other specific recommendations in regards to SGCs using emails with students. As email inboxes are accessible at each minute of the day the sending of emails to students needs to ensure that if an emergency or at-risk situation presents for students that students realise they can access other agencies and organisations for immediate assistance. The study recommends that each school adopts a template similar to one designed in this study which provides emergency contact and support agency details. Secondly, in order to increase the reading of emails by students, schools could educate and assist students to forward school emails to their mobile phones with alerts. Finally, SGCs who do not wish students to have their school email address could be given an option to be able to send emails to students with a "No Reply" email address.

There are a number of recommendations regarding specific computer devices such as mobile phones, iPads, software including OneSchool and the Guidance web page. With regards to SGC mobile phone usage at school each SGC should be given the option to either not use a mobile phone or be provided with a DET mobile phone specifically for use by the SGC. IPads provide another means of supporting students particularly through apps. DET could consider SGCs trialling the use of iPads or other devices such as DEL laptop touch screen computers that can access apps.

The study's outcomes have highlighted software recommendations regarding the School Guidance and Counselling web page for the school website. Although an extensive Guidance web page was developed by the SGC participants, only one school built the

page on their school website and this was rather simplistic. Given this limited response by schools, at post-intervention the researcher chose to use the home page content and have this built as a separate school guidance and counselling district website which all six secondary schools could access. The website is currently being constructed. The researcher recommends that SGCs and senior guidance counsellors in each DET regional area investigate the possibility of constructing and monitoring a school guidance and counselling website for their district schools to access.

SGCs also highlighted the increase in workload associated with uploading data onto OneSchool and the excessive number of emails received by SGCs, increasing their workload and detracting from face-to-face student interaction. These themes highlight the need for DET to review both of these factors not only for SGCs but for all school personnel. The use of old and new technology for SGCs needs to be carefully weighed up. Does the technology value-add to their role and not increase their workload or add pressure to their job?

The themes of access and connectivity were emphasised by SGCs in the study. There is need for SGCs to have access to quality Wi-Fi services enabling them to use mobile devices such as iPads. Similarly, SGCs highlighted the difficulties in gaining timely access to IT technicians due to the technology demands of all school personnel. The access of IT technicians could be enhanced through DET increasing technician staffing in schools.

7.5 Limitations

The researcher has identified a number of design limitations in relation to the overall research design, specific instrumentation and implementation of procedures. Firstly, as discussed in the Methodology chapter, the research design was based on a pre-test, school implementation intervention and post-test. The study could be further enhanced if another post-test was scheduled six months following the original post-test. Undertaking this process would have provided data to help determine if the participants had continued to utilise digital technologies learnt throughout the study in their daily work. The absence of a follow-up six month post-test was not undertaken because of the researcher's time limitations and work commitments.

Secondly, the research design would have benefited from the use of a control group. The incorporation of a control group would have provided the study's results with a greater sense of robustness and rigor, increasing the possibility to generalise the results to the wider population. This was not undertaken because of difficulties in isolating a control group, managing that group over a longitudinal study and the control of the many variables in the study.

Thirdly, there were some limitations associated with the sampling process. The researcher used convenience sampling in selecting SGCs and students for the study. An inherent characteristic of convenience sampling is that this process is not representative of the normal population. In terms of the breadth of sampling, critics would contend that given the demographics of the student population, namely living in a regional area with high youth and adult unemployment is not truly representative of the Australian population thus reducing the possibility of generalising results. Furthermore the breadth of the sample was restricted solely to participants from the DET system and no other school systems. Convenience sampling was undertaken because it was more suitable for a single researcher study.

Redesigning some aspects of specific instruments would assist the methods process in the study. Although the student surveys had been piloted the researcher felt that the time taken to complete the student surveys may have adversely impacted on the number of students completing both surveys. Furthermore, it appeared that students experienced difficulties fully comprehending the survey and interview items associated with duties and responsibilities. It is quite possible that some participants may have experienced difficulties with interpreting these questions in the way the researcher had intended.

Being a mixed methods study using a variety of qualitative and quantitative data gathering instruments made it possible to triangulate the data helping to interpret the results and form conclusions. This was apparent for all of the research questions with the exception of research question three where there was an absence of quantitative items resulting from a design oversight. This research question could have incorporated quantitative items for example, rate your knowledge of rules that apply to SGC-student communication via digital technologies and rate the effectiveness of these rules.

Initially 155 students consented to be part of the study, of which 123 students completed all surveys. Perhaps a reduction in the attrition rate could have resulted if scheduled fortnightly face-to-face discussions occurred between the SGC and students to help explain processes, gain feedback and resolve concerns. This may have further increased the connection between the students and the study rather than relying solely upon a digital connection with them. The use of face-to-face discussions may have resulted in a greater 'buy in' and commitment from students. This may have then led to more engagement by students in the blog, emails and electronic newsletters. Furthermore, providing parents and guardians with monthly updates through school newsletters and texts may have also encouraged communication about the study between themselves and their son/daughter participant. This may have also led to reduced attrition rates and greater participation rates in all aspects of the study. Finally retention rates may have increased if the researcher had mailed "thank you" cards to students following consent to be in the study, during the school implementation and just prior to the post-intervention survey.

Finally a major limitation of this study was the small number of SGCs and students who participated in this research. A total of 9 SGCs and 123 students participated. Survey validity and reliability scale scores were not established, as the scale scores would have had little statistical meaning, because of the relatively small number of participants. Given that because of the small number of participants, validity and reliability scaled scores were not established on the surveys, it is not possible to generalise the research results to all SGCs and students.

7.6 Further Research

The majority of SGCs in Queensland are trained by Queensland universities. As trainers of future SGCs there is an opportunity to implement a comparative study investigating how these universities are training prospective SGCs in digital technologies. Similarly another study could compare all Australian institutions training future SGCs in digital technologies. Both studies could also include psychology degree courses that can lead to graduates undertaking SGC roles.

Further studies could focus on the increase of professional development in technology programs for SGCs and senior guidance counsellors. These studies could extend SGC competencies in digital technology through a greater range of software and devices. Future studies could also be conducted in a larger geographical area, such as DET regions. Such studies would result in a larger SGC and student sample thus increasing the amount of data collected, enhancing the likelihood of results being generalised to the normative population and recognised by the research literature.

There is opportunity to influence the DET, Catholic and Independent School systems by conducting a study that investigates whether SGCs are accessing technology learning, the type of programs being accessed and where they access these. The research could also target the advantages and limitations of professional development programs such as online programs, face-to-face and collegial mentoring.

Future studies could also target students, investigating their perspectives on technologies in the school guidance and counselling service. Studies could focus on students' perceptions of the best ways for SGCs to provide information, communicate and interact with students using technologies.

The purchase of mobile devices by Australian adolescents is increasing at an enormous rate as depicted in the literature (Australian Bureau of Statistics, 2011b; Raco, 2014). A study could focus on how mobile devices could be used in school guidance and counselling. A future SGC study could also negotiate with DET about the possibilities of direct mobile phone calls and texting with students as well as the use of current popular social media that students are using.

The recommendations for future research have so far focussed upon SGCs, students and universities. Parents are also significant members of the schooling process inclusive of school guidance and counselling services. Future digital technology studies could investigate parents' perceptions of the use of technologies in school guidance and counselling.

This study focussed on an eclectic technological approach to school guidance and counselling that used a variety of digital technology approaches, hardware and software. There is an opportunity to develop a study that focuses solely on the use of apps and their effectiveness in encouraging change. Similarly, further research could be conducted on the use of mobile phones only by SGCs in their role.

Future research that incorporates a SGC professional development program could utilise the design of this study and the structure provided by Activity Theory. Researchers would benefit from building on the customised professional development program, allowing SGCs to be actively involved in the planning of the school implementation intervention strategies and supporting SGCs through frequent communication. Further studies could make research design changes that overcome some of the identified limitations of this study.

7.7 Reflexive Account

Early in the pre-intervention stage it became apparent to the researcher that SGCs were very motivated and appreciative to have technology professional development solely directed at them as a group. Upon reflection at the end of this study it was clearly apparent that this SGC group responded positively to professional development that was specifically planned for their role, presented face-to-face, and used "hands on" learning approaches with digital devices and software. It particularly accentuated to the researcher that a parallel appeared to exist between their role and their own learning, namely the importance of building strong relationships through their interpersonal and counselling skills in face-to-face communication and learning.

Another factor that was essential to the success of this research was Knowles' principles of adult learning. This was principally evident in the acknowledgement of SGCs as adult learners to help plan and guide aspects of both the SGC professional development and the nine school intervention activities. As a group they were able to develop intervention activities that were realistic and practical and that would meet students' needs. Knowles' adult learning principles resonated in the researcher's mind, particularly principle two, "…where adults have a deep psychological need to be seen by others and treated by others as being capable of self-direction as well as recognising the prior experiences of the learner" (Knowles et al., 2005, p. 64) and principle three "the richest resources for learning reside in the adult learners themselves" (Knowles et al., 2005, p. 65).

This study is concerned with SGCs keeping up with their clients' use of technology and the deficiency of professional development provided to SGCs to undertake this task. The researcher's pragmatic viewpoint has acted as a lens in looking at the situation, identifying the consequences and finding solutions to a problem. In this study, the researcher has not been alone in this quest but has led a team of SGCs who were willing to walk the same road.

"Alone we can do so little, together we can do so much" Helen Keller (Kerpen, 2016 para. 5).

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Appendices

Appendix 1 Queensland Universities' Master of Guidance and Counselling

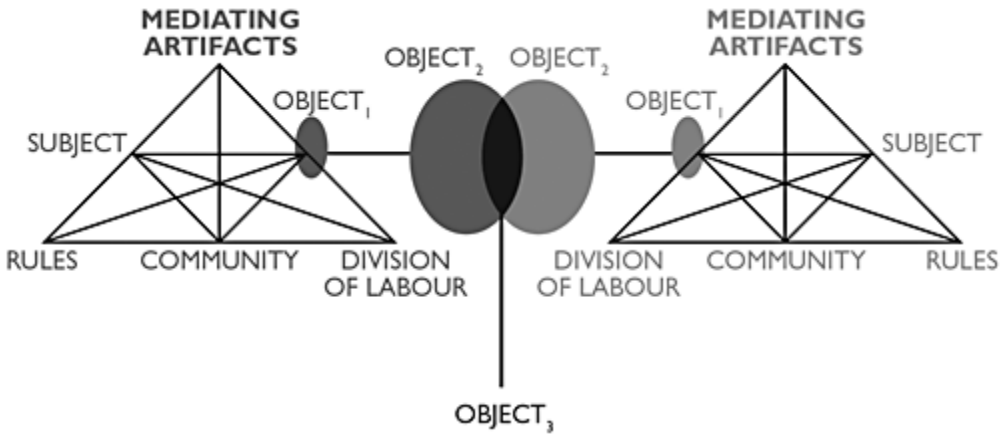
University	Hyperlink
James Cook University	JCU
Queensland University of Technology	QUT
University of Queensland Australia	UQ
University of Southern Queensland	USQ

Research Schedule

What	When	Who	Where
1. Information Discussion Meeting with Guidance Officers	October 2013	Researcher & Guidance Officers	Bundaberg Education Office (1hr)
2. Information Meeting with Principal and Guidance Officer	October 2013	Researcher, Principal & Guidance Officer	Principal's office at each school (15min)
3. Information Meeting with potential Student Focus Group Participants. Provide Participant & Consent forms	October 2013	Researcher, Principal and potential Year 11/12 Student Focus Group Participants (12)	Kepnock SHS Board room (15 minutes)
4. Pre-intervention Guidance Officer Focus Group Interview	November 2013	Researcher & Guidance Officers	Bundaberg Education Office (1hr)
5. Professional development in-service for Guidance Officers	October & November	Researcher, Guidance Officers & guest presenters	Kepnock SHS Board room (2 days)
6. Pre-intervention Year 11/12 Focus Group Interview	February 2014	Researcher & Year 11/12 students (10 students)	Kepnock SHS Board room (1hr)
7. Inform Year 11/12 students of study, hand out Participation forms & Consent forms	February 2014	Researcher & Guidance Officer of school	Year 11/12 assemblies (15 min)
8. Pre-intervention Survey: Guidance Officer	March	Guidance Officers	Digital from school or home (20 min)
9. Pre-intervention Survey: Year 11/12 Students	March	Consented Year 11/12 students	Digital from school or home (20 min)
10. Guidance Officer – Researcher Meeting	May	Researcher & Guidance Officers	Bundaberg Education Office (1hr)
11. Guidance Officer Diary	May	Guidance Officers	School or home (5-10 minutes)

What	When	Who	Where
12. Guidance Officer – Research Meeting	June	Researcher & Guidance Officers	Bundaberg Education Office (1hr)
13. Guidance Officer Diary	June	Guidance Officers	School or home (5-10 minutes)
14. Guidance Officer – Research Meeting	July	Researcher & Guidance Officers	Bundaberg Education Office (1hr)
15. Guidance Officer Diary	July	Guidance Officers	School or home (5-10 minutes)
16. Guidance Officer – Research Meeting	August	Researcher & Guidance Officers	Bundaberg Education Office (1hr)
17. Guidance Officer Diary	August	Guidance Officers	School or home (5-10 minutes)
18. Year 11/12 Guidance Blog	August (1-2 weeks)	Year 11/12 Students	Digital from school or home (15 mins)
19. Post-intervention Focus Group Interview: Year 11/12 Students	October	Researcher & Year 11/12 Students (10 students)	Kepnock SHS conference room (1hr)
20. Post-intervention Focus Group Interview: Guidance Officers	October	Researcher & Guidance Officers	Bundaberg Education Office (1hr)
21. Post-intervention Survey: Year 11/12 Students	October	Year 11/12 Students	Digital from school or home (20 min)
22. Post-intervention Survey: Guidance Officer	October	Guidance Officers	Digital from school or home (20 min)
23. Unstructured Informal Observations	April – October	Researcher	School & Guidance Meetings

Appendix 3 Activity Theory Implications – Guidance Officer and Year 11/12 Student Enhanced Use of Digital Technology



Guidance Officer	**Student**
Mediating Artifacts (Tools): Language, written text, mobile text, visual images, smart phones, mobile phones, iPads, laptops, desk top computer, dongle, network computer systems, school intranet email, internet **Rules:** School mobile rules School internet rules Student protection guidelines DET Facebook rules	**Mediating Artifacts (Tools):** Language, written text, mobile text, visual images, smart phones, mobile phones, iPads, laptops, desk top computer, network computer systems, school intranet email, internet **Rules:** School mobile rules School internet rules DET Facebook rules Cyber bullying rules

Cyber bullying rules Pornographic rules Internet etiquette Internet respectful comments and statements Guidance officers' budgets	Internet etiquette Internet respectful comments and statements Student finances
Community: DET School campuses Clientele Guidance officer networks School networks Family Social networks Friendship networks Technology organisations IT consultants Media organisations	**Community:** DET School campus Family Social networks Friendship networks Technology organisations Media organisations
Division of Labour (traditional means of labour division will change): Increased contact and communication with clientele by guidance officer Guidance officer less reliant of	**Division of Labour (traditional means of labour division will change):** Increased contact and communication with guidance officer Student increases their information

administration to generate information, transfer information and make contact with clientele Guidance officer increases control of information management systems Principal increases monitoring of guidance electronic communication Guidance officer less reliant on administration assistants	management systems Increased use of personal technology for education use
Object: Reducing the technology gap between guidance officers and their clients. Imparting new knowledge, information & learning Increased expediency and breadth of information sharing Increased communication > relationship building Increased networks Greater usage and confidence with technology	**Object:** Accessing new knowledge, information & learning More informed decision-making Accessing increased communication > relationship building Increased networks Greater usage and confidence with technology
Subject: Secondary guidance officers	**Subject:** Year 11/12 students,

Object 3
Changes to the school guidance service as a result of enhanced use of digital technology

Appendix 4 Principal and Guidance Officer Participant Information

USQ AUSTRALIA	University of Southern Queensland **The University of Southern Queensland** **Participant Information Sheet**

TO: Principals and Secondary Guidance Officers

Full Project Title: ***The Enhanced use of Digital Technologies in Guidance Officer and Student Activity.***

Student Researcher: Gary Hohn

Principal Researcher: Professor Romina Jamieson-Proctor

Researcher: Doctor Patrick O'Brien

I am a senior guidance officer in the Bundaberg area and have begun a postgraduate degree in the Doctor of Philosophy program with the University of Southern Queensland

You are invited to participate in this research project as the research is targeting the secondary guidance service within the Bundaberg area of which your school is an integral part. The study focuses on the use of digital technology within the secondary guidance service delivery, its impact and what we can learn from this.

Please read this Plain Language Statement carefully. Its purpose is to explain to you as openly and clearly as possible all the procedures involved so that you can make a fully informed decision as to whether you are going to participate. Feel free to ask questions about any information in the document.

Once you understand what the project is about and if you agree to take part in it, it is asked that you sign the Consent Form. By signing the Consent Form, you indicate that you understand the information and that you give your consent to participate in the research project.

1. Purpose of Research

The secondary guidance officer is supporting adolescents who are surrounded with the newest digital technologies, where 'screens' have been part of their daily life, since birth. Consequently here is a challenge for secondary guidance officers to keep digital technological pace, continuing to remain connected and engaged with their adolescent clientele.

The purpose of this study is to investigate how the enhanced use of digital technologies by secondary guidance officers and Year 11/12 students, impacts on the way in which secondary guidance officers work in schools. It will achieve this through examining the students' and guidance officers' knowledge, skills and application of digital technologies such as computers, iDAttend, webpages, computer software and inter/intranet (blog). This research aims to investigate the changes in activity of the secondary guidance officers' and Year 11/12 students' levels of digital technological knowledge, skills and application when technologies are increased in the guidance service.

The study has a professional development section for the secondary guidance in assisting them to enhance their digital technologies use and application. The intervention project will occur within the Bundaberg area and will be trialled in six secondary schools, targeting year 11 & 12 students and the secondary guidance officer/s of the school.

Potential Benefits

It is expected that the study will lead to findings that assist the secondary guidance officer: 1) target their use and selection of digital technologies in schools to complement and enhance their guidance service delivery to students, 2) increase their confidence and use of digital technologies, 3) determine which specific forms of technologies are preferred by their student clientele, assisting the guidance officer in their linkage and connection with them, 4) market their role in the school community so that it is better understood by parents, students, staff and administration, 5) enhance their relationships with students, 6) improve learning outcomes for students, 7) establish linkages that increase student self-referral, 8) build on the Smart Classrooms strategy of making ICT integral to learning, 9) provide recommendations that may be applicable to schools and Department of Education Training & Employment in planning for guidance officer professional development and provision of digital technologies devices, and 10) inform tertiary institutions that train guidance officers so that they can use the findings in the formation of training courses to ensure guidance officers are confident and capable of using digital technologies to enhance the quality of the client experience.

2. Procedures

Participation in this project will involve:

- Secondary guidance officers participating in professional development sessions prior to, and during test phase:
- Initial professional development sessions will be conducted over three days (October & November, 2013).
- Five secondary guidance meetings (1 hour) between April 2014 & August 2014
- Secondary guidance officers will take part in a pre (February, 2014) and post-intervention (October 2014) focus group semi-structured interview which will be audio-taped. Each and each will take 1 hour.
- Eight Year 11/12 students from one secondary school will be invited to take part in a pre (February, 2014) and post (October, 2014) intervention focus group semi-structured interview which will be audio-taped and each will take 1 hour.
- An online pre (March, 2014) and post (October, 2014) intervention survey questionnaire will be completed by each guidance officer and each will take up to 20 minutes to complete.
- Guidance officers will enter their 'study' thoughts electronically into a diary (5-10 minutes per month, May to August 2014).
- The professional development will assist the guidance officer to develop, monitor and supervise the 'Year 11/12 Guidance Blog' on the *Learning Place.*
- Texting parents on specific themes (e.g., guidance updates, study habits, career information, academics, good health, mental health …..) and if the parent is comfortable with the information requesting them to forward to their son/daughter's mobile phone.
- With the assistance of professional development, Guidance officers will submit suggestions to school administration to develop a 'Guidance page' to the school website.
- Secondary guidance officers will need to possess current accreditation in Code of Conduct.

The 'Year 11/12' Guidance Blog' will be managed by the guidance officer of the trialling school and monitored by that guidance officer, the school principal and the researcher. This will be a closed community requiring Year 11/12 enrolment within the trialling school in order to undertake participation on this site. The only other people accessing these sites will be the guidance officer and principal of the trialling school, *the Learning Place* and the researcher. The site and the trialling school website will also contain information and contact details for students and parents/guardian regarding crisis and mental health support (Kids Helpline, Beyond Blue, Life Line, headspace, and emergency services). This site will be carefully monitored for respectful language and respectful comments. Breaching of these guidelines will result in automatic omission from the 'Year 11/12 Guidance Blog' and referral to the school administration to be assessed in terms of breaches of school behaviour management and/or student protection policy.

3. Confidentiality

The data from the survey questionnaires will be collected electronically and stored in password protected computer files. Data collected manually (informal observations) and semi-structured interviews (focus group transcripts and audio files) will be stored in a locked filing cabinet. Data collected from guidance officer electronic diaries and Year 11/12 Guidance Blog dialogue will be collected electronically and stored in password protected computer files. Data will be destroyed after the mandatory 5 yr term on completion of the study.

All data collected from observations, survey questionnaires, semi-structured focus group interviews, blog and diaries will not be identifiable. Only group data will be published and no individual or school will be identifiable in any reports or publications that follow the research period.

Voluntary Participation

Participation is entirely voluntary. **You are not obliged to take part in the study.** If you decide to take part and later change your mind, you are free to withdraw from the project at any stage. The majority of the information already obtained from you will be removed and your data destroyed. It is not possible to destroy data collected in the Guidance Officer Focus Group interview.

Your decision whether to take part or not to take part, or to take part and then withdraw, will not affect your relationship with the University of Southern Queensland or your school.

Before you make your decision, a member of the research team will be available to answer any questions you have about the research project. Sign the Consent Form only after you have had a chance to ask your questions and have received satisfactory answers.

If you decide to withdraw from this project, please notify a member of the research team.

4. Queries or Concerns

Should you have any queries regarding the progress or conduct of this research, you can contact the principal researchers:

Gary Hohn

Department of Education Training & Employment

Bundaberg Office

North Coast Region

Bundaberg, Qld 4670

Telephone: 41540 328

Mobile: 0417 1975 55

Email: gary.hohn@DET.qld.gov.au

Dr Romina Jamieson-Proctor

Education Faculty

University of Southern Queensland

Fraser Coast Campus

161 Old Maryborough Road

Hervey Bay Qld 4655

Telephone: 4194 3153

Email: Romina.Jamieson-Proctor@usq.edu.au

If you have any ethical concerns with how the research is being conducted or any queries about your rights as a participant please feel free to contact the University of Southern Queensland Ethics Officer on the following details.

Ethics and Research Integrity Officer

Office of Research and Higher Degrees

University of Southern Queensland

West Street, Toowoomba 4350

Ph: +61 7 4631 2690

Email: *ethics@usq.edu.au*

Appendix 5 Year 11/12 Student and Parent/Guardian Participant Information

USQ AUSTRALIA	University of Southern Queensland

The University of Southern Queensland

Participant Information Sheet

TO: Year 11 & 12 Students & Parents/Guardians

Full Project Title: ***The Enhanced use of Digital Technologies in Guidance Officer and Student Activity.***

Student Researcher: Gary Hohn

Principal Researcher: Dr Patrick O'Brien

Researcher: Associate Professor Romina Jamieson-Proctor

I am a Senior Guidance Officer in the Bundaberg area and have begun a postgraduate degree in the Doctor of Philosophy program with the University of Southern Queensland.

Your son/daughter is invited to participate in this research project that is looking at the secondary guidance service within the Bundaberg area. The study focuses on the use of digital technology within the Secondary Guidance Officer service; its impact; and what we can learn from this.

Please read this information as it explains as openly and clearly as possible all the procedures involved so that you can make a decision as to whether you are willing to let your son/daughter participate.

Once you understand what the project is about and if you agree for your son//daughter to take part in this study, please sign the ***Consent Form*** to indicate that you understand the information and that you give your consent to your son/daughter to participate in the research project.

5. Purpose of Research

The Secondary Guidance Officer is supporting adolescents who are surrounded with the newest digital technologies, where 'screens' have been part of their daily life. Consequently this presents a challenge for Secondary Guidance Officers to keep pace with digital technologies and continue to remain connected with their adolescent students.

The purpose of this study is to investigate how the use of digital technologies by Secondary Guidance Officers and Year 11/12 students, impacts on the way in which Secondary Guidance Officers work in schools. It will achieve this through examining the students' and Secondary Guidance Officers' knowledge, skills and application of digital technologies such as computers, iDAttend, iPads, webpages, computer software (e-mail, texting) and inter/intranet (blog).

The study has a professional development part for the Secondary Guidance Officer in helping them to enhance their use and application of digital technologies. The research will be trialled in six secondary schools in the Bundaberg area.

Potential Benefits

It is expected that study will lead to findings that:

1) help the Secondary Guidance Officers to find digital technologies that can improve their guidance service to students;

2) find the digital technologies that are most preferred by students;

3) help the Secondary Guidance Officer to further connect with students;

4) help parents and students better understand what Secondary Guidance Officers do;

5) improve relationships with students:

6) provide information to parents that can help them and their son/daughter;

7) improve learning outcomes for students;

8) encourage students to self-refer; and

9) help universities train future Secondary Guidance Officers.

6. Procedures

Participation in this project will involve your son/daughter:

- Undertaking an online pre (March, 2014) and post (October, 2014) intervention survey questionnaire being conducted using https://www.limeservice.com/en/. Information provided by the Year 11/12 students on this survey will be transferred to this server in Germany. By completing the survey, you and your Year 11/12 student agree to the transfer. All information will remain confidential to the researcher only.

- Receiving a link and directions to the survey through their school email address in the forthcoming weeks. Each survey will take up to 15-20 minutes to complete**. With the full completion of each of these survey questionnaires your son/daughter is eligible to win prizes (iTunes/mobile phone vouchers: 1st $50, 2nd $30, 3rd $30 per school).**

- The Secondary Guidance Officer will supervise and maintain a 'Year 11/12 Guidance Blog'. All Year 11/12 students participating in the study will be invited to participate (optional). The blog will be managed by the Secondary Guidance Officer of the school and regularly checked by him/her, the school principal and the researcher. This will be a 'closed community' meaning that only Year 11/12 students enrolled at the school and participating in the study can enter.

- If you have a mobile phone your school may also send texts to you (the parent/guardian). These texts may include career updates, subject information, employer and university visits, healthy alternatives, support agencies……. If you receive these texts and you are comfortable with the information please forward to your son/daughter's mobile phone. ***There is absolutely NO NEED to purchase a mobile phone if you or your son/daughter doesn't have one***.

7. Confidentiality

Data from the survey questionnaires and blog will be collected electronically and stored in password protected computer files. On completion of the study, data will be destroyed after the mandatory 5 year term.

The data will be analysed and processed as a group and no individual will be identifiable. Only group data will be published and no individual or school will be identifiable in any reports or publications that follow the research.

Voluntary Participation

Participation is entirely voluntary. **You are not obliged to allow for your son/daughter to take part.** If you decide to allow your son/daughter to take part and later change your mind, your son/daughter is free to withdraw from the project at any stage. The majority of the information already obtained from your son/daughter will be removed and the data destroyed. It is not possible to destroy data collected in the Student Focus Group interview.

Your decision for your son/daughter to take part or not, or to take part and then withdraw, will not affect you or your son/daughter's relationship with the University of Southern Queensland, or your school.

You are invited to contact a member of the research team to answer any questions you have about the research project, before you make your decision. Sign the Consent Form only after you have had a chance to ask your questions and have received satisfactory answers.

If you decide to withdraw from this project, please notify a member of the research team.

8. Queries or Concerns

Should you have any queries regarding the progress or conduct of this research, you can contact the principal researchers:

Gary Hohn

Department of Education Training & Employment

Bundaberg Office

North Coast Region

Bundaberg, Qld 4670

Telephone: 41540 328

Mobile: 0417 1975 55

Email:gary.hohn@dete.qld.gov.au

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Hervey Bay Qld 4655

Phone: 4194 3153

Email: Romina.Jamieson-Proctor@usq.edu.au

If you have any ethical concerns with how the research is being conducted or any queries about your rights as a participant please feel free to contact the University of Southern Queensland Ethics Officer on the following details.

Ethics and Research Integrity Officer

Office of Research and Higher Degrees

University of Southern Queensland

West Street, Toowoomba 4350

Ph: +61 7 4631 2690

Email: *ethics@usq.edu.au*

Appendix 6 Year 11/12 Student and Parent/Guardian Consent

USQ AUSTRALIA	University of Southern Queensland **The University of Southern Queensland** **Consent Form**

HREC Approval Number: H13REA013

TO: Year 11/12 Students & Parents/Guardians

Full Project Title: ***The enhanced use of digital technologies in guidance officer and student activity.***

Student Researcher: Gary Hohn

Principal Supervisor: Professor Romina Jamieson-Proctor

Supervisor: Doctor Patrick O'Brien

- We have read the Participant Information Sheet and the nature and purpose of the research project. I understand and agree for my son/daughter to take part
- We understand that my son/daughter may withdraw from the research project at any stage and that this will not affect his/her status now or in the future
- We understand that while information gained during the study may be published, my son/daughter will not be identified and his/her personal results will remain confidential.
- We understand that part of the research invites students to access the 'Year 11/12 Guidance Blog'
- We understand that my son/daughter will be requested to undertake two survey questionnaires

- We understand that I (parent/guardian) may receive mobile texts from the guidance officer which I will view and if content I may forward to my Year 11/12 son/daughter

Name of Year 11/12 son/daughter: ……………………………..…………………......

Student Signature: ………..………………………………Date …………………………….

Student school email: ………………………………………………..

Name of parent/guardian: ……………………………………………………………………......

Signed ……………………………………………………. Date: ……………………….….

My (parent/guardian) current mobile number is: ……………………………………….

If you have any ethical concerns with how the research is being conducted or any queries about your rights as a participant please feel free to contact the University of Southern Queensland Ethics Officer on the following details.

Ethics and Research Integrity Officer

Office of Research and Higher Degrees

University of Southern Queensland

West Street, Toowoomba 4350

Ph: +61 7 4631 2690

*Email: **ethics@usq.edu.au***

Appendix 7 Year 11/12 Student Semi-structured Focus Group Interview: Pre-intervention

Overall Purpose of the Study and Learning Names

Hello. My name is Gary and we have asked you here to discuss the university project, 'The enhanced use of Digital Technologies in Guidance Officer and Student Activity.' This project is designed to increase your guidance officer's ability to use digital technologies (computers, mobile phones, web pages, computer software ……..) in their guidance work with you.

Before we begin I would like to learn your FIRST names. Let's go around the group and tell me your name, your year level and what you know about the guidance services at this school.

Research Information

We are doing this project in conjunction with the University of Southern Queensland and the Department of Education Training & Employment. We will be audiotaping the discussion. The audio file will be for research purposes only and will be deleted after it has been transcribed. Your responses are confidential and no individual student will be identified in the research. Do you have any questions?

Let's begin.

Introduction

Each of us lives in a society, where technology continues to increase at an astronomical rate. It is a distinct part of your working, home and recreational world. You are part of the technological revolution where most electronic devices are regarded as digital, which is the modern way of how we create, store and process data. The majority of modern computers, laptops, iPads, mobile phones, cameras, printers, televisions…….are digital devices. This research project involves the use of digital technologies including software, between guidance officers and Year 11/12 students. In answering the following questions I would like you to be thinking of the past 4 school months of last year.

1. **What digital technology devices have you used at school in the past 4 school months of last year that involved your guidance officer or what your guidance officer provides for students? (RQ 1)**

2. **What digital technology devices do you have at home (away from school)? Which of these technology devices are different to the ones you use at school? Tell me more about this? (RQ 3) Which of these digital technology devices have you used away from school in the past 4 school months of last year that involved your guidance officer or what your guidance officer provides for students? (RQ 1)**

3. **Which digital device do you most prefer? What is it about this device that you like? (RQ 1/3)**

4. **In the past four school months of last year, what specific ways has your guidance officer used digital technologies (including software) that involved what he/she provides for students? (RQ 2)**

5. **In the past four school months of last year, what specific ways have you used digital technologies that involved your guidance officer or what your guidance officer provides for students? (RQ 2)**

6. **When using digital technologies (including software) there are certain rules that you need to follow (e.g., at school: not visiting particular web sites, not using your mobile during class….). Thinking of the past 4 school months of last year in using digital technologies with your guidance officer, what are the digital technology school 'rules' that you have to follow? Which of these rules are helpful? Which are not and get in the way? How could the school digital technology rules be improved to help you work with your guidance officer and what they provide for students? (RQ 3)**

7. **As students there are certain duties and responsibilities you have when using digital technologies, such as checking your emails, looking after school technology devices, reading and applying new digital information to your life…… Some of these duties can be on a daily, weekly, monthly or yearly basis.**

   Thinking of the past 4 school months of last year what are some of your duties and responsibilities in using digital technologies specifically with your guidance officer and what the guidance officer provides for students? Do you think that your duties and responsibilities will change in using more digital technologies with your guidance officer and what they provide for students? How?

   Digital technology duties and responsibilities can get in the way or help you working with your guidance officer. Tell me how your duties and responsibilities with digital technologies get in the way in working with

your guidance officer? Tell me how your duties and responsibilities with digital technologies help working with your guidance officer? (RQ 4)

8. **There are different communities that you may be part of e.g., church, soccer, Facebook….. You, the other students in Year 11/12 and your guidance officer form the 'guidance' community of your school.**

   In thinking of the past 4 school months of last year, how would you describe the 'guidance' community in your school? Do you feel that your guidance officer's use of digital technologies has helped build a 'guidance' community in your school? If yes, how have they done this? What other ways could the guidance officer further build the 'guidance community' by using digital technologies? (RQ 5)

9. **Like other teachers you and your guidance officer can build a relationship that you both feel part of. Thinking of the past 4 school months of last year, how would you describe your relationship with your guidance officer? Do you feel that your guidance officer's use of digital technologies has helped build on your guidance officer–student relationship? How have they done this? What other ways could the guidance officer build on your guidance office–student relationship by using digital technologies? (RQ 5)**

10. **What are some of the problems in secondary guidance officers using digital technologies with Year 11/12 students? (RQ 2/3/4)**

11. **When thinking about what the guidance officer does with students and provides for students, looking forward, what changes are likely to happen with the greater use of digital technologies by guidance officers with students? Do you think what the guidance officer does with students and provides for students would improve through the use of digital technologies? How? (RQ 6)**

Ending Questions

12. **Pretend that I am your guidance officer. What advice would you give me about using digital technologies with Year 11/12 students? (RQ 1/2/3/4/5)**

13. **Is there anything we did not cover in today's discussion that you think is important for me to know as part of this research project? (RQ 1/2/3/4/5)**

Appendix 8 Guidance Officer Semi-structured Focus Group Interview: Pre-intervention

Overall Purpose of the Study

Hello. We have asked you here to discuss the university project, 'The enhanced use of Digital Technologies in Guidance Officer and Student Activity.' This project is designed to increase your ability to use digital technologies (computers, iPads, web pages, computer software ……..) in your guidance work and see what the impact is on your guidance service delivery.

Warm-up activity

We are doing this project in conjunction with the University of Southern Queensland under the supervision of Dr Patrick O'Brien & Prof Romina Jamieson-Proctor and also in conjunction with the Department of Education Training & Employment. We will be audiotaping this discussion. The audio file will be for research purposes only and will be deleted after it has been transcribed. Do you have any questions?

Now we will begin.

Introduction

Each of us lives in a society, where technology continues to increase at an astronomical rate. It is a distinct part of your working, home and recreational world. You are part of the technological revolution where most electronic devices are regarded as digital, which is the modern way of how we create, store and process data. The majority of modern computers, laptops, iPads, mobile phones, cameras, printers, televisions…….are digital devices. This research project involves the use of digital technologies including software, between guidance officers and Year 11/12 students. In answering the following questions I would like you to be thinking of the past 4 school months.

1. **What digital technology devices have you used at school in the past 4 school months that involved your Year 11/12 students or the guidance service? (RQ 1)**

2. **What digital technology devices do you have at home (away from school)? Which of these technology devices are different to the ones you use at school? Tell me more about this? (RQ 3) In the past 4 school months**

which of these digital technology devices have you used away from school that involved your guidance service to Year 11/12 students? (RQ 1)

3. Which digital device do you prefer to use the most? What is it about this device that you like? (RQ 1/3)

4. In the past four months, what specific ways have you used digital technologies (including software) that involved your guidance service to Year 11/12 students? (RQ 2)

5. In the past four months, what specific ways have Year 11/12 students used digital technologies (including software) that involved your guidance service to them? (RQ 2)

6. When using digital technologies (including software) there are certain rules that you need to follow (e.g., at school not visiting particular web sites, not texting students directly…). In using digital technologies with your Year 11/12 students, what are the digital technology 'rules' that you have to follow? Which of these rules are helpful? Which are not and get in the way? How could the rules be improved to help you with your work and the guidance service? (RQ 3)

7. For each of you there are certain duties and responsibilities you have when using digital technologies with Year 11/12 students such as using appropriate language, checking emails…… Some of these duties and responsibilities can be on a daily, weekly, monthly or yearly basis.

What are some of your duties and responsibilities in using digital technologies with Year 11/12 students? Do you think that your duties and responsibilities will change in using digital technologies with Year 11/12 students? How?

Digital technology duties and responsibilities can constrain or assist you working with students. Tell me how your duties and responsibilities with digital technologies constrain (get in the way) in your guidance service to Year 11/12 students? Tell me how your duties and responsibilities with digital technologies assist (help) in your guidance service to Year 11/12 students? (RQ 4)

8. You and your students form the 'guidance' community of the school. How would you describe the 'guidance' community in your school? Do you feel that you have used digital technologies to build the 'guidance community' in the school? If yes, how have you done this? What other ways could you use digital technologies to further build the 'guidance community'? (RQ 5)

9. **Like other teachers you and your Year 11/12 students can build a relationship that you both feel part of. Thinking of the past 4 school months do you feel that there is a relationship between Year 11/12 students and you? How would you generally describe your relationship with Year 11/12s? How have you used digital technologies to build this relationship? What other ways could you further build the guidance officer – student relationship by using digital technologies? (RQ 5)**

10. **What are some of the problems in secondary guidance officers using digital technologies with Year 11/12 students? (RQ 2/3/4)**

11. **When thinking about your guidance service to Year 11/12 students what changes are likely to happen with the greater use of digital technologies by you with students? Do you think this would improve the guidance service? Do you think it could worsen the guidance service? How? (RQ 6)**

Ending Question

12. **Is there anything we did not cover in today's discussion that you think is important for me to know as part of this research project? (RQ 1/2/3/4/5)**

Section A: About You!

A1. **Identification Code 1. This is the final survey. For your anonymity, you are asked to provide an identification code. Type the first 4 letters of your mother's family name, followed by the first 4 digits of your date of birth. For example, someone whose mother's family name is 'Smith' and who was born on 2 August would have the following identification code: S M I T 0 2 0 8 Provide your 8 character identification code here (the first 4 letters of your mother's family name, followed by the first 4 digits of your date of birth)**

Section B: Digital Technology Devices

B1. **13. In thinking of the last 4 school months which of the following devices did you use at school that involved your guidance officer or what your guidance officer provides for students.**

Desktop computer	☐	Video game console	☐
Laptop computer	☐	Webcam	☐
iPod touch	☐	Printer	☐
Digital still camera	☐	Scanner	☐
Digital video camera	☐	iPad	☐
Mobile phone	☐	Projector	☐

B2. **14. In thinking of the last 4 school months which of the following devices did you use away from school that involved your guidance officer or what your guidance officer provides for students.**

Desktop computer	☐	Video game console	☐
Laptop computer	☐	Web cam	☐
iPod touch	☐	Printer	☐
Digital still camera	☐	Scanner	☐
Digital video camera	☐	iPad	☐
Mobile phone	☐	Projector	☐
Portable data storage e.g., USB	☐	Android tablet	☐

B3. **15. If these technology devices are different to the ones you used at school, tell more about this. Why is this so?**

B4. **15b. Which is your favourite digital device and why?**

Section C: Using Digital Technologies

C1. **16. How often did you use digital technologies that involved your guidance officer or what the guidance officer does for students in the last 4 school months?**

	0 times	1-2 times	3-5 times	6-10 times	11 times or more
I used email with our guidance officer	☐	☐	☐	☐	☐
I received text messaging from my guidance officer	☐	☐	☐	☐	☐
I used my mobile phone to call our guidance officer	☐	☐	☐	☐	☐
I used the Year 11/12 Guidance Blog with our guidance officer	☐	☐	☐	☐	☐
I used apps together with our guidance officer	☐	☐	☐	☐	☐
I used apps suggested by our guidance officer	☐	☐	☐	☐	☐
I used the guidance section on the school website	☐	☐	☐	☐	☐
I used the internet with our guidance officer	☐	☐	☐	☐	☐
I used internet sites suggested by our guidance officer	☐	☐	☐	☐	☐
I used social media (e.g., Facebook, Twitter....) alerts from our guidance officer	☐	☐	☐	☐	☐
I used some computer programs with our guidance officer	☐	☐	☐	☐	☐

C2. **17. In the past 4 school months what other ways have you used digital technologies that involved your guidance officer or what your guidance officer provides for students?**

Section D: Rules

D1. **18. When using digital technologies there are certain rules that you need to follow (e.g., at school not visiting particular web sites, using polite language in emails.....). In thinking of the last 4 school months in using digital technologies with your guidance officer and what your guidance officer provides for students …….What were the digital technology school 'rules' that you had to follow?**

D2. **19. What rules were helpful?**

D3. **20. What rules were not and got in the way?**

D4. **21. How could the school digital technology rules be improved to help you work with your guidance officer and what they provide for students?**

D5. 22. Think about your average use of digital technology in the last 4 school months that involved your guidance officer or what your guidance officer provides for students.

	Daily	3 times a week	Once a week	Fortnightly	Monthly	Once every 2 months	Once every 3 months	Once every 4 months	Not at all
I used digital technologies that involved my guidance officer or what my guidance officer provides for students	☐	☐	☐	☐	☐	☐	☐	☐	☐

Section E: Duties & Responsibilities

E1. 23. As students there are certain duties and responsibilities you have when using digital technologies, such as checking your emails, announcements, following the school technology rules ……. Some of these duties can be on a daily, weekly, monthly or yearly basis. In thinking of the last 4 school months .....

	1 Strongly disagree	2	3	4	5 Strongly agree
I used digital technologies face to face with the guidance officer	☐	☐	☐	☐	☐
I checked my school email for guidance emails	☐	☐	☐	☐	☐
I checked my mobile phone for texts from my guidance officer	☐	☐	☐	☐	☐
I read the Year 11/12 Guidance Blog	☐	☐	☐	☐	☐
I checked my social media (Facebook, Twitter...) for messages from my guidance officer	☐	☐	☐	☐	☐
I checked the school website for guidance items	☐	☐	☐	☐	☐
When I used digital technologies to do with guidance I used polite and courteous language	☐	☐	☐	☐	☐
The information and suggestions I learn from the digital technologies through guidance, I try to apply to my life	☐	☐	☐	☐	☐

E2. 24. In thinking of the last 4 school months, what are some other duties and responsibilities you undertook in using digital technologies with your guidance officer and what the guidance officer provides for students?

E3. **25. Do you think that your duties and responsibilities have changed in the last 4 school months in using more digital technologies with your guidance officer and what they provide for students?**

Yes ☐

No ☐

E4. **26. How did your digital technology duties and responsibilities help you in working with the guidance officer and what they provide for students in the last 4 school months?**

E5. **27. How did your digital technology duties and responsibilities make it difficult for you in working with the guidance officer and what they provide for students in the last 4 school months?**

E6. **27b. It would appear that a very small number of research students made comments in the Year 11/12 Student Blog. What do you feel are some reasons for this?**

Section F: Community & Relationships

F1. **28. There are different communities that you may be part of e.g., church soccer, Facebook….. You, the other students in Year 11/12 and your guidance officer form the 'guidance' community of your school. In thinking of the last 4 school months .....**

	1 Strongly disagree	2	3	4	5 Strongly agree
I felt that I was part of our school guidance community	☐	☐	☐	☐	☐
I felt that my guidance officer's use of digital technologies built a stronger guidance community	☐	☐	☐	☐	☐

F2. **29. In thinking of the last 4 school months how did your guidance officer use digital technologies to build your 'guidance community'?**

F3. **30. What other ways could the guidance officer build on the 'guidance community' by using digital technologies?**

F4. **31. Like other teachers you and your guidance officer can build a relationship that you both feel part of. In answering these questions think of the last 4 school months.**

	1 Strongly disagree	2	3	4	5 Strongly agree
I felt I had a good relationship with my guidance officer	☐	☐	☐	☐	☐
I felt that my guidance officer's use of digital technologies built a stronger relationship with me	☐	☐	☐	☐	☐

F5. **32. In thinking of the last 4 school months how did your guidance officer use digital technologies to build on your student-guidance officer relationship?**

F6. **33. In thinking of the last 4 school months what other ways could the guidance officer use digital technologies to build on your student-guidance officer relationship?**

Section G: Change

G1. **34. When thinking about what the guidance officer does with students and provides for students what changes have happened in the last 4 months with the greater use of digital technologies by guidance officers with students?**

G2. **35. Do you think what the guidance officer does with students and provides for students has improved through the greater use of digital technologies in the last 4 school months?**

Yes ☐

No ☐

G3. **36. In what specific ways has it improved?**

G4. **37. Do you think this has worsened what the guidance officer does and provides to you?**

Yes ☐

No ☐

G5. **38. In what specific ways has it made things worse?**

G6. **39. What changes have you noticed in yourself as a result of the guidance officer using more digital technology?**

G7. **40. Think about the last 4 school months and your guidance officer using digital technologies. Tick the box that is most like you.**

	1. Strongly disagree	2	3	4	5. Strongly agree
I understand more about what the guidance officer does.	☐	☐	☐	☐	☐
I feel more connected to the guidance officer.	☐	☐	☐	☐	☐
I have a stronger relationship with the guidance officer.	☐	☐	☐	☐	☐
I would be more likely to book an appointment with the guidance officer.	☐	☐	☐	☐	☐
I have more knowledge about careers.	☐	☐	☐	☐	☐
I feel that my learning at school has improved because of the guidance officer's use of digital technologies.	☐	☐	☐	☐	☐
If I had a personal problem I would be more willing now to see the guidance officer.	☐	☐	☐	☐	☐

Section H: The Future!

H1. **41. Your advice please! What other specific ways could guidance officers be using digital technologies with Year 11/12 students?**

H2. **42. If you were speaking in front of all the guidance officers in Queensland, what vital advice would you give them regarding the use of digital technologies with Year 11/12 students?**

This is the final survey questionnaire. Your thoughts and comments about digital technology use are really important for this research. Please take your time to complete.

Section A: About You!

A1. **1. Identification Code This is the follow-up survey completing the research project 'The enhanced use of Digital Technologies in Guidance Officer and Student Activity.' Just like the first survey you completed in February please provide your identification code. Type the first 4 letters of your mother's family name, followed by the first 4 digits of your date of birth. For example, someone whose mother's family name is 'Smith' and who was born on 2 August would have the following identification code: S M I T 0 2 0 8 Please provide your 8 character identification code here (the first 4 letters of your mother's family name, followed by the first 4 digits of your date of birth)**

Section B: Digital Technology Devices

B1. **8. In thinking of the last 4 school months which of the following devices did you use at school that involved your current Year 11/12 students or your guidance service to them?**

Desktop computer	☐	Video game console	☐
Laptop computer	☐	Webcam	☐
iPod touch	☐	Printer	☐
Digital still camera	☐	Scanner	☐
Digital video camera	☐	iPad	☐
Mobile phone	☐	Projector	☐
Portable data storage e.g. USB	☐	Android tablet	☐

B2. **9. In thinking of the last 4 school months which of the following devices did you use away from school that involved your current Year 11/12 students or your guidance service to them?**

Desktop computer	☐	Video game console	☐
Laptop computer	☐	Web cam	☐
iPod touch	☐	Printer	☐
Digital still camera	☐	Scanner	☐
Digital video camera	☐	iPad	☐
Mobile phone	☐	Projector	☐
Portable data storage e.g., USB	☐	Android tablet	☐

B3. **10. If these technology devices are different to the ones you used at school, tell more about this. Why is this so?**

B4. **10b. Which is your favourite digital device and why?**

Section C: Using Digital Technologies

C1. 11. How often did you use digital technologies that involved your current Year 11/12 students or your guidance service to them in the last 4 school months?

	0 times	1-3 times	4-6 times	7-9 times	10 times or more
I used email	☐	☐	☐	☐	☐
I used text messaging	☐	☐	☐	☐	☐
I used mobile phone calls	☐	☐	☐	☐	☐
I used a Year 11/12 blog	☐	☐	☐	☐	☐
I used apps	☐	☐	☐	☐	☐
I used the Guidance page on the school website	☐	☐	☐	☐	☐
I used the Internet	☐	☐	☐	☐	☐
I used social media (e.g., Facebook, Twitter...)	☐	☐	☐	☐	☐
I used some computer programs (e.g., Word, One Note, Power Point...)	☐	☐	☐	☐	☐

C2. 12. What other ways did you and your current Year 11/12 students use digital technologies with each other or through the guidance service in the past 4 school months?

Section D: Rules

D1. **13. The following items seek your thoughts on rules with digital technologies in your school (computer, iPads, mobile phones, Facebook, Internet ..). When using digital technologies there are certain rules that you need to follow (e.g., at school not visiting particular web sites, not texting students directly…). What are the digital technology school 'rules' that you have to follow?**

D2. **14. Which of these rules are helpful?**

D3. **15. Which rules are not helpful and get in the way? How do they get in the way?**

D4. **16. How could the school digital technology rules be improved to help you work with Year 11/12 students and your guidance service to them?**

Section E: Duties & Responsibilities

E1. **17. In using digital technologies with your current Year 11/12 students and through the guidance service to them in the last 4 school months, there were certain duties and responsibilities that you needed to see to, e.g., checking your emails or announcements, providing current information, responding to electronic requests.. ….. Some of these duties and responsibilities could be on a daily, weekly, monthly or yearly basis.**

	Not at all	Once every 4 months	Once every 3 months	Once every 2 months	Monthly	Fortnightly	Once a week	3 times a week	Daily
In the last 4 school months in general I used digital technologies that involved the current 11/12 students or guidance service to them	☐	☐	☐	☐	☐	☐	☐	☐	☐

E2. **18. Digital technology duties and responsibilities. In thinking of the current Year 11/12 students in the last 4 school months.....**

	1 Strongly disagree	2	3	4	5 Strongly agree
I used digital technologies face to face	☐	☐	☐	☐	☐
I responded to electronic requests	☐	☐	☐	☐	☐
I provided information for the Guidance page for the school website	☐	☐	☐	☐	☐
I managed, monitored and maintained a Year 11/12 Guidance Blog	☐	☐	☐	☐	☐
I provided an item for the school newsletter	☐	☐	☐	☐	☐
I emailed a guidance newsletter	☐	☐	☐	☐	☐
I used apps that complemented and were suitable for my guidance intervention	☐	☐	☐	☐	☐
I maintained student confidentiality of student data in a secure digital location	☐	☐	☐	☐	☐
I provided up to date information	☐	☐	☐	☐	☐

E3. **19. What were some other duties and responsibilities you undertook in using digital technologies that involved your current Year 11/12 students or your guidance service to them in the last 4 school months?**

E4. **20. Do you think that your duties and responsibilities changed in using more digital technologies with your Year 11/12 students or your guidance service to them?**

Yes ☐

No ☐

E5. **21. If you answered 'Yes' to the above question, in what ways do you think your duties and responsibilities have changed?**

E6. **22. Digital technology duties and responsibilities can constrain or assist you working with students. In thinking of the last 4 school months ….tell how they had constrained (got in the way) your guidance service to your current Year 11/12 students.**

E7. **23. Digital technology duties and responsibilities can constrain or assist you working with students. In thinking of the last 4 school months …..tell how they had assisted (helped) your guidance service to current Year 11/12 students.**

Section F: Community & Relationships

F1. **24. There are different communities that you may be part of e.g., church, soccer, Facebook….. You and the students in Year 11/12 form the 'guidance' community of your school. In thinking of the last 4 school months and the current Year 11/12 students.....**

	1 Strongly disagree	2	3	4	5 Strongly agree
I felt part of the guidance community	☐	☐	☐	☐	☐
I felt that there was a good sense of guidance community	☐	☐	☐	☐	☐

F2. **25. With every Year 11/12 cohort you build student relationships. In thinking of the last 4 school months describe your guidance officer–student relationship with the current Year 11/12 students.**

	1 Strongly disagree	2	3	4	5 Strongly agree
I felt I had a good relationship with the Year 11/12 students.	☐	☐	☐	☐	☐
I felt that the majority of Year 11/12 students knew I was the guidance officer.	☐	☐	☐	☐	☐
I felt connected to the Year 11/12s.	☐	☐	☐	☐	☐

Section G: Change

G1. **26. The remaining items ask you to think about the impact of using increased digital technologies with your Year 11/12 students and the guidance service to them. What student changes have you noticed?**

G2. **27. What school changes have you noticed?**

G3. **28. What guidance changes have you noticed?**

G4. **28b. What changes have you noticed in yourself?**

G5. **28c. What other changes have you noticed?**

G6. **29. Do you think this has improved the guidance service?**

Yes ☐

No ☐

G7. **30. Why do you think this?**

G8. **30b. If you think this has improved the guidance service explain in what specific ways it has?**

G9. **31. Do you think this has 'worsened' the guidance service?**

Yes ☐

No ☐

G10. **32. Why do you think this?**

G11. **33. If you think it has 'worsened' the guidance service, explain in what specific ways it has.**

G12. 34. This item asks about the impact that may have occurred through you and Year 11/12 students using more digital technologies with each other. Through increasing the use of digital technologies with my Year 11/12 students in the past 4 school months.....

	1 Strongly disagree	2	3	4	5 Strongly agree
I feel that Year 11/12 students understand more about what the guidance officer does.	☐	☐	☐	☐	☐
I have stronger relationships with the Year 11/12 students.	☐	☐	☐	☐	☐
I have noticed an increase in Year 11/12 student self-referrals.	☐	☐	☐	☐	☐
I believe that Year 11/12 students have more knowledge about careers than previous cohorts.	☐	☐	☐	☐	☐
I believe that my counselling has improved.	☐	☐	☐	☐	☐
I feel more creative in my guidance interventions.	☐	☐	☐	☐	☐
I feel that this has resulted in improved academic learning for Year 11/12 students.	☐	☐	☐	☐	☐
I have noticed that Year 11/12 students are more willing to see the guidance officer about personal problems.	☐	☐	☐	☐	☐
I have noticed that Year 11/12 students are more willing to see the guidance officer about mental health problems.	☐	☐	☐	☐	☐
I am more skilled at using digital technologies.	☐	☐	☐	☐	☐
I am more confident in using digital technologies.	☐	☐	☐	☐	☐
I am more enthusiastic about my guidance role.	☐	☐	☐	☐	☐

G13. 35. What other impacts have you noticed as a result of using digital technologies with your Year 11/12 students?

Section H: The Future!

H1. **36. In what ways in the future could you further improve your guidance service to Year 11/12 students through digital technology?**

H2. **37. If you were speaking in front of all the guidance officers in Queensland, what vital advice would you give them regarding the use of digital technology with Year 11/12 students?**

Appendix 11 Guidance Officer Electronic Diary

Week	Take 10 minutes each fortnight to write any thoughts that come to mind regarding the research. You might like to consider topics re: what you have noticed, how you have used digital technology (RQ 1, & R2), new uses of digital devices/software (RQ 1 & 2), how students used DT with you (e.g., they took a photograph on their mobile phone) (RQ 1 & 2), obstacles that got in your way (RQ 3 & 4), impact on relationships (RQ 5), improvements(RQ 6), what changes you have noticed (RQ 1,2,3,4,5,6), what you have learnt that other guidance officers need to consider (RQ 1,2,3,4,5,6)……
Date	

Introduction:

Overall Purpose of the Study and Learning Names

Hello. My name is Gary and we have asked you here to discuss the university project, *'The enhanced use of Digital Technologies in Guidance Officer and Student Activity.'* As you know this project was designed to increase your guidance officer's ability to use digital technologies (computers, mobile phones, web pages, computer software ……..) in their guidance work with you.

Before we begin I would like to relearn your FIRST names. Let's go around the group and tell me your name and your year level.

Research Information

As you know we are doing this project in conjunction with the University of Southern Queensland and the Department of Education Training & Employment. We will be audiotaping the discussion. The audio file will be for research purposes only and will be deleted after it has been transcribed. Your responses are confidential and no individual student will be identified in the research. Do you have any questions?

Let's begin.

Introduction

As you know each of us lives in a society, where technology continues to increase at an astronomical rate. It is a distinct part of your working, home and recreational world. You are part of the technological revolution where most electronic devices are regarded as digital, which is the modern way of how we create, store and process data. The majority of modern computers, laptops, iPads, mobile phones, cameras, printers, televisions…….are digital devices. This research project has involved the use of digital technologies including software, between guidance officers and Year 11/12 students. In answering the following questions I would like you to be thinking of the past 4 school months.

1. **What digital technology devices have you used at school in the past 4 school months that involved your guidance officer or what your guidance officer provides for students? (RQ 1)**

2. **What digital technology devices do you have at home (away from school)? Which of these technology devices are different to the ones you use at school? Tell me more about this? (RQ 3) Which of these digital technology devices have you used away from school in the past 4 school months that involved your guidance officer or what your guidance officer provides for students? Why? (RQ 1)**

3. **Which digital device do you most prefer? What is it about this device that you like? (RQ 1/3)**

4. **In the past 4 school months, what specific ways has your guidance officer used digital technologies (including software) that involved what he/she provides for students? (RQ 2)**

5. **In the past 4 school months, what specific ways have you used digital technologies that involved your guidance officer or what your guidance officer provides for students? (RQ 2)**

6. **As you know in using digital technologies (including software) there are certain rules that you need to follow (e.g., at school: not visiting particular web sites, not using your mobile during class….). In using digital technologies with your guidance officer, what are the digital technology school 'rules' that you have to follow? Which of these rules are helpful? Which are not and get in the way? How could the school digital technology rules be improved to help you work with your guidance officer and what they provide for students? In the past 4 school months have there been any changes in the rules? (RQ 3)**

7. **As you know as students there are certain duties and responsibilities you have when using digital technologies, such as checking your emails, looking after school technology devices, reading and applying new digital information to your life..... Some of these duties can be on a daily, weekly, monthly or yearly basis.**

   What are some of your duties and responsibilities in using digital technologies specifically with your guidance officer and what the guidance officer provides for students? Do you think that your student digital technology duties and responsibilities have changed with your guidance officer and what your guidance officer provides? If so, how? If not, why not?

   Digital technology duties and responsibilities can get in the way or help you working with your guidance officer. Tell me how your duties and responsibilities with digital technologies get in the way in working with your guidance officer? Tell me how your duties and responsibilities with digital technologies help working with your guidance officer? (RQ 4)

8. **There are different communities that you may be part of e.g., church, soccer, Facebook….. You, the other students in Year 11/12 and your guidance officer form the 'guidance' community of your school.**

How would you describe the 'guidance' community in your school? Do you feel that your guidance officer's use of digital technologies has helped build a 'guidance' community in your school? If yes, how have they done this? In the future what other ways could the guidance officer further build the 'guidance community' by using digital technologies? (RQ 5)

9. **Like other teachers you and your guidance officer can build a relationship that you both feel part of. Thinking of the past 4 school months how would you describe your guidance officer–student relationship? Do you feel that your guidance officer's use of digital technologies has helped build on your guidance officer–student relationship? How have they done this? What other ways could the guidance officer build on your guidance office–student relationship by using digital technologies? (RQ 5)**

10. **What are some of the problems in secondary guidance officers using digital technologies with Year 11/12 students? (RQ 2/3/4)**

11. **When thinking about what the guidance officer does with and provides for students, what changes have you observed as a result of using digital technologies? Do you think what the guidance officer does with and provides for students has improved as a result of using digital technologies? If so, how? If not, why not? How could the use of digital technologies by your guidance officer be further improved in the future? (RQ 6)**

Ending Questions

12. **Pretend that I am your guidance officer. What further advice would you give me about using digital technologies with Year 11/12 students in the future? (RQ 1/2/3/4/5)**

13. **Is there anything we did not cover in today's discussion that you think is important for me to know as part of this research project? (RQ 1/2/3/4/5)**

Introduction:

Overall Purpose of the Study

Hello. We have asked you here to discuss the university project, 'The enhanced use of Digital Technologies in Guidance Officer and Student Activity.' As you know this project was designed to increase your ability to use digital technologies (computers, iPads, web pages, computer software ……..) in your guidance work and see what the impact is on your guidance service delivery.

Warm-up activity

As you know, we are doing this project in conjunction with the University of Southern Queensland under the supervision of Dr Patrick O'Brien & Prof Romina Jamieson-Proctor and also in conjunction with the Department of Education Training & Employment. We will be audiotaping this discussion. The audio file will be for research purposes only and will be deleted after it has been transcribed. Do you have any questions?

Now we will begin.

Introduction

Each of us lives in a society, where technology continues to increase at an astronomical rate. It is a distinct part of your working, home and recreational world. You are part of the technological revolution where most electronic devices are regarded as digital, which is the modern way of how we create, store and process data. The majority of modern computers, laptops, iPads, mobile phones, cameras, printers, televisions…….are digital devices. This research project involves the use of digital technologies including software, between guidance officers and Year 11/12 students. In answering the following questions I would like you to be thinking of the past 4 school months.

1. **What digital technology devices have you used at school in the past 4 school months that involved your Year 11/12 students or the guidance service? (RQ 1)**

2. **What digital technology devices do you have at home (away from school)? Which of these technology devices are different to the ones you use at school? Tell me more about this? (RQ 3) In the past 4 school months which of these digital technology devices have you used away from school that involved your guidance service to Year 11/12 students? (RQ 1)**

3. **Which digital device do you prefer to use the most? What is it about this device that you like? (RQ 1/3)**

4. **In the past four months, what specific ways have you used digital technologies (including software) that involved your guidance service to Year 11/12 students? (RQ 2)**

5. **In the past four months, what specific ways have Year 11/12 students used digital technologies (including software) that involved your guidance service to them? (RQ 2)**

6. **When using digital technologies (including software) there are certain rules that you need to follow (e.g., at school not visiting particular web sites, not texting students directly…). In using digital technologies with your Year 11/12 students, what are the digital technology 'rules' that you have to follow? Which of these rules are helpful? Which are not and get in the way? How could the rules be improved to help you with your work and the guidance service? In the past 4 school months what rules have you noticed changing? (RQ 3)**

7. **For each of you there are certain duties and responsibilities you have when using digital technologies with Year 11/12 students such as using appropriate language, checking emails…… Some of these duties and responsibilities can be on a daily, weekly, monthly or yearly basis.**

   What are some of your duties and responsibilities in using digital technologies with Year 11/12 students? Do you think that your student digital technology duties and responsibilities have changed in providing a guidance service to Year 11/12 students? If so, how? If not, why not? Tell me how your duties and responsibilities with digital technologies constrain (get in the way) in your guidance service to Year 11/12 students? Tell me how your duties and responsibilities with digital technologies assist (help) in your guidance service to Year 11/12 students? (RQ 4)

8. **You and your students form the 'guidance' community of the school. How would you describe the 'guidance' community in your school? Do you feel that you have used digital technologies to build the 'guidance community' in the school? If yes, how have you done this? What other ways could you use digital technologies to further build the 'guidance community'? (RQ 5)**

9. **Like other teachers you and your Year 11/12 students can build a relationship that you both feel part of. (Place in survey questionnaire) Thinking of the past 4 school months do you feel that there is a relationship between Year 11/12 students and you? How would you generally describe your relationship with Year 11/12s? How have you used digital technologies to build this relationship? In the future what**

other ways could you further build the guidance officer – student relationship by using digital technologies? (RQ 5)

10. **What are some of the problems in secondary guidance officers using digital technologies with Year 11/12 students? (RQ 2/3/4)**

11. **When thinking about the guidance service to Year 11/12 students what changes have you observed as a result of using digital technologies? Do you think the guidance service has improved as a result of using digital technologies? If so, how? If not, why not? How could the use of digital technologies by you be further improved in the future? (RQ 6)**

Ending Question

12. **Is there anything we did not cover in today's discussion that you think is important for me to know as part of this research project? (RQ 1/2/3/4/5)**

Appendix 14 Overview of Data Gathering Instrumentation, Analysis Techniques and Schedule

Research Questions	Data Gathering Technique	When	Who	Data Analysis Techniques
RQ 1: What digital technology devices are SGCs and secondary students using a) at school, and b) away from school that involved the school guidance and counselling service? (Engeström: Mediating Tools	Pre-intervention Focus groups	February 2014	SGCs	Leximancer (2015). Thematic Analysis (Braun & Clarke, 2006)
		February 2014	Year 11/12 students	
	Pre-intervention Surveys	March 2014	Year 11/12 students	Wilcoxon Signed Rank Test (Pallant, 2011). Leximancer (2015) Thematic Analysis (Braun & Clarke, 2006)
		March 2014	SGCs	
	Post-intervention Focus groups	October 2014	SGCs	Leximancer (2015). Thematic Analysis (Braun & Clarke, 2006)
		October 2014	Year 11/12 students	
	Post-intervention Surveys	October 2014	SGCs	Wilcoxon Signed Rank Test (Pallant, 2011). Leximancer (2015) Thematic Analysis (Braun & Clarke, 2006)
		October 2014	Year 11/12 students	

Research Questions	Data Gathering Technique	When	Who	Data Analysis Techniques
RQ 2: In what ways and how often are SGCs and secondary students using digital technologies that involved the school guidance and counselling service? (Engeström: Mediating Tools)	Pre-intervention Focus groups	February 2014	SGCs	Leximancer (2015). Thematic Analysis (Braun & Clarke, 2006)
		February 2014	Year 11/12 students	
	Pre-intervention Surveys	March/April 2014	Year 11/12 students	Wilcoxon Signed Rank Test (Pallant, 2011). Leximancer (2015) Thematic Analysis (Braun & Clarke, 2006)
		March/April 2014	SGCs	
	Post-intervention Focus groups	October 2014	SGCs	Leximancer (2015). Thematic Analysis (Braun & Clarke, 2006)
		October 2014	Year 11/12 students	
	Post-intervention Surveys	October 2014	SGCs	Wilcoxon Signed Rank Test (Pallant, 2011). Leximancer (2015) Thematic Analysis (Braun & Clarke, 2006)
		October 2014	Year 11/12 students	

Research Questions	Data Gathering Technique	When	Who	Data Analysis Techniques
RQ 3: How does an enhanced use of digital technologies affect SGCs' and students' perception of school rules relating to the use of digital technologies? (Engeström: Rules)	Pre-intervention Focus groups	February 2014	SGCs	Leximancer (2015). Thematic Analysis (Braun & Clarke, 2006)
		February 2014	Year 11/12 students	
	Pre-intervention Surveys	March/April 2014	Year 11/12 students	Wilcoxon Signed Rank Test (Pallant, 2011). Leximancer (2015) Thematic Analysis (Braun & Clarke, 2006)
		March/April 2014	SGCs	
	Post-intervention Focus groups	October 2014	SGCs	Leximancer (2015). Thematic Analysis (Braun & Clarke, 2006)
		October 2014	Year 11/12 students	
	Post-intervention Surveys	October 2014	SGCs	Wilcoxon Signed Rank Test (Pallant, 2011). Leximancer (2015) Thematic Analysis (Braun & Clarke, 2006)
		October 2014	Year 11/12 students	
RQ 4: How do secondary students' and SGCs' technological duties and responsibilities change through the	Pre-intervention Focus groups	February 2014	SGCs	Leximancer (2015). Thematic Analysis (Braun & Clarke, 2006)
		February 2014	Year 11/12 students	

Research Questions	Data Gathering Technique	When	Who	Data Analysis Techniques
use of enhanced digital technologies in the school guidance and counselling context? (Engeström: Division of Labour	Pre-intervention Surveys	March/April 2014	Year 11/12 students	Wilcoxon Signed Rank Test (Pallant, 2011). Leximancer (2015) Thematic Analysis (Braun & Clarke, 2006)
		March/April 2014	SGCs	
	Post-intervention Focus groups	October 2014	SGCs	Leximancer (2015). Thematic Analysis (Braun & Clarke, 2006)
		October 2014	Year 11/12 students	
	Post-intervention Surveys	October 2014	SGCs	Wilcoxon Signed Rank Test (Pallant, 2011). Leximancer (2015) Thematic Analysis (Braun & Clarke, 2006)
		October 2014	Year 11/12 students	
RQ 5: What changes occur in the secondary students' and SGCs' sense of community and relationships with one another from the enhanced use of digital technologies in the school guidance and counselling context? (Engeström: Community)	Pre-intervention Focus groups	February 2014	SGCs	Leximancer (2015). Thematic Analysis (Braun & Clarke, 2006)
		February 2014	Year 11/12 students	
	Pre-intervention Surveys	March/April 2014	Year 11/12 students	Wilcoxon Signed Rank Test (Pallant, 2011). Leximancer
		March/April 2014	SGCs	

Research Questions	Data Gathering Technique	When	Who	Data Analysis Techniques
				(2015) Thematic Analysis (Braun & Clarke, 2006)
	Post-intervention Focus groups	October 2014	SGCs	Leximancer (2015). Thematic Analysis (Braun & Clarke, 2006)
		October 2014	Year 11/12 students	
	Post-intervention Surveys	October 2014	SGCs	Wilcoxon Signed Rank Test (Pallant, 2011). Leximancer (2015) Thematic Analysis (Braun & Clarke, 2006)
		October 2014	Year 11/12 students	
RQ 6: What changes in the school guidance and counselling service result from the enhanced use of digital technologies amongst SGCs and students? (Engeström: Object)	Pre-intervention Focus groups	February 2014	SGCs	Leximancer (2015). Thematic Analysis (Braun & Clarke, 2006)
		February 2014	Year 11/12 students	
	Pre-intervention Surveys	March/April 2014	Year 11/12 students	Wilcoxon Signed Rank Test (Pallant, 2011). Leximancer (2015) Thematic Analysis (Braun & Clarke, 2006)
		March/April 2014	SGCs	

Research Questions	Data Gathering Technique	When	Who	Data Analysis Techniques
	Post-intervention Focus groups	October 2014	SGCs	Leximancer (2015). Thematic Analysis (Braun & Clarke, 2006)
		October 2014	Year 11/12 students	
	Post-intervention Surveys	October 2014	SGCs	Wilcoxon Signed Rank Test (Pallant, 2011). Leximancer (2015) Thematic Analysis (Braun & Clarke, 2006)
		October 2014	Year 11/12 students	
General data	Electronic Diary	May - August 2014	SGCs	Leximancer (2015). Thematic Analysis (Braun & Clarke, 2006)
	SGC Research Meetings	May, June, July 2014	SGCs	Leximancer (2015). Thematic Analysis (Braun & Clarke, 2006)
	Unstructured Field Observations	October 2013 – September 2014	SGCs	Leximancer (2015). Thematic Analysis (Braun & Clarke, 2006)

Appendix 15 University of Southern Queensland Ethics Approval

University of Southern Queensland

Memorandum

To:	Gary Hohn
CC:	Dr Patrick O'Brien, Supervisor
From:	Manager, Research Integrity and Governance
Date:	3 June 2013
Re:	**Ethics application**

The Acting Chair of the USQ Human Research Ethics Committee (HREC) has assessed your revised ethics application and agreed that your proposal meets the requirements of the *National Statement on Ethical Conduct in Human Research (2007)*. Your project has been endorsed and full ethics approval granted.

Project Title	Measuring changes that impact on guidance service delivery and activity as a result of enhanced use of digital technologies by secondary guidance officers and Year 11/12 students.
Approval no.	H13REA013
Expiry date	14/12/2013
HREC Decision	**Approved with recommendations:** 1) the revised Participant Information Sheets reflect the procedures devised by the researcher to mitigate the risk highlighted by the HREC, as highlighted by the researcher in his revised documentation.

Please note: the application is approved unconditionally; the recommendations have the status of informal advice which you are not obliged to take note of.

The standard conditions of this approval are:

(a) conduct the project strictly in accordance with the proposal submitted and granted ethics approval, including any amendments made to the proposal required by the HREC
(b) advise (email: ethics@usq.edu.au) immediately of any complaints or other issues in relation to the project which may warrant review of the ethical approval of the project
(c) make submission for approval of amendments to the approved project before implementing such changes
(d) provide a 'progress report' for every year of approval
(e) provide a 'final report' when the project is complete
(f) advise in writing if the project has been discontinued.

For (c) to (e) proformas are available on the USQ ethics website: http://www.usq.edu.au/research/ethicsbio/human

Please note that failure to comply with the conditions of approval and the *National Statement (2007)* may result in withdrawal of approval for the project.

You may now commence your project. I wish you all the best for the conduct of the project.

If you have any further queries please do not hesitate to contact the Ethics Committee Support Officer, Annmaree Jackson, on 4631 2690 or ethics@usq.edu.au

Melissa McKain

Office of Research & Higher Degrees

Appendix 16 Department of Education and Training Ethics Approval

16 May 2013

Mr Gary Hohn

8 Cossart Crescent

BARGARA QLD 4670

Dear Mr Hohn

Thank you for your application seeking approval to conduct research titled *Measuring changes that impact on guidance service delivery and activity as a result of enhanced use of digital technologies by secondary guidance officers and Year 11/12 students* in Queensland State schools. I wish to advise that your application has been approved.

You may approach principals of the schools nominated in your application and invite them to participate in your research project. As detailed in the Department's research guidelines the following applies to the study:

• You need to obtain consent from the relevant principals before your research project can commence.

• Principals have the right to decline participation if they consider that the research will cause undue disruption to educational programs in their schools.

• Principals have the right to monitor any research activities conducted in their facilities and can withdraw their support at any time.

This approval has been granted on the basis of the information you have provided in your research proposal and is subject to the conditions detailed below.

• Perusal of and adherence to the Department's standard *Terms and Conditions of Approval to Conduct Research* in Departmental sites is required as outlined in the document at: http://education.qld.gov.au/corporate/research/terms_conditions.pdf

• Any changes required by your institution's ethics committee must be submitted to the Department of Education, Training and Employment for consideration before you proceed.

• Any variations to the research proposal as originally submitted, including changes to data collection, additional research undertaken with the data, or publication based on the data beyond

what is normally associated with academic studies, should be submitted to the research officer via email. Significant variations will require the submission of a new application.

• Papers and articles intended for publication that are based on data collected from Queensland state schools and/or Departmental sites should be provided to the Department for comment before release.

• Under no circumstances should any publications disclose the names of individuals or schools.

• You are required to contact the Department if you are contacted by the media about research activities conducted on

Education House
30 Mary Street Brisbane 4000
PO Box 15033 City East
Queensland 4002 Australia
Telephone 07 3034 5929
Website www.dete.qld.gov.au
ABN 76 337 613 647

Departmental sites or if you intend to issue a media release about the study.

• At the conclusion of your study you are required to provide this Office and principals of participating schools with a summary of your research results and any associated published papers or materials in hard copy. You are also requested to submit the documents in electronic format, or provide a link to an online location if possible, to research.stratpol@DET.qld.gov.au. **Failure to provide a report on your research will preclude you from undertaking any future research in Queensland State schools.**

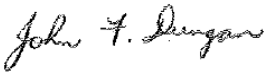
Please note that this letter constitutes approval to invite principals and teachers to participate in the research project as outlined in your research application. This approval does not constitute ethics approval or support for the general and commercial use of an intervention or curriculum program, software program or other enterprise that you may be evaluating as part of your research.

Research Services values your input into the research application process and is seeking your responses through the enclosed short feedback form. It is hoped that this feedback will enable Research Services to effectively assess whether its processes are efficiently streamlined, transparent and mutually beneficial to all stakeholders.

Should you require further information on the research application process, please feel free to contact Rebecca Libke, Senior Research Officer, Strategic Policy and Portfolio Relations on (07) 3237 0417. Please quote the file number 550/27/1325 in future correspondence.

I wish your study every success.

Yours sincerely



Dr John Dungan

Director
Research Services
Strategic Policy and Portfolio Relations
Trim ref: 13/165917

Appendix 17 School Implementation Model