VISION IMPAIRMENT AND THE TRANSITION TO UNIVERSITY EDUCATION: THE ROLE OF ICTs

BY

EDGAR PACHECO BENAVENTE

A thesis

submitted to the Victoria University of Wellington

in fulfilment of the requirements for the degree of

Doctor of Philosophy

Victoria University of Wellington

2015

Abstract

The transition to university is a crucial process in the lives of young people who pursue tertiary education. It can be a stressful experience for all students in general but it is especially challenging for those with disabilities. In recent years the number of students with disabilities enrolled in tertiary institutions has grown steadily. Also, the transition to university has become a topic of interest for policy makers and scholars around the world. However, there is still limited research about the transition to university for students with disabilities and the issues they face when they start their university journey. Additionally, very little research has examined the role of Information and Communications Technologies (ICTs) in supporting their transition experience.

This research focuses on students with vision impairments, one of the disability groups who have been less studied in academia, and seeks to answer two research questions. First, what are the factors that influence students with vision impairments'experiences of the transition process to university education? Second, how are ICTs used to support this process? The research participants, aged 18 to 24 years old, were all undergraduate students enrolled at Victoria University of Wellington. Data was collected over a year and a half through observations, a researcher diary, individual interviews, social media and focus group meetings. Action research (AR) was the research method used in this qualitative and inductive study. The AR intervention included organising informal face-to-face support group discussions with the participants at different periods of their first trimester at university and setting up a website and a social media group page.

The research findings have significant contributions for knowledge and practice. It was found that students with vision impairments are able to develop self-determination skills as they are using and adapting ICTs creatively and innovatively in order to make sense of their transition. This group of students not only use these tools in compensating for their vision impairment but also to interact and collaborate with their peers. This research has also identified five overlapping transition stages: Exploring, Discovering, Coping with, Readjusting and Settling in. Similarly, it includes a description of different transition issues (e.g. academic system, social connections, and financial matters) that have a positive and/or negative impact on the transition experience.

Likewise, the findings show that ICTs play a role in the transition to university and that this role varies depending on the transition stage, the transition issues the students with vision impairments deal with and their personal needs. To a large extent, ICTs are embedded in the everyday activities of the students with vision impairments. In addition to using adaptive technologies, they have already

incorporated other tools, such as Web 2.0 (e.g. Facebook), and portable devices (e.g. smartphones), and use them for their university activities and transition experience. In this respect, this research suggests rethinking transition in terms of the idea of Transition 2.0, a concept that describes the current escenario of transition to university for students with vision impairments.

This study represents a significant contribution from the field of information systems (IS) to research areas such as disability and tertiary education.

Keywords: transition to university, Transition 2.0, vision impairment, self-determination, ICTs, action research.

I dedicate this thesis to my parents, Eulogio and Elsa, for their endless love, care, courage and encouragement.

Acknowledgements

"Caminante, no hay camino, se hace el camino al andar" (A. Machado).

"Walker there is no path; you make the path as you go".

My PhD research has been a life-changing experience. I am not the same person I was a few years ago when I embarked on this challenging and exciting journey. It is not about the physical (and electronic) document I am presenting now as the result of all these years of research. It has to do with the way this adventure has helped me to see the world. Working with young people with vision impairments, trying to understand their needs and supporting their transition experience has definitely triggered a change. For me, all these years as a PhD candidate have confirmed that as social scientists our role goes beyond explaining social phenomena. I believe we are also capable and entitled to contribute with knowledge that is actionable and that can support and enhance people's potential. My PhD journey has helped me to fulfil this personal goal.

This life-changing experience would not have been possible without the support of a number of people to whom I am deeply grateful. First, I would like to thank my two supervisors, Professor Miriam Lips and Professor Pak Yoong, for their invaluable guidance and ideas, understanding, motivation and patience over these years. I am also sincerely indebted to each of the students who took part in this study for their enthusiasm and sincere collaboration in this research. I wish all the best to them in the future. My appreciation extends to the Disability Services staff for their priceless support and letting me be part of the team. I also offer my sincere gratitude to the School of Information Management, its teaching and administrative staff and, in particular, my PhD colleagues for the nice conversations and mutual support regarding PhD life.

Finally, an immense thanks to my family who was always standing by me in hard times during this work.

Table of Contents

List of Tables

List of Figures

Chapter 1: Introduction

1.1 Chapter Overview

This chapter introduces the research topic and provides an overview of the thesis. It begins with the background of the research topic. It contextualises the research problem which justifies the need for studying students with vision impairments' transition to university and the way Information and Communication Technologies (ICTs) are used to manage the transition experience. It then presents the research questions that guided the study and outlines the significance of doing this study. Then a summary of the research methodology is provided as well as the limitations and delimitations of the study. It includes a list of key terms with the definitions that will be used in the context of this study. Finally, this chapter provides an outline of the research strategy followed by a summary of the structure of the thesis.

1.2 Background and Problem Statement

Recently, the number of students with disabilities attending tertiary education in developed countries, including New Zealand, has steadily increased (Getzel & Wehman, 2005). This trend is accompanied by a growing awareness about the need for support programmes, services and policies targeting this particular group of students (Barnes & Mercer, 2006; Getzel & Wehman, 2005) especially because disability makes transition a more challenging experience (Kochhar-Bryant, Bassett, & Webb, 2009). The difficulties also increase when the students realise that the personalised support system they had in high school differs from the one at the university setting (Madaus, 2005). What is more, once at university, they understand that they have to become independent learners. The transition to university for students with disabilities is, thus, more stressful and demanding compared to the experience of their peers without disabilities. In fact, the evidence shows that the dropout rate of this group of students is almost double compared with students without disabilities and that they are less likely to graduate (Cobb, Sample, Alwell, & Johns, 2006; Bardin & Lewis, 2008; Thurlow, Sinclair, & Johnson, 2002). Students with disabilities also spend more time studying at university before graduation (Caton & Kagan, 2007; Murray, Goldstein, Nourse, & Edgar, 2000). Consequently, helping to "smooth" the transition to university has become a crucial issue not only for the students themselves but also for their families, service providers and tertiary organisations.

Similarly, there is an increasing, but still insufficient, body of knowledge looking at the role of Information and Communication Technologies (ICTs) for supporting the needs of people with disabilities. Most of the available research about the impact of ICTs on the lives of people with disabilities, including the university experience, has centred on assistive technologies and their role of compensating for people's impairments. More recently, as ICTs have become more embedded in people's everyday lives (Boase, Horrigan, Wellman, & Rainie, 2006), research has explored different aspects of ICTs in relation to people with disabilities. For example, some studies have looked at the benefits of ICTs for identity development and self-representation (Thoreau, 2006), the potential of technological tools for enhancing online democratic and political engagement (Stienstra & Troschuk, 2005) and the psychological and social impact of disability-specific online communities (Obst & Stafurik, 2010). However, some concerns have also arisen about the emergence of the "disability divide" (Dobransky & Hargittai, 2006) and the apparent oppressive nature of technological tools against people with disabilities (Goggin & Newell, 2003).

Despite the growing interest in both the transition to university of people with disabilities, and the implications of ICTs in their everyday lives, research that links these two topics is to a large extent

absent. Part of the limited literature about transition to university has been written to provide practitioners with best practices (Bakken & Obiakor, 2008; Steere, Rose, & Cavaiuolo, 2007) or has scoped the transition needs of people with disabilities in general with no or little connection to ICTs (see Kochhar-Bryant, Bassett, & Webb, 2009; Wagner, Newman, Cameto, Levine, & Marder, 2007). When ICTs were related to tertiary education the focus was on access to these tools rather than their implications for the transition experience of the students (Burgstahler, 2003). In other cases the relationship of ICTs with transition to university has centred on the impact of assistive technologies on compensating for the impairments and/or helping students with disabilities adjust to the academic demands of the university setting. Similarly, the transition to university for specific disability groups other than the vision impairment one has received more attention from scholars (Adreon & Durocher, 2007; Vogel & Adelman, 1992).

Likewise, despite the growing interest regarding the study of transition to university for young people with disabilities, little research has focused on the factors or issues that influence the transition experience of these students. As previously mentioned, practitioners and social policy makers have produced relevant contributions about students with disabilities' university experience, in particular in the form of guidelines and best practice reports. These contributions have sought to facilitate the adjustment of students with disabilities to the academic demands of the tertiary setting, and to prevent dropping out. When transition factors were investigated, the views of the students in this respect were scarcely included. Specific disability groups such as students with vision impairments were also not consulted. Research about transition issues affecting students with this kind of impairment is scarce and the few available studies date from the late 1990s. Thus, there is a need to update research about the factors that affect transition to university, and more importantly, research that takes into account the perspective and the way students with vision impairments construct meaning of their transition to university.

As previously mentioned, to a large extent, research has looked at the impact of ICTs on the lives of people with disabilities. However, little is known about the implications of technological tools in the particular context of the transition experience of this group of students. On the one hand, research has looked at the compensatory role of ICTs. For example, in the case of students with vision impairments, available research has highlighted how assistive technologies make it easier to access printed information and mitigate the impact of students' impairments by supporting writing as well.

On the other hand, with the rapid growth and increasing sophistication of ICTs (e.g. Web 2.0 and portable devices), researchers have started looking at their effects on the teaching and learning

experience of university students. However, less attention has been paid to the impact of ICTs on transition to university. In particular, we still lack understanding of the way students with disabilities such as those with vision impairments are using advanced new technologies to manage their transition to university. In other words, we do not know what perceived roles ICTs play in the transition experience of these students and how these tools are used to cope with different transition issues or factors apart from the academic demands of the university setting.

1.3 Research Aim and Questions

The aim of this research was to gain understanding of the factors or issues that influence the transition to university of students with vision impairments and the way ICTs can be used to address transition. In this sense, the following research questions guided this study:

- **What are the factors that influence students with vision impairments' transition to university education in New Zealand?**
- **How are ICTs used to cope with transition to university?**

1.4 Significance of the Study

This study offers a number of significant contributions for theory and practice. First, it provides an understanding about the way students with vision impairments construct meaning of their transition to university. Because it is based on the perceptions of this group of students, the study shows how the transition experience of the students evolved before, during and after their first academic trimester at university, which was a critical period for their transition. Second, by incorporating the ICT component in the study of transition to university, this research represents a contribution from the field of information systems (IS) and complements the research efforts of other disciplines such as education, social policy and disability studies about this topic. Third, the conceptual framework elaborated from the findings of this study also represents a valuable contribution as it describes transition stages, transition issues, the role of ICTs and their impact on students' transition experience and the development of self-determination. Finally, this study shows the usefulness of adopting a research method that combines action and research. By employing action research (AR), I was not only able to contribute new knowledge about the topic but also to offer practical solutions and support to students with vision impairments in order to manage and make sense of their transition experience.

1.5 Research Methodology

This qualitative research was based on the philosophical assumptions of constructivism. Action research (AR) was the research strategy that guided the design and data collection of the study. As a

constructivist AR researcher I maintained close interaction and collaboration with the research participants. Depending on the needs of the research and the participants, I was on certain occasions a facilitator (especially during my interventions via ICTs). My AR interventions included group support meetings and the setting up of a website and a social media group page to support access to transition-related information and resources, interaction, collaboration and the construction of meaning with and among the participants in regard to their transition to university. The techniques for data collection included observations, a researcher diary, social meetings, individual interviews and data from online interactions. Secondary data was also obtained from interviews with Disability Services staff. I also followed an inductive approach for data analysis and procedures to ensure the credibility of the study such as member checking.

1.6 Limitations

The main limitation of this study is that it is highly contextual. It centres on the transition experience of students with vision impairments from one university in New Zealand. Thus, the findings have limited transferability. Another limitation is that while blind students were considered as potential participants for this study, none were enrolled at the university when I carried out the study. As a researcher, I am aware that blind students have particular needs that may differ from those of students with other kinds of vision impairments, which may influence the findings of the study.

1.7 Delimitations

This study is about students with vision impairments' transition to university. I chose this group of students because available research in New Zealand and overseas is limited and out of date compared with that on other disability groups. Also, the research participants were all students from Victoria University of Wellington. Working with students from different New Zealand universities was initially contemplated. However as the research methodology required collaboration with and among the participants, it was more practical and feasible for me, the researcher, to focus on students from one university. In doing this, I was able to build trust with the participants and enhance the impact of my interventions to support their transition experience. Additionally, Victoria University of Wellington has an experienced Disability Services unit and I considered this important in order to help identify and contact potential research participants. On the other hand, while distance education is a relevant educational option for students with vision impairments, this study only focuses on on-campus students because a growing number of young people with disabilities is attending tertiary education and current research has not explored this new trend yet.

1.8 Definition of Key Terms

Definitions adopted by researchers are often not uniform and/or lack general agreement. Thus, key and controversial terms need to be defined to establish positions taken in the PhD research. This sub-section presents the definition of key terms used in this study.

Transition to university is a longitudinal process. It not only entails a psychological period of adaptation for the individual but it also implies a process of academic and social involvement with the tertiary environment (Terenzini, Springer, Yaeger, Pascarella, & Nora, 1996; Tinto, 1993).

Self-determination is a "combination of skills, knowledge, and beliefs that enable a person to engage in goal-directed, self-regulated, autonomous behavior. An understanding of one's strengths and limitations together with a belief in oneself as capable and effective are essential to self-determination. When acting on the basis of these skills and attitudes, individuals have greater ability to take control of their lives and assume the role of successful adults in our society". (Field, Martin, Miller, Ward, & Wehmeyer, 1998, p. 2)

Vision impairment is an umbrella term that includes blindness and low vision. However, instead of the quantification of visual acuity to determine the level of visual impairment, this research project will conceptualise the term in relation to functional vision, which is how well an individual uses the vision she or he has to meet the specific demands of real situations such as planning and performing a task (Corn & Koenig, 1996; H. Mason, 1999; Webster & Roe, 1997).

Information and Communication Technologies is a term that refers to "the hardware, software, networks, and media for the collection, storage, processing, transmission and presentation of information (voice, data, text, images), as well as related services" (Gutterman, Rahman, Supelano, Thies, & Yang, 2009, p. 32). ICTs include, for example, electronic assistive technologies, portable devices, and Internet-based tools such as social media and Web 2.0 applications.

Web 2.0 encompasses a variety of different meanings that include an increased emphasis on user generated content, data and content sharing and collaborative effort, together with the use of various kinds of social software, new ways of interacting with web-based applications, and the use of the web as a platform for generating, re-purposing and consuming content…One way of summarising the change to Web 2.0 is by contrasting the former web ("Web 1.0") with Web 2.0. In Web 1.0 a few content authors provided content for a wide audience of relatively passive readers. However, in Web 2.0 everyday users of the web use the web as a platform to generate, re-purpose, and consume shared content. With Web 2.0 data sharing the web also becomes a platform for social software that enables

groups of users to socialise, collaborate, and work with each other." (Franklin and Van Harmelen, 2007, p. 4).

1.9 Structure of the Thesis

This thesis consists of nine further chapters. In Chapter 2, I situate the study in the context of available literature which justifies the need for research on students with vision impairments' transition to university and the role of ICTs. In Chapter 3, I establish the research methodology followed in this study in order to answer the overarching research questions. Then, in Chapter 4 I introduce and discuss the main contribution of this study: the concept of Transition 2.0, its stages and the issues/factors experienced by the participants. The subsequent chapters (5, 6, 7, 8 and 9) describe the findings of the research according to the five overlapping stages of Transition 2.0. In this respect, the results also include the specific transition issues and the way ICTs were used by students with vision impairments during their transition. Finally, the discussion of findings and the conclusions of the study are outlined in Chapter 10 which demonstrates I have answered the research questions of this study.

1.10 Chapter Summary

This chapter has laid the groundwork for the study. Along with the background of the research topic, this chapter has presented a justification for the research project and introduced the research problem and research questions. Then, a set of definitions of key terms were presented. Also, the methodology was briefly depicted and the structure of the thesis was presented. The next chapter will review pertinent literature that justifies the need for investigating transition to university for students with vision impairments and the role of ICTs.

Chapter 2: Literature Review

2.1 Chapter Overview

In this chapter I review relevant literature related to this study. In doing so, I set up the context of the research topic. I not only describe what has been done but I also outline what needs to be done in terms of transition to university and the role of ICTs. To this end, I have examined the body of literature from different disciplines such as education, information systems, psychology, disability studies, sociology and health and rehabilitation. Information was retrieved using a search strategy of key words via academic databases such as ProQuest, PsycINFO, Science Direct, ACM Digital Library, Web of Science, ERIC, Emerald Insight and Google Scholar. I also searched top-ranked academic journals from the disciplines cited above.

In the first part of this literature review I present a historical overview of people with disabilities, including those with vision impairments, in New Zealand. Then, I discuss the concept of vision impairment and provide the working definition for this research. Following this, transition to university and theories about transition are explored. In particular, I discuss the Theory of Student Departure which has been largely used in the study of transition to university, including for people with disabilities. In the final sections I review Information and Communications Technologies (ICTs) in relation to disability and transition to university for students with vision impairments.

The literature review shows that although transition to university has been of interest to the scholarly community, little is known about issues or factors that affect specific groups such as students with vision impairments. The evidence also demonstrates that there is limited understanding of the role of ICTs in transition to university from the viewpoint of this group of students. In summary, in justifying the need for further research, this chapter provides the historical context, background and foundation for methodological procedures for the study of transition to university and the role of ICTs for people with vision impairments.

2.2 Disability and Vision Impairment in New Zealand

This section presents the historical context of disability in New Zealand. It summarises the way people with disabilities, including those with vision impairments, have been understood and their needs approached since the early years of the country. It explains that policies and support for people with disabilities have been designed and implemented from a top-down perspective with little interest in listening to and/or working with them. This section also shows that the medical model has dominated the design and implementation of disability-related policies in New Zealand. Despite the recent move towards a social model and the emphasis on the rights of people with disabilities, the needs of this particular group remain to be understood. As some studies report, people with disabilities affirm that they are still facing barriers that prevent them from fully participating in their communities (see following sub-section).

This section also provides statistical information about disability in New Zealand. It shows that on average one in four New Zealanders has one or more than one impairment. This fact makes the study of disability in general, or any disability group in particular, a relevant research topic because research findings could guide the planning and implementation of policies, services and resources to support this particular group in coping with the different challenges imposed by their impairments. However, while information about disability in New Zealand started being collected a couple of decades ago, this information is restricted to the demographics of disability. Research regarding people with disabilities' perceptions about different aspects of their daily life (e.g. access to employment and education) still needs to be done.

2.2.1 Historical accounts

Since 1840 disability has been part of New Zealand legislation. However, public and government interest in this issue grew only in recent decades. Tennat (1996) outlines some key themes that explain such interest in the topic of disability:

- The gradual increase in expectations of health, wellbeing and mobility in the country that has made disability more 'distinguishable' and thus requiring public attention.
- The medical developments and technological innovations that have allowed the improvement of diagnosis and treatment of conditions before they become disabling.
- The demographic changes in the country from a predominantly young population during the nineteenth century to an increasing proportion of elderly in the last decades.

- The growth in public sensibilities about disability originating in events such as the polio epidemics of the 1920s, 1930s and 1940s or the physical impairment of servicemen who took part in the World Wars.
- The emergence of support organisations organised by people with disabilities themselves.
- The influence of overseas experiences and models on disability organisations in New Zealand.
- The changes in the terminology used to describe disability.

There seems to be agreement on the positive shifts in New Zealand disability policies over the past decades (Beatson, 2001; Office for Disability Issues, 2002; Tennat, 1996; Wiley, 2009). However, commentators also disagree about the beginning and extent of such improvements. The Office for Disabilities Issues (2002) argues that government involvement in the provision of services for people with disabilities started in the second half of the nineteenth century when the voluntary sector, which lacked adequate infrastructure, was unable to meet the needs of the disability community. Government intervention was mainly through grants to voluntary organisations which provided "charitable aid" (Office for Disability Issues, 2002). Tennat (1996), in contrast, asserts that during that period of time government initiatives, rather than supporting people with disabilities, in reality worked against them. She remarks that people with disabilities were seen as one group among the poor and they were even discouraged from arriving in New Zealand. She gives an example of this; the Imbecile Passengers Act 1882 which required "a bond from the person responsible for a ship which discharged any person lunatic, idiotic, deaf, dumb, blind or infirm" (Tennat, 1996, p. 7). On the other hand, Beatson (2001) stresses that early government initiatives were "very few oases" (p. 244) and that the responsibility for the care of disabled people was laid directly on their families. Despite minimal government assistance, Beatson (2001) notes that the general understanding of welfare in New Zealand's colonial period was based on "the provision of basic measures necessary for the bare maintenance of life" (Beatson, 2001, p. 243).

In the twentieth century a set of new events had an impact on the move towards a new approach regarding disability in New Zealand. This gradual change of perspective underlying the government's disability policies was expressed in the shift from a medical to a self-empowerment model (Beatson, 2001; Tennat, 1996). The experience of the First World War seems to have been particularly influential in the setting up of rehabilitation programmes (Tennat, 1996). However government interest in recompensing injured soldiers for their sacrifice was focused on the physically disabled while the negative perception of mental disabilities remained unchangeable at best (Tennat, 1996). Such government interest in supporting people with physical impairments was influenced by the

medical model, in which disability is seen as a "dysfunctional part of bodies" (Tennat, 1996, p. 23) and/or no more than a personal problem. Although there were limitations to this approach, policy developments for people with disabilities provided some relevant benefits and services in the subsequent years such as (Office for Disability Issues, 2002):

- The introduction of income support benefits through which the government acknowledged its responsibility to help people unable to work due to illness or disability (e.g. the 1936 Invalids Pension Act 1936 and the Social Security Act 1938).
- Large government-funded psychiatric and psychopaedic institutions were built but principally located in isolated rural areas and operated self-sufficiently, away from other residential or commercial activity.
- The setting up of medical rehabilitation programmes which began after the First World War, continued during the Second World War and included civilians from 1954.
- Sheltered employment opportunities for people with disabilities were developed. The Disabled Persons Employment Promotion Act 1960 exempted operators of sheltered workshops from employment conditions applying elsewhere. This created a market distinction between sheltered employment and employment in the open labour market.

During the 1950s and 1960s the predominance of the medical model started to be challenged by social activists linked to the disability community (Beatson, 2001; Office for Disability Issues, 2002; Tennat, 1996). Organisations such as the Institute for the Blind questioned existing pension regulations (Tennat, 1996) and the Intellectually Handicapped Children's Parents Association set up its own day-care centres, occupation groups and residential homes (Office for Disability Issues, 2002). Criticism of the medical model was driven by a rights-based approach which sought to address the limitations faced by people with disabilities and provide them with the means for full participation in community activities (Beatson, 2001; Office for Disability Issues, 2002).

By the 1970s stronger pressure obligated the government to adopt a perspective towards normalisation and integration of people with disabilities (Beatson, 2001) and a much wider range of provision for people with disabilities (Tennat, 1996). Successive improvements (see Table 1 for main policy innovations since the 1970s) were promoted in different domains such as education, rehabilitation and employment (Beatson, 2001). The changes were also directed to the deinstitutionalisation of disabilities services and the encouragement of a community care model that placed people with disabilities in homes such as small residential facilities or half-way houses (Beatson, 2001; Tennat, 1996). According to Beatson (2001), "people with disabilities were to be

allowed, persuaded, even forced to leave the reclusion of residential institutions, and mingle instead with the general populace in that warm but ill-defined abstraction 'the community'" (p. 247). During the 1980s community care became a mainstream approach. In addition to this, measures such as an amendment to the Education Act allowed children with disabilities to enter the ordinary school environment (Tennat, 1996) and thus promoted the vision of disability involvement in the community. However, during the 1990s the community care approach was under attack as deficiencies in its implementation become apparent. Objections to this approach, it is argued, emerged due to a lack of adequate funding, preparation, support and therapies for those receiving community care (Tennat, 1996, p. 28).

Table 1.

Disability Policy Innovations since the 1970s

National and international policy innovations	**Main Feature**
Accident Compensation Act 1972	• Established a generous, no fault, state system of compensation and rehabilitation for people impaired by accidents.
Royal Commission on Services for Intellectually Handicapped Children 1972	• Functioned towards the deinstitutionalisation of large, segregated psychopaedic hospitals into community based facilities.
Disabled Persons Community Welfare Act 1975	• Gave disabled people, who were not claimants of the Accident Compensation Corporation (ACC), access to services to help them stay in the community.
International Year of Disabled Persons 1981	• Raised the national profile of disability and mobilised people with disabilities themselves. A Telethon fund raising appeal supported the launching of various projects for the disabled.
Disabled Persons Assembly 1983	• Established a pan-disabled advocacy organisation.
Education Act 1989	• Opened regular schools to students with disabilities.
Human Rights Act 1993	• Made it illegal to discriminate against people on the grounds of disability.

Minister of Disability Issues 1999	• The disability sector became a whole portfolio in its own right rather than an accessory to others (e.g. Ministry of Health), and made it onto the government's policy agenda.
New Zealand Disability Strategy 2001	• Long-term plan seeking to change New Zealand from a disabling to an inclusive society.
New Zealand Sign Language Act 2006	• Proposed recognising New Zealand Sign Language as the third official language in New Zealand.
United Nations Convention on Rights of Persons with Disabilities 2007	• Did not create new rights for people with disabilities. Instead, it built on conventional understandings of what is required to implement existing human rights as they relate to disabled people. New Zealand signed the Convention at the United Nations on 30 March 2007, and ratified it on 26 September 2008.

Note: Adapted from Beatson (2001); Nikora, Karapu, Hickey, and Awekotuku (2004); Office for Disability Issues (2005b).

A major move in the history of disability policy was the elaboration of the *New Zealand Disability Strategy: Making a World of Difference* launched in 2001. It was the first time that a strategy for the entire disability sector was developed by a special board, the Minister for Disability Issues, a position created two years before (Beatson, 2001; Office for Disability Issues, 2005b). The vision of the strategy includes fifteen objectives grouped into five main themes requiring action plans in order to remove barriers that affect the full participation in society of people with disabilities (Office for Disability Issues, 2001). During the process of its development, the strategy received feedback from the disability community through 68 public meetings held around the country resulting in 700 submissions to the strategy (Office for Disability Issues, 2005a). Beatson (2004) considers the document as "a total package, encompassing all (or just about all) facets of disability" (p. viii). In contrast with previous initiatives, disability was addressed as a policy field in its own right (Beatson, 2001). In order to eliminate the barriers, government departments and territorial authorities were encouraged to put in practice the strategy while additional initiatives, such as the New Zealand Health Strategy and the Māori Health Strategy will complement its implementation.

The development of the strategy represents an official change from the medical to the social model of disability by the government as it called for changing New Zealand "from a disabling to an inclusive society" (Office for Disability Issues, 2001, p. 1). The disability strategy recognises that although a range of government services are provided, they still can be disabling and unresponsive to the needs of people with impairments (Office for Disability Issues, 2001). The document outlines that disability is socially reproduced when physical environments such as schools, workplaces, supermarkets, banks, movie theatres, marae, churches and houses are designed and built by non-disabled people for non-disabled users (Office for Disability Issues, 2001). The strategy also reflected a social policy change from a neoliberal to a social democratic view in which government is committed to "active state intervention on behalf of disadvantaged sectors of New Zealand society and to the promotion of equity" (Beatson, 2001, p. viii).

Some have highlighted the benefits of adopting a strategy based on the social model of disability. Diesfeld et al. (2008) believe that the strategy situates New Zealand as a leading nation regarding disability rights and legal protection. Furthermore, they outline that assuming disability as socially built provides an appropriate foundation for the development of legal services for the disability community without discriminating against and misunderstanding the needs of people with disabilities (Diesfeld, et al., 2008). In the same way, Wiley (2009) stresses the impact of the strategy as a policy instrument for indigenous people with disabilities. According to him, the strategy provides a framework which protects "the fundamental rights inherent to all humans in recognition of their dignity and equality" (p. 1206) rather than caring for civil liberties in broad terms. As one of the purposes of the strategy is to increase participation of Māori with disabilities, Wiley (2009) considers that its action points and goals supply the means for Māori to express openly their voices and concerns. For his part, Beatson (2004) highlights that the strategy represents a social contract between the state and the disabled community. While the government commits itself to cooperating and consulting with the disability community, the disability community recognises that its distinctive identity and needs are considered and respected (Beatson, 2004).

However, the pursuit of an inclusive New Zealand society for the disability community has been shown to be an intricate task in part because of constraints on executing the strategy. A five-year implementation review conducted in 2007 found that despite their attempts to implement the strategy, government agencies still had a lack of understanding of disability issues or, at best, use different approaches to embed the disability strategy within their work (Office for Disability Issues, 2008). Likewise, the absence of centralised funding, greater prioritisation of the objectives of the strategy and a national plan for its implementation are among other limitations highlighted in the review.

Besides implementation issues, criticism of the disability strategy is also directed towards the nature of the document itself (Beatson, 2004; Nikora, et al., 2004). Beatson (2004), for example, notes that the strong rhetoric of the disability strategy makes it harder to put its ideals into practice: "The principles espoused by the Strategy are so broad and vague they could legitimise just about any path of action. More perturbingly, their very broadness and vagueness could lead to inertia" (Beatson, 2004, p. xvii). Nikora, et al. (2004) question the vagueness of the term culture in the strategy and have concerns about its implications for Māori and Pacific people with disabilities (Nikora, et al., 2004). Milner, et al. (2003) comment on the issues of transportation and the built environment which are practical concerns for people with disabilities and point out that the strategy does not deal explicitly with them (Milner, et al., 2003). Furthermore, Milner and Kelly (2009) criticise the social model approach in the strategy for only looking at the removal of structural impediments to economic and spatial integration. According to them, what is needed is to tackle the wider social construction of impairment or the impact of social marginalisation in spatially inclusive settings (Milner & Kelly, 2009, p. 52).

Additionally, evidence shows that disabling attitudes seem not to have changed much since the release of the strategy. Research on service provision for children with physical disabilities and their families in New Zealand shows that barriers are still present in the school setting where it is hard for these children to join their peers and participate in the classroom (Clark & MacArthur, 2008). The findings show that "around 60% of those aged 5–14 were prevented from taking part in sports and games at school, and an estimated 28% were prevented from going on school camps or outings" (Clark & MacArthur, 2008, p. 457). Similarly a research report commissioned by the Auckland City Council and Auckland District Health Board reports on the perceptions of Aucklanders with disabilities and the key issues they consider as disabling in their city (Auckland Disability Research Group, 2009). Respondents emphasised that physical barriers in transportation, built environments and public spaces still prevent them from getting around their city. They also outlined that their economic wellbeing is negatively affected by lower incomes, compared with Aucklanders without disabilities, even although they have tertiary qualifications. While the respondents claim they are able to be active citizens, they still feel a lack of access to adequate information and that their disability perspective is not being heard (Auckland Disability Research Group, 2009).

2.2.2 Disability and vision impairment: the demographics

Although disability has been part of the social policy history of New Zealand since the colonial period, statistical information about it has been absent for much of this time. It was not until 1996 that the first

disability survey was conducted. Currently, censuses are periodically carried out with an interval of five years (the last one was delayed by the Christchurch earthquake). With the collection of statistics, government agencies and disability service providers have available an invaluable resource for policy development and support planning (Ministry of Health, 1998).

Data from the 2013 Disability Survey show that 24% of the population have a disability (Statistics New Zealand, 2014). This percentage represents a total of 1,062,000 million New Zealanders who identified themselves as having hearing, vision, intellectual or multiple impairments and illness (Statistics New Zealand, 2014). Physical impairments are reported to be the predominant type of disability in the country. According to the survey, 43% of the respondents (404,000 people in the New Zealand population) reported having a physical limitation that was either their only impairment, or was more limiting than the other impairments with which they were living (Statistics New Zealand, 2014, p. 7). Other types of disability include sensory impairments, intellectual disabilities and psychological/psychiatric limitations (Statistics New Zealand, 2014, p. 5-6). The survey reveals that the main causes of disability among adults are diseases or illness. In the case of children, disability mainly originates in a condition that existed at birth. Likewise, 53% of people with disabilities reported to have more than one type of impairment.

Compared to previous surveys, the percentage of people with disabilities in New Zealand has increased (see Table 2). In the previous 2006 Disability Survey, for instance, the proportion of New Zealanders who reported a disability or impairment was 17% which represented 660,300 out of the total population of the country. Three main reasons may explain this increase. On the one hand, older age groups are more likely to have a disability than younger groups and the current trend shows that in New Zealand the number of older people is growing. On the other hand, it may be that nowadays people with disabilities are more willing to report their impairments or illness as public perception of disability changes (Statistics New Zealand, 2014). Another reason that may explain the increase is the improvements on the methodology applied for the 2013 survey (Statistics New Zealand, 2014).

Table 2.

Percentage of People with Disability According to Disability Surveys

Year of Disability Survey	Total % of people with disabilities in NZ
1996	20%
2001	20%
2006	17%
2013	24%

Note: Adapted from Statistics New Zealand (2007) and Statistics New Zealand (2014).

Vision impairment is included within the sensory impairments category. It represents 4% of the total percentage of respondents with disabilities. This means that vision impairments affect around 168,000 people in New Zealand (Statistics New Zealand, 2014). Additional information from the survey reveals that vision impairment is more likely to be experienced by women than men but that it is equally likely in boys and girls (Statistics New Zealand, 2014, p. 6). Vision impairment is also strongly related to age. The findings of the survey shows that 11% of adults over 65 years of age experienced vision impairment, compared with 2% for adults aged between 15 and 44 (Statistics New Zealand, 2014).

Past surveys conducted in 1996, 2001 and 2006 used the term 'seeing disability' instead of 'vision impairment' which was employed in the 2013 survey. Despite the difference, the same criterion was used to define both terms; a person who has difficulty seeing, or cannot see, ordinary newsprint, and/or the face of someone from across a room, even when wearing corrective lenses (Statistics New Zealand, 2007, 2014). The 2013 survey adds that vision impairment in children also includes having difficulty seeing properly even when wearing glasses or contact lenses (Statistics New Zealand, 2014, p. 16).

Although this information offers a snapshot of disability (including vision impairment), it still centres on the demographics of people with impairments in New Zealand. Different aspects of their daily life have not been adequately researched yet. For instance, access to the labour market or the transition from school to tertiary education based on the views of people with disabilities still requires scholarly

attention. Improved services and adequate support could be provided to people with disabilities if more research also looks at these facets of the lives of people with disabilities.

2.3 Defining Vision Impairment

This section discusses the definition of the term 'vision impairment' based on two approaches: the medical perspective, which focuses on measuring visual acuity; and the educational perspective, which is interested in the functional vision of the person. This section includes the working definition of vision impairment for this study.

2.3.1 The medical approach

The World Health Organisation (WHO), in the 10th Revision of the International Statistical Classification of Diseases, Injuries and Causes of Death, provides a definition of vision impairment on the basis of measuring visual acuity. According to the WHO, there are four levels of visual function: normal vision, moderate visual impairment, severe visual impairment and blindness (World Health Organisation, 2014). In the Classification, moderate visual impairment and severe visual impairment are grouped under the term "low vision". Low vision and blindness together represent all visual impairment (World Health Organisation, 2014).

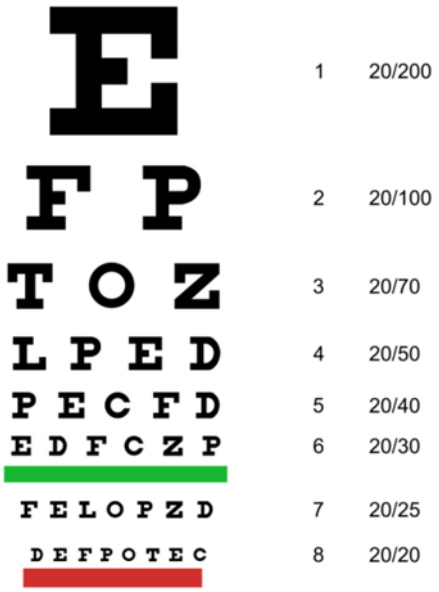
This medical categorisation is based on the Snellen Chart (see Figure 1), the most common method to measure distance vision (Mason, 1999), which was initially introduced by Dutch ophthalmologist Hermann Snellen in the late 19th century (Moore & LeJeune, 2010). The Snellen chart consists of several rows of different sized letters (also numbers and pictures) arranged in a decreasing fashion that can be read at different distances (Mason, 1999; Webster & Roe, 1997). The largest letter has a viewing distance of 60 metres, with smaller letters for distances of 36, 24, 18, 12, 9, 6, 5, 4 and 3 metres.

To measure visual acuity, each eye is tested separately. The eye measure is represented through a fraction. The top number in the fractional ratio indicates the distance of the eye from the eye chart. The standard distance is 6 metres (or 20 feet in countries such as the United States). The second or bottom number in the fractional ratio indicates the size of the symbol that was clearly seen (Moore & LeJeune, 2010). For example, a measure of 6/6 (or 20/20 in the American case) in one eye indicates that a person distinguishes at a distance of 6 metres, a letter that can be seen by the average eye at 6 metres (Moore & LeJeune, 2010; Webster & Roe, 1997). In other words, that person has a 'normal' or average visual acuity. However, if a person has in one eye a visual acuity of 5/36, the smallest letter that she or he is able to see is 36 at a distance of 5 metres. In this case the measure indicates that this

person has vision impairment, more specifically low vision according to the classification of the World Health Organisation (WHO).

The quantification of visual acuity through the Snellen chart is by no means the only way to measure people's vision. Alternative tests also assess visual acuity based on different methods and techniques (Mason, 1999). For example, the BUST, which is in Swedish short for Perception of Form/Visual Acuity, is a series of three tests applied to children with mental ages between 18 months and 7 years. Through pictures of diverse objects with differing sizes, the tests not only measure visual acuity but also form perception (Mason, 1999). The Sonksen-Silver Acuity System (SSAS) employs a linear display of letters (O, X, H, T, U and V) in a flip-over booklet to measure the visual acuity of 2.5 year-old children (Mason, 1999). Other examples includes the BUST-LH and the McClure Reading Test Types used to examine near vision acuity, the vision used for tasks such as reading, writing and other type of close work, through the reading of printed material of different sizes (Mason, 1999).

Figure 1. A Snellen Chart



2.3.2 Limitations and criticism

Despite its utility, the Snellen chart used by the WHO in its classification of vision impairment has been the object of criticism (Mason, 1999; McGraw, Winn, & Whitaker, 1995; Pandit, 1994; Webster & Roe, 1997). The reliability of the chart has been questioned and it has been suggested that the chart fails to test visual acuity at the right distance and under recommended levels of lighting (Pandit, 1994). Some objections have been raised in relation to the design of the chart which include irregular progression of the size of the letters on the chart and the lack of an accurate and standardised system

(McGraw et al., 1995). Critics of the chart argue that the "variation in the ratio of the sizes of the letters between successive lines is somewhat arbitrary" and that "[t]he relatively large gaps between acuity levels at the lower end of the acuity scale on a Snellen chart (6/60-6/24) can result in gross overestimation and underestimation of visual acuity" (McGraw, et al., pp. 1481-1482). Others (Hutchinson, Atkinson & Orpwood, 1998) stress the implications of the chart for young children and people with learning disabilities, as measuring their individual responses to the Snellen chart may be difficult and/or inaccurate. Furthermore, it is argued that measuring clarity of vision at a distance is only one aspect of identifying visual impairment in a person. Other aspects to be considered are loss of peripheral vision, loss of central vision, or disturbances in the visual field (Hutchinson, Atkinson, & Orpwood, 1998). As discussed above, the use of the Snellen chart to measure visual acuity represents a useful medical approach but it may not be enough to explain the complexities of the different types of vision impairments and how they are managed in contexts such as education.

2.3.3 The educational approach

The measurement of vision impairment in terms of visual acuity has been challenged, in particular in the field of education where a number of commentators (Buultjens, 1999; Corn & Koenig, 1996; Lueck, 2004; Mason, 1999; Webster & Roe, 1997) have focused on the concept of functional vision instead. Functional vision involves how well an individual uses the vision she or he has to meet the specific demands of real situations such as planning and performing a task (Corn & Koenig, 1996; Mason, 1999; Webster & Roe, 1997). In New Zealand the Ministry of Education supports this approach. The ministry considers that while visual acuity is a reasonably good predictor, the understanding of vision impairment in regard to functional vision offers an opportunity to understand how the student with vision impairment functions in the educational setting (Ministry of Education, 2014). The Ministry argues that "individual students will vary in their use of vision and two students with the same visual acuity or eye condition may function quite differently" (Ministry of Education, 2014, para. 3).

The emphasis on functional vision is underpinned by a number of philosophical views that seek to maximise any residual vision rather than measuring the vision impairment to correct it. These philosophical stances are: the principle that every individual with a vision impairment is entitled to educational services regardless of the severity of their impairment; the belief in providing the individual with vision impairment whichever support is necessary in the performance of a task; and the idea that people with vision impairments have the opportunity to make choices regarding their learning environment (Utley, Roman, & Nelson, 1998).

Some of the factors that may affect a student's functional vision include for example eye condition, visual acuity (distance and near) and other medical conditions (Ministry of Education, 2014). Other factors are, medication, attitude of the student, physical environment (e.g. building and room layout, play and sports areas), access to and use of low vision aids as well as specialised equipment and resources and specialised support (Ministry of Education, 2014, para. 4).

The functional vision approach understands that while visual acuity may help to identify vision impairment, different vision conditions can cause limitations in distance vision, central vision or peripheral vision. For example, the Ministry of Education (2014) points out that amblyopia, cataracts, and myopia are some visual conditions that affect distance vision. Central vision, which refers to fine detail vision, is affected by visual conditions such as macular degeneration and Stargardt's disease – a progressive vision loss early in life. On the other hand, retinitis pigmentosa and diabetic retinopathy are eye conditions that have an impact on peripheral vision in which surrounding vision is affected while central vision is largely intact (Ministry of Education, 2014). In other words, vision impairment is not only determined by the accuracy of the student's remaining vision but how well she or he uses her or his functional vision to perform different study-related activities.

2.3.4 Working definition for this study

For this study, I have adopted the educational perspective on vision impairment which is based on the concept of functional vision. The main reason for this is that this perspective is open to the perceptions and personal experiences of the students in relation to their vision impairment. It supports the idea that students use their remaining (or functional) vision differently to manage university-related and everyday tasks. This perspective is useful because it shows that, for instance, two or more students with the same impairment may cope with it in their own fashion and using the tools (e.g. assistive technology) that best suit their personal needs. Also, while this perspective accepts the utility of measuring visual acuity, it emphasises that the sight condition per se is not the only barrier for the students; there are other aspects that may worsen the ability of the students to see. For example, for some students lighting in the lecture room can be problematic and affect their concentration and cause headaches while for others the position of the lecture screen may be the reason for blurred vision. Thus, students' abilities to manage their functional vision in the university setting also need to be considered in order to understand their transition to university.

2.4 Transition to University

In recent years people with disabilities, including those with vision impairments, have experienced some changes regarding access to tertiary education (Adams & Brown, 2006; Barnes, 2007; Ebersold,

2008; Getzel & Wehman, 2005). One of those changes is the increasing number of young people with disabilities in developed countries attending tertiary institutions, especially universities. In the United Kingdom the increase was from 2% in 1995 to 6.5% in 2007 (Ebersold, 2008). Enrolment in tertiary education shows the same pattern in the United States. The percentage of young people with disabilities aged 15 to 23 years and 24 to 29 years has consistently increased over the terms 2003-04 and 2007-08 (Snyder & Dillow, 2010). Similarly, since 1998 a growing demand for tertiary education among people with disabilities can be observed in New Zealand (Ministry of Education, 2003). Data shows that the proportion of students with disabilities aged between 15 and 40 years old almost doubled in recent years. From 2001 to 2006, the proportion of enrolled students with disabilities grew from 6% to 11% between 2001 and 2006 (Ministry of Education, 2010). These figures suggest that people with disabilities, particularly the young, are increasingly pursuing personal growth through access to higher education.

The reason for the increase in the number of people with disabilities in tertiary education may be found in the actions of social movements. Some commentators (Barnes & Mercer, 2006; Ebersold & Evans, 2003; Getzel & Wehman, 2005) believe that the rise of the disability movement in the late 1970s and early 1980s is the main cause of the phenomenon. The movement, it is argued, successfully challenged the medical perspective on disability by pointing out social and political conditions as the cause of the exclusion of people with disabilities (Barnes & Mercer, 2006). As a consequence, in different countries, governments started to give formal recognition to this approach by implementing educational policies and services for the disability community on the basis of inclusion and non-discrimination (Barnes & Mercer, 2006; P. Beresford, 2004; Getzel & Wehman, 2005).

Although evidence shows an increase in the number of enrolments in tertiary education, and the implementation of inclusive policies as well as support programmes, students with disabilities remain under-represented. This situation has been reported in different countries, such as Australia (Hillman, 2005), England (Elliott & Wilson, 2004; Hall, Healey, & Harrison, 2004; Madriaga, 2007), Ireland (Shevlin, Kenny, & Mcneela, 2004) and the United States (Beilke & Yssel, 1999). In New Zealand, under-representation of people with disabilities in the education system compared with those without disabilities follows similar international trends. While in 2006, the participation rate of students with disabilities in tertiary education was 6%, the proportion of their peers without disabilities was larger and reached 23.2% (Ministry of Education, 2010).

Considering that access to tertiary education among people with disabilities has increased, it is important to understand the early experiences of this group of students and the challenges they face

during their transition to university in order to help them to persist and remain in university (Getzel, 2008). Another reason is that access to education contributes to greater employability and independent living of people with disabilities (Hewett, Douglas, & Keil, 2014). The following sub-sections address the topic of transition to university, its context in regard to disability, in particular vision impairment, and the issues or factors that seem to affect students at university.

2.4.1 What is transition?

Disciplines such as education, psychology and nursing have been interested in "transition" and have proposed different definitions (see Table 3). In general, there seems to be agreement that transition implies a process of change and that it is centred on the personal experience of the individual (Bakken & Obiakor, 2008; Golan, 1981; Goodman, Schlossberg, & Anderson, 2006; Kralik, Visentin, & Van Loon, 2006; Krupp, 1987). Some commentators disagree and point out that change and transition are two different things. According to Bridges (2009) while the former, change, has a situational nature that focuses on the outcome that it produces, the latter, transition, deals with the ending that individuals will have to experience to leave the old situation behind (Bridges, 2009, p. 7). Independently of the discussion about whether change and transition are interchangeable terms, a common point of understanding among commentators is that transition can be broadly defined as a process that involves a psychological period of adaptation for the individual.

Table 3.

Definitions of Transition

Author	Definition and comment
Golan (1981).	• Transition is "a period of moving from one state of certainty to another, with an interval of uncertainty and change in between" (p. 12). This is a broad but still useful definition from the field of psychology that encompasses any human activities.
Goodman, Schlossberg and Anderson (2006).	• "A transition, broadly, is any event or non-event that results in changed relationships, routines, assumptions, and roles. Transitions often require new patterns of behaviour, but we prefer not to use the term crisis because of its negative connotations. A transition may well be a life event that involves gains as well as losses" (p. 33).

	This definition comes from psychology as well and focuses on the positive connotation of transitions from the perspective of adults.
Krupp (1987).	• "Transition is a natural process of disorientation and reorientation, caused by an event or non-event, that alters the individual's perception of self and the world, demands a change in assumptions or behaviour, and may lead either to growth or deterioration; the choice rests with the individual" (p. 3). This is a highly cited definition. However, its assumption that transition "rests with the individual" is insufficient to understand the context of disabled people's transition from a perspective that sees disability as socially and culturally constructed.
Chick and Meleis (1986).	• Transition is a "passage from one life phase, condition, or status to another, [it] is a multiple concept embracing the elements of process, time span, and perception…In summary, transition refers to both the process and the outcome of complex person-environment interactions. It may involve more than one person and is embedded in the context and the situation". This is a relevant definition from the field of nursing that considers transition not only from the personal level but also interrelated with other contexts (environmental interactions).
Wehman (2006).	• Transition may be defined as "the life changes, adjustments and cumulative experiences that occur in the lives of young adults as they move from school environments to independent living and work environments" (p. 4). This is a narrow definition that focuses on young people and suits the analysis of transition in the case of disabled students such as those with visual impairments.

Note: Adapted from Golan (1981), Goodman, Schlossberg and Anderson (2006), Krupp (1987), Chick and Meleis (1986).

Transition – other terms used in the literature are "navigation" and "trajectory" (Caton & Kagan, 2007) – has been classified in different ways. For example, Golan (1981) categorises transitions by time periods, role shifts and marker events. Goodman, Schlossberg and Anderson (2006) classify transitions as anticipated, unanticipated and non-events. Another typology describes transitions as developmental, situational, health-illness and organisational (Schumacher & Meleis, 1994). The range of diverse definitions and typologies suggests that transition is an area of interest still under development within some social science disciplines. In addition, transition has become part of the social policy of governments around the world, especially in areas related to health rehabilitation, employment, social well-being and education (Gulam & Triska, 1998).

2.4.2 Transition to university

People experience many transitions in the course of their lives; when they move to a new neighbourhood, when they start a new relationship, when they marry and so on. For young people who have finished secondary education, the pathway to personal development and growth includes diverse possibilities such as entering tertiary education, finding employment and training or even none of these (Dewson, Aston, Bates, Ritchie, & Dyson, 2004). Any post-secondary school option is crucial for young people as it entails the transition to a new situation that will lead them towards adulthood (Bakken & Obiakor, 2008; Fairweather & Shaver, 1990; Getzel & Briel, 2006; Getzel & Wehman, 2005; Kochhar-Bryant et al., 2009).

In this sense transition to university differs from any other post-secondary school transitional experiences. Transition to university is a process which mainly occurs during the first year of university attendance (Tinto, 1993). It not only entails a psychological period of adaptation for the young student but it also implies a process of academic and social involvement with the tertiary environment (Terenzini et al., 1996; Tinto, 1993). Tinto (1993), for example, considers that the university experience entails three stages: separation, transition and incorporation. In his view the transition stage is the most distinctive because it is "a period of passage between the old and the new, before the new full adoption or new norms and patterns of behaviour and after the onset of separation from old ones" (Tinto, 1993, p. 97).

In the context of students with disabilities, transition could be a more abrupt change because the university environment differs from that in high school. These students need to move from a high-

school system designed to provide personalised assistance and support to a system of services based on eligibility. To a large extent learning depends on each student. In this respect, the transition to university for students with disabilities is not only different but also it is more difficult than for those students without disabilities due to the additional challenges imposed by the impairments (Caton & Kagan, 2007; Hughes, 2001). Students with disabilities are at higher risk of dropping out of university before earning a degree (Garrison-Wade & Lehmann, 2009; Wessel, Jones, Markle, & Westfall, 2009) particularly because they are not prepared for the demands of the tertiary setting and have not received adequate transition preparation in high school (Hong, Ivy, Gonzalez, & Ehrensberger, 2007). A positive transition experience helps students to be involved in the life of the tertiary setting and cope with the challenges it imposes. It is argued that the outcomes of a successful transition experience among students with disabilities will also improve their socialisation skills and expand their personal social networks (Getzel & Wehman, 2005). They could also increase their chances of obtaining employment and thus gaining an income (Gilmore, Bose, & Hart, 2001; Wilson, Getzel, & Brown, 2000). Thus, in managing transition to university the students are more likely to succeed in their goal of obtaining a degree but also to become independent members of society.

2.4.3 Transition to university and vision impairment

Students with vision impairments represent a diverse group with a broad range of aetiologies, abilities and personalities (Kelley, Sanspree, & Davidson, 2000). For them, the transition to university could be not only disconcertingly unfamiliar (Erin & Wolffe, 1999) but also especially challenging. It is argued that the impact of the transition process on personal development and learning is more significant in young students with vision impairments than other older groups of this population (Kelley et al., 2000).

At university students with vision impairments face different types of practical challenges. They not only have to deal with changes faced by all students but also "the challenges of learning a new environment and constructing a network of services and support people" (Schneider, 2001, p. 8). Moreover, in the tertiary setting, students with vision impairments have to assume the responsibility for their own time management (Erin & Wolffe, 1999). For instance, at school they receive support from specialised teaching staff who take responsibility for providing them with books and other materials. In the tertiary setting students with vision impairments become their own advocates and have to plan ahead in order to obtain class materials (Erin & Wolffe, 1999; Kochhar-Bryant et al., 2009). Another practical challenge for students with vision impairments includes accessing written information (e.g. course books) and other visual material.

It is argued that the quality of the transition experience will determine how well students with vision impairments manage subsequent life events (Hutchinson et al., 1998). According to this view, a negative experience could be the reason for studying less, low academic results, or even dropping out. In contrast, effective transition should conclude, in the future, with the development of the skills and knowledge appropriate for employment, independent life, self-advocacy, social interaction and community participation (Hutchinson et al., 1998).

2.4.4 Transition issues for students with vision impairments

Students with vision impairments experience a number of issues or factors that affect their transition to university. In academia, little research has looked at these issues. The few available studies have mainly identified these issues in the context of the transition of young children to the school environment (Carter, Hughes, Guth, & Copeland, 2005). The few attempts to identify transition issues explicitly for young people with vision impairments in the university context date back to the 1990s. Erin and Wolffe (1999) for example researched transition to adulthood. They identify five transition issues: functional academics (which relates to gaining basic skills and personal qualities), housing issues, transportation issues, employment issues and leisure and recreational issues. Hutchinson, Atkinson, and Orpwood (1998), on the other hand, look at the transition to higher education from a critical theory perspective. They conclude that there are social barriers (which are disabling and imposed by society) and personal barriers (which refer to young people's negative self-representation of their impairment). These are relevant contributions but out of date considering they ignore the role of ICTs which are nowadays more and more embedded in the everyday activities of people (Wellman & Haythornthwaite, 2002). Practitioners have also described transition issues in the context of the tertiary setting but in the form of guidelines, "anecdotal reports, small and heterogeneous samples" and lacking replication (Ferrell, 2007, p. 2). Moreover, in the literature these issues or factors are stressed differently and in some cases omitted. Despite this, they can be adapted to the experience of tertiary students with vision impairments only as a rough guide as more systematic research in this respect needs to be done. In my review of the literature, I have found that the following are the most common transition issues faced by students with vision impairments at university: transportation, family, educators, accommodation, socio-psychological issues and financial.

2.4.4.1 Transportation

Transportation is one of the most tangible and important issues for students with vision impairments accessing the university environment (Bakken & Obiakor, 2008). Driving provides a sense of control, freedom, responsibility, and opportunity for new social contacts for young people in general (Erin &

Wolffe, 1999). However, for students with vision impairments driving is not an option and they have to prepare themselves or receive support for transportation management (Erin & Wolffe, 1999). They need to identify alternative transportation options with respect to cost, convenience, and independence. Possible transportation options include the use of public transport or relying on family, friends or acquaintances. In any case, advantages and disadvantages of these options need to be assessed (Erin & Wolffe, 1999). Transportation or travel skills can be developed by undertaking training programmes that teach students how to travel safely and independently. Although this could be an alternative for students in large cities, in rural areas students with vision impairments may have limited or no access to public transportation (Bakken & Obiakor, 2008).

2.4.4.2 Family

Research has established that family involvement has implications for the transition to university. On the one hand family involvement can have a positive impact on the academic and personal outcomes of students with vision impairments (Hill & Taylor, 2004). Family participation may assist the students in their learning (deFur, Todd-Allen, & Getzel, 2001), help to develop self-determination among them (Morningstar, Turnbull, & Turnbull, 1995) and influence the students' vision for the future (Morningstar et al., 1995). On the other hand, research has also shown that when the involvement of family members in the transition process is limited, the educational outcomes of students with vision impairments could be negative. In some cases limited family involvement occurs because of the lack of information available to relatives in relation to transition planning (Bereford, 2004). Sometimes some conflicts or misunderstanding may affect the relationship between families and education providers (Jeannie & Bonnie, 2000). In other cases, family over-protection may affect students with vision impairments' development of their full potential (Cimarolli, Reinhardt, & Horowitz, 2006; Sanders, 2006). In some cases prejudicial attitudes of family members, such as acts of sympathy and pity, can create lowered self-esteem and lack of incentive to achieve in the students (Sanders, 2006). Family over-protection can also affect students' socialisation and confidence. It is argued that relatives usually do not have the knowledge and experience to help their children and understand their particular needs (Morse, 1983).

2.4.4.3 Educators

The educators play a significant role in the university experience of students with vision impairments. Case studies conducted by Dimigen, Roy, Horn and Swan (2001) show that the integration experiences of students with vision impairments in the school and university settings are affected by the support provided to these students and the knowledge that teachers and lecturers have about their

vision impairment. Similarly, a study by Chang and Schaller (2002) reveals that students with vision impairments look for learning and emotional support from their teachers and lecturers. While the former appears as an obvious teacher's role, the latter extends its scope to the psychological sphere. Chang and Schaller (2002) add that by receiving emotional support students with vision impairments feel that they are listened to and encouraged to do their best. However, gaps related to the adequate preparation of educators about the nature of vision impairment and the transition to university for students with vision impairments have been identified by researchers (Knott & Asselin, 1999; Lieberman & Houston-Wilson, 1999; Spungin & Taylor, 1986) as barriers to a successful post-secondary transition.

2.4.4.4 Accommodation

Students with vision impairments moving to the university environment face the dilemma of choosing where to live (Erin & Wolffe, 1999). Usually, they decide to stay in their parents' house during the course of their tertiary studies. However, nowadays, a significant number of them are looking for the opportunity to live independently (Erin & Wolffe, 1999; Hanson, 2006). It is argued that young people with vision impairments are embracing an attitude in which they want to be seen as any other of their peers without disabilities. Hanson (2006) explains that these days students with vision impairments "see themselves first and foremost as independent people who are integrated within mainstream society, but who just happen to have impaired vision" (Hanson, 2006, p. 2).

On the other hand, research shows the positive impact of adequate housing in the perception of quality of life for adult people with vision impairments (Hanson & Percival, 2005). However, little research has been conducted to explore the role of the accommodation or housing issue for the transition to university of young students with vision impairments. The available literature includes guidelines and best-practices advising people with vision impairments in general, their families and service providers about choosing appropriate accommodation.

For those students deciding to move from their parents' house, finding a suitable place to live can be a difficult task. Independently of the available options such as renting a flat or living in a shared house or hall of residence, students with vision impairments have to consider three components: location, space, and safety and security (Hanson, 2006). In finding an adequate location, the students need to consider proximity to university, transportation, shopping, leisure and work opportunities as well as medical facilities (Erin & Wolffe, 1999; Hanson, 2006). Regarding space, students with vision impairments require accommodation that allows the storage of special equipment, provides a sociable environment and, depending on the kind of impairments, suitable lighting (Hanson, 2006). In terms

of safety and security, the student needs to be aware and assess any potential risk. Some considerations that could make the accommodation safer include perimeter fencing accessed by a locked security gate, sensor-activated external security lighting, porch lighting, CCTV, entry phone or intercom, secure doors, locks and windows catches, a burglar alarm and a smoke alarm (Hanson, 2006). In any case, there is insufficient appropriate accommodation for students with vision impairments, thus any housing alteration or change will require some additional financial expense for the students and their families.

2.4.4.5 Socio-psychological issues

As students with vision impairments experience many changes at the beginning of their transition to university and in a short period of time, the quality and preservation of their social relationships and connections become an important issue for them (Kef & Dekovic, 2004), especially for receiving social support (Huurre, 2000). Available research highlights the implications of not being able to maintain or build social relationships in the school and tertiary environment and suggests that people with vision impairments are more likely to struggle with social isolation (Sacks, Wolff and Tierney, 1998). Similarly, lack of a network of friends at university can make the student feel that she or he is being socially rejected (Kekelis & Sacks, 1992) and can contribute to both low self-esteem and self-confidence (Stockley & Brooks, 1995). Even being able to make friends at university is not a guarantee that the social-psychological issue is solved. Research also highlights the negative impact of social connection on people with vision impairments. Negative social ties can be expressed in the form of interference, demands, insensitivity, criticism, anger, hostility and impatience (Boerner & Cimarolli, 2005, p. 522)

Some commentators (see Bakken & Obiakor, 2008; Erin & Wolffe, 1999) highlight the need to help students with vision impairments to develop social and interpersonal skills, so they can succeed in their passage to university. Social skills imply, according to Erin and Wolffe (1999), the ability to connect with other people and communicate about common interests and goals. Bakken and Obiakor (2008) add that such skills can help students with vision impairments to build up strong and positive peer relationships and start successfully exploring adult roles not only in the class environment but also as a member of the community. Social skills manuals and training programmes abound in the literature of transition planning for students with vision impairment (see Huebner, 1986; Sacks, Kekelis, & Gaylord-Ross, 1992). It is argued that students with vision impairments find it more difficult to acquire social skills because their ability to learn from models is limited (Gumpel & Nativ-Ari-Am, 2001); for this reason they tend to behave passively in social situations and even if they have

learnt these skills it may be difficult to put them into practice due to insufficient situational cues (Kim, 2003). Scholars and practitioners emphasise the need to improve the social skills of students with vision impairments in order to ensure a successful university experience and employability (Gumpel & Nativ-Ari-Am, 2001, p. 285).

2.4.4.6 Financial

Research stresses a close relation between disability and financial difficulties (Elwand, 1999; Fitzgerald 2007; Wagner & Blackorby, 1996). People with disabilities are more than twice more likely to live below the poverty line than people without disabilities (Kochhar-Bryant et al., 2009, p. 12). Evidence shows that poverty not only prevents students with disabilities from pursuing the goal of attending tertiary education (Schuster, Timmons, & Moloney, 2003) but also it could have a negative impact on those who manage to attend the university setting. What is more, research highlights that students with disabilities hailing from low-income families have poorer post-secondary outcomes than their peers with disabilities who came from households with higher incomes (Wagner & Blackorby 1996). While young people with vision impairments are more likely to attend post-secondary education than other disability groups (Wagner & Blackorby, 1996), they are not exempted from the complications of financial scarcity. Compared with their better-off peers, people with vision impairments facing financial concerns are less likely to have private health insurance and more likely to live in areas where the household income is lower than the average (Livingston, McCarty, & Taylor, 1997). According to the evidence, financial scarcity is a transition issue that can put at risk the university journey of students with vision impairments.

In addition, students with vision impairments need to be aware of additional financial costs that their educational goals involve. There is little research regarding tertiary education and the cost of visual impairment – the amount of extra time, money and other resources that a blind or low vision person must expend or have expended on their behalf to attain the same quality of life as their sighted peers (Godfrey & Brunning, 2009, p. 209). Studies conducted in the United States (Frick, Gower, Kempen, & Wolff, 2007) and Australia (Keeffe, Chou, & Lamoureux, 2009) outline the financial costs of vision impairment among elderly and adult people in relation to home care, treatment and/or rehabilitation. In New Zealand, research commissioned by the Royal New Zealand Foundation of the Blind (now The Blind Foundation), found that respondents regarded taxi use as the most frequently incurred expense for non-optional short distance travel other than getting to work (Godfrey & Brunning, 2009). An international study estimates that the full financial cost of vision impairment worldwide was US$2954 billion in 2010 for the 733 million people who were clinically "visual

impaired" (Gordoisa, et al., 2012). Students with vision impairments are likely to face extra costs as a consequence of going to university. Additional financial expenses could be related to the acquisition of adaptive technology for academic purposes, the use of taxis to go to university and return home or making some adaptations to their accommodation in order to feel secure and safe.

2.5 Theoretical Approaches about Transition to University

Attempts at theorising transition to university date back more than forty years (see Spady, 1971; Astin, 1984). Although different theoretical approaches have been developed to explain transition to university, further understating of the topic is still needed. Goldrick-Rab (2007) highlights that theorisation of the topic "has been dominated by concepts drawn, often uncritically, from psychology and sociology" (p. 2445-2446). In reviewing the literature, I have reached a similar conclusion (see following sub-sections). As Goldrick-Rab (2007) suggests, the study of transition to university can benefit from multi-disciplinary and practice-based analysis and approaches, and fields such as information systems (IS) can contribute by expanding the understanding of the topic.

A point of coincidence among the different theoretical approaches is that the conceptualisation of the transition experience involves the first academic year of the students. Recently, Gale and Parker (2014) have outlined that there are events and situations that occur before students formally start at university and have suggested scholars also consider them in order to better understand the topic. In scoping the current body of knowledge, I have also found that students' adjustment and adaptation to the tertiary setting are to a large extent the guiding ideas behind the theoretical approaches about transition to university. Gale and Parker (2011) outline that approaches that put emphasis on adjustment and adaptation tend "to lead to research, policy and practice that are largely system driven and system serving" (p. 35). In this sense, they add, "[u]niversity students are expected to make the transition into HE [higher education] while conforming to institutional requirements" (Gale & Parker, 2011, p. 35). Another common characteristic of the different theoretical approaches regarding transition to university is their methodological strategy. Quantitative research has largely dominated the development of theory about transition to university. Theoretical models based on quantitative data have been developed, tested and replicated. However, understanding of the topic based on the way students construct meaning of their transition to university is still limited. Theorisation of transition based on qualitative research offers an opportunity to expand the body of knowledge that currently looks for conceptual generalisations but pay little attention to context and people's perceptions about their transition, such as the case of students with vision impairments.

In the following sub-sections I describe the most relevant theoretical approaches that have been developed to explain transition to university. I also discuss in more detail the Theory of Student Departure proposed by Tinto (1993).

2.5.1 Theoretical approaches from the fields

The following sub-sections develop on approaches from the fields of sociology, psychology and economics. However, special attention is given to Tinto's educational approach (see sub-section 2.5.2) which originated from the sociological and psychological approaches. Tinto's theory of student departure is a well-known theory and has been influential in the study of transition to university throughout the past few decades.

2.5.1.1 Sociological approach

In general the sociological approach looks at the social factors that influence students' university experience (Braxton, Sullivan, & Johnson, 1997). This approach is represented by the work of Spady (1971) who developed a conceptual model seeking to explain undergraduate dropouts. Spady defines student dropout as "the decision to leave a particular social system as the result of a complex social process" (Spady, 1971, p. 38). Spady's work is influenced by Durkheim's theory of social integration. According to him the "complex social process" includes categories such as family and previous educational background, academic potential, normative congruence, friendship support, intellectual development, grade performance, social integration, satisfaction, and institutional commitment. Spady (1971) argues that a student enters university "with a definite pattern of dispositions, interests, expectations, goals, and values shaped by his family background and high school experiences" which may influence the overall ability of each student to accommodate the influences and pressures she or he encounters in the university environment (Spady, 1971, p. 38). In Spady's model, academic performance appears as the main factor causing dropout among students. This factor refers to the situation of not being able to obtain passing grades. Spady (1971) was the first to identify the social and academic systems operating in tertiary organisations – this idea would also be adopted by other scholars such as Tinto (1993). The main concern about Spady's approach among commentators (Tinto, 1975, 1993) is that, apart from dropouts, the model does not consider varying forms of student departure (e.g. voluntary withdrawal with subsequent re-enrolment, permanent dropout or academic dismissal).

2.5.1.2 Psychological approach

The psychological approach centres on the personal or psychological characteristics that differentiate those students who persist from those who drop out of university (Braxton et al., 1997). An example of this perspective is the work of Brower (1992). He develops a student persistence model that "emphasizes students' abilities to shape their college environment in accordance with their own goals, plans, and expectations" (p. 441). He affirms that students give shape to their tertiary environment in diverse ways. The students choose their own educational path which includes majors, classes, study habits and locations. They also establish their own routines that will help them to complete their tasks of daily living (Brower, 1992). Based on cognitive social psychology, he introduces the concept of "life tasks", which are "the problems and situations with respect to college life that they [the students] see themselves working on and devoting energy to solving" (p. 445). Brower (1992) affirms that students need to pursue their life tasks (e.g. academic achievement, social interaction, future goal development, autonomy, and time management). By doing so, they set goals, aspirations, and expectations and thus become integrated with the tertiary environment during the process of pursuing life tasks. The psychological approach of transition offers interesting insights; however, it is too narrowly focused on the personality and/or individual attitudes of the student to explain persistence in tertiary education.

2.5.1.3 Economic approach

This approach weighs the costs and benefits of attending university (Braxton et al., 1997). Centred on student persistance in tertiary education, Cabrera, Nora and Castañeda's (1992) model suggest that students' financial concerns have a direct impact on their educational retention. They explain that financial concerns are one of the many, but also the most important, external factors influencing students' retention and their experiences in higher education. According to them, financial issues increase anxieties associated with the need for securing resources to finance their college education. Money problems also limit the amount of time and energy spent on academically related actvities and negatively affect academic performance and even students' social integration (Cabrera et al., 1993). Their model describes a causal effect of financial issues on students' institutional and goal commitment which could lead towards alternative responses such as seeking a full-time job or transfering to another less costly educational institution.

While their claims are noteworthy, the problem with their model is that it only explains one aspect of the phenomenon. A study of the transition requires a more holistic approach. Financial constraints could be a relevant factor in some cases (e.g. students from low-income families), but assuming that

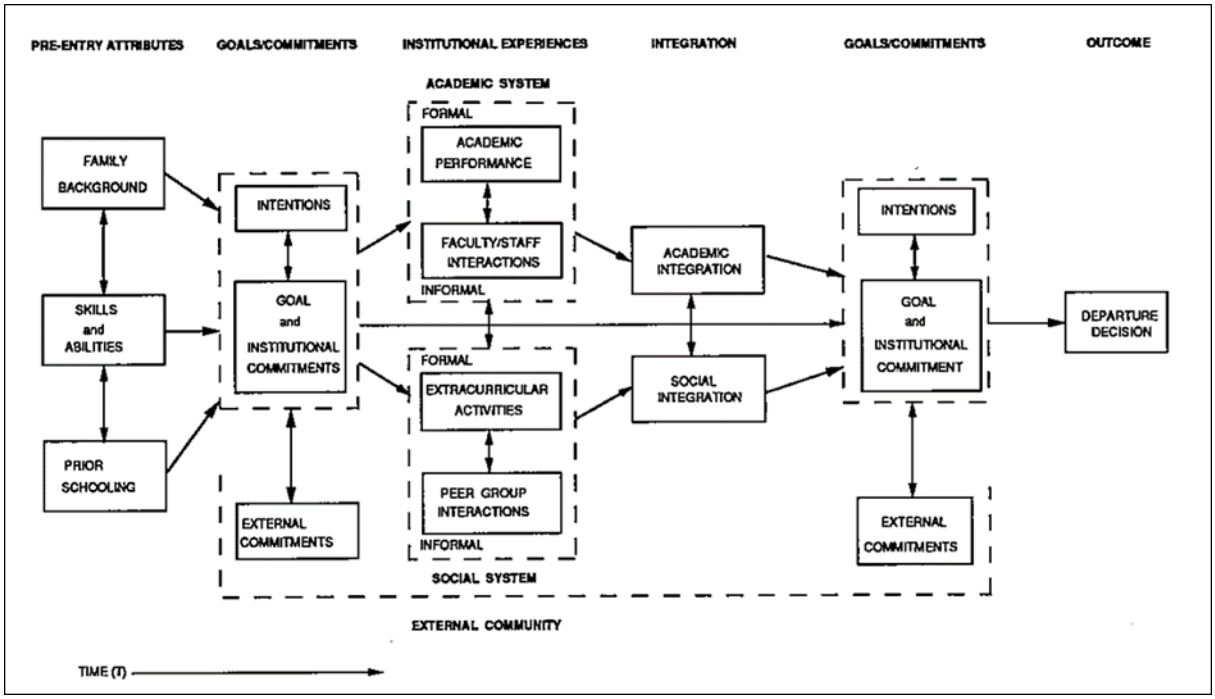
they are a crucial component only dismisses the social, cultural, psychological and institutional factors that also play a role in the transition process of visually impaired students in higher education.

To sum up, so far early theories of transition to tertiary education have been interested in persistence, departure, dropouts and academic performance. A common feature has been the assumption that students' positive or negative experiences in higher education depend on the students themselves. The following sub-section discusses the theory of student departure proposed by Tinto (1975, 1993). In contrast with previous conceptualisations, Tinto provides a more holistic approach to understanding the transition process to higher education based on the interaction between students and their tertiary environment. For this study Tinto's theory has been considered as a theoretical lens.

2.5.2 Theory of student departure

In contrast with the theoretical approaches mentioned above, Vincent Tinto takes an institution-focused path from the field of education. Influenced by social scientists Durkheim and Van Gennep, he develops and extends a seminal theory of student departure from higher education (Figure 2). Tinto's model emphasises the central role that tertiary institutions play in influencing students' social and intellectual development, and, thus, their experiences in the tertiary setting.

Figure 2. Tinto's Model of Student Departure



Note: From *Leaving college: Rethinking the causes and cures of student attrition*, p. 114 by V. Tinto, 1993, Chicago: University of Chicago Press.

According to Tinto (1975), when students enter university they bring with them a set of pre-entry attributes: personal attributes, high school experiences and family background. Personal attributes include gender, race and ability while high school experiences involve grade-point averages and characteristics of school education. Family background is represented by social status, family income, quality of family relationship and parents' expectations (Tinto, 1975). All these pre-entry attributes have, according to Tinto, an effect on the development of students' initial educational expectations and institutional commitments, besides other external commitments when they enter the tertiary environment.

Following Tinto's thinking, it can be presumed that students with vision impairments also bring to university these pre-entry attributes. Along with their age and gender, they carry to university other attributes such as personal skills. In the context of vision impairment, for example, some students could have expertise in the use of the Braille system; others with a moderate low vision condition may need eyeglass-mounted magnifiers and/or special software to display computer data in large print or to read the material aloud in a synthetic voice. Following Tinto's reasoning, students with vision impairments bring their pre-school experiences that are shaped not only by their personal academic performance in high school but also by the type of educational setting they attended. It is likely that some attended "special education" schools that provide specialised services based on each student's Individual Educational Plan (IEP) which links the New Zealand National Curriculum and the Expanded Core Curriculum. Equally central is the family background. While family income is an important component, the quality of social relations and psychological support that family members and friends provide plays a significant role in their decisions about, expectations of, and commitments to further post-secondary education.

However, the most important argument in Tinto's theory is the complex process of students' integration and the crucial role that the social and academic systems of the tertiary institution play in their university experience. Both systems continually influence students and modify their original goals and commitments and thus lead them to either study completion or early departure (Tinto, 1975, 1982). The academic system relates "almost entirely with the formal education of students" (Tinto, 1993, p. 106). It takes place not only in the classroom but also in other tertiary environments such as laboratories and involves various faculty and staff whose primary responsibility is the education of students (Tinto, 1993). On the other hand, the social system focuses on the many members of the tertiary institution, especially the students, and their social and intellectual needs. The social system is shaped by social interactions among students, faculty and staff that mainly happen outside the formal

academic system of the tertiary setting, for instance, university halls, cafeterias and student clubs (Tinto, 1993).

In Tinto's theory, the level of integration of the students with the social and the academic systems is a key aspect that determines persistence or departure from higher education. Integration into the university's social system is understood as "the interaction between the individual with given sets of characteristics (backgrounds, values, commitments, etc) and other persons of varying characteristics within the college" (Tinto, 1975, p. 107). For instance, informal peer group associations, semi-formal extracurricular activities, and interaction with faculty and administrative staff can be the means for social integration in the tertiary institution. Successful incorporation into the social system, Tinto affirms, will result in "important social rewards" for the student such as "varying degrees of social communication, friendship support, faculty support, and collective affiliation" (Tinto, 1975, p. 107). On the other hand, academic integration implies two characteristics. First, it is based on a student's grade performance which is assessed through the meeting of certain explicit standards of the academic system. Second, it is related to a student's intellectual development which is more concerned with her or his identification with the norms of the academic systems during her or his years in the higher education environment (Tinto, 1975).

Tinto's model pays little attention to the importance of external components also taking part during the university experience of the students. His model includes the conceptual category called "external communities" to depict students' social relations apart from the tertiary setting. For instance, unexpected situations in students' families or workplaces (external communities) may condition their experiences at university.

On the other hand, Tinto (1993) adapts to his theory of student departure the work of Van Gennep (1960) regarding the rites of passage as means of establishing membership in tribal societies. Van Gennep's categorisation of rites includes: rites of separation (e.g. funeral ceremonies), rites of transition (such as betrothal and pregnancy) and rites of incorporation (e.g. marriages). It is this classification that interests Tinto (1988, 1993) the most for the development of his theory of student departure. This is because, according to him, this classification provides researchers "with a way of thinking about the longitudinal process of student persistence in college and, by extension, about the time-dependent process of student departure" (Tinto, 1993, p. 94). Tinto (1993) explains that the experience of being a member of a tertiary institution is marked by "stages of passage" that students "must typically pass in order to persist in college" (p. 94). In this context, if a student decides to leave university, it is because of the difficulties she or he faced "in seeking to successfully navigate those

early passages to membership in the communities of the college" (Tinto, 1993, p. 94). The description of the stages of passage (separation, transition and incorporation) in Tinto's theory is as follows:

2.5.2.1 Stage of separation

In this stage the students have to "disassociate themselves, in varying degrees, from membership of the communities of the past" (p. 95). The stage is characterised by the decline in interactions with members of the group from which the student has come (Tinto, 1988). This disassociation is understood to happen with social settings such as the family, the local school and local areas of residence because they differ from the values, norms, as well as the behavioural and intellectual fashion of the tertiary setting (Tinto, 1993). In order to adapt themselves to the life of the tertiary setting, students require some degree of transformation and perhaps "rejection" of the norms of past communities (Tinto, 1993).

Tinto (1993) exemplifies the separation stage in the case of students who for the first time move away from home to attend residential universities. In order to be integrated into the communities of the university, this group of students is compelled to disconnect physically and socially from their social settings or communities of the past. The experience of the stage of separation is, in many cases, isolating and stressful (Tinto, 1993) if not temporarily disorienting (Tinto, 1988). This stage can be an even more difficult experience for students from minority groups. For those from small rural areas, international students, and students from distinct social, ethnic, or religious backgrounds, including students with disabilities and physical impairments, separation may "represent a major shift in the way they construct their daily lives" (Tinto, 1993, p. 97).

2.5.2.2 Stage of transition

Transition refers to the period of passage between the old and the new and occurs during and after the stage of separation (Tinto, 1993, p. 97). In the stage of transition, Tinto (1993) explains, students have started to separate themselves from the past. However, they still have to acquire the appropriate norms and patterns of behaviour in order to be incorporated into the life of the tertiary setting and its many communities (Tinto, 1993). Students experiencing transition "have not yet established the personal bonds which underlie community membership. As a result, they are neither bound strongly to the past, nor firmly tied to the future" (Tinto, 1988, p. 444). These considerations make transition a critical period and the most challenging stage in students' life and experience of tertiary education (Tinto, 1993).

In his argumentation, Tinto (1988) puts more weight on some elements that could negatively affect students during the transition stage. Stress, sense of loss and bewilderment can influence the way students experience their transition to university. Despite the challenges of the transition stage, most students are able to "adjust" themselves to the social and intellectual life of the tertiary institution (Tinto, 1988). Those who face problems of integration could choose an early departure from the tertiary institution. In this case, Tinto (1988) points out the importance of allocating appropriate institutional assistance to help these students and prevent dropout.

In Tinto's arguments, neither transition nor separation is the cause of persistence or departure. Although the student-university interaction is crucial, Tinto's (1993) model equally highlights students' individual responses. Such responses are shaped by their personality, individual coping skills, and educational goals and commitments (Tinto, 1988). It can be the case that some students have not learnt the skills to deal with the transition stage and decide to withdraw, even under minimal stress. For others, their commitment to the goal of tertiary education can encourage persistence despite the many university challenges the face (Tinto, 1988). In any case, he concludes, students' responses during the transition stage, along with the separation stage, are important in order to understand departure from tertiary education.

2.5.2.3 Stage of incorporation

After disassociating themselves from past communities, the students look for integration and membership in the tertiary institution (Tinto, 1988). In the incorporation stage, students face the challenge of finding and adopting norms that will help them achieve these goals and in establishing competent membership in both the social and intellectual communities of the university (Tinto, 1988, p. 446). Social interactions are the primary means for achieving incorporation. Tinto (1988) asserts that building social relationships depends on the ability of the student to establish contact with other members of the tertiary institution (e.g. other students and staff). Those who are unable to develop such interactions are likely to experience integration failure and its associated sense of isolation which could cause withdrawal (Tinto, 1988). Successful experiences of the separation and transition stages do not guarantee persistence in university. Withdrawal is still a possibility if incorporation into the life of the university is not accomplished.

Tinto (1988, 1993) highlights the need to establish mechanisms to introduce students to university life so they can achieve incorporation. Orientation programmes are part of those mechanisms as they help the students feel welcomed and alleviate the effects of the passage to tertiary education. However, Tinto (1988) clarifies that they do not provide "the sorts of extended contact needed for the

establishment of community membership" as they are mainly "very short-lived" and still not "highly symbolic in character" (p. 446). In contrast "repetitive social contact" can be encouraged through other instruments such as fraternities, sororities, student dormitory association, sport clubs, student unions and extracurricular programmes. For Tinto (1988, 1993) helping the students to become incorporated into the tertiary setting is important because these students have to "learn the ropes of college life largely on their own". In his words, "daily personal contacts with other members of the college, in both the formal and the informal domains of institutional life, are the only vehicles by which incorporation occurs" (Tinto, 1993, p. 99).

2.5.3 Review of the theory of student departure

Although Tinto's work has been largely used in the study of transition to university, the theory has its limitations. Tinto's theory is based on students who attend American residential universities. Thus, its application in other tertiary settings with a different institutional and/or educational structure represents a challenge for the model. It is well worth asking, for instance, how the model applies in places where ethnic and cultural factors are a strong issue (e.g. Māori in higher education), or in tertiary institutions that deliver distance education and/or mainly use online educational environments (e.g. New Zealand's Open Polytechnic). Specifically, research about transition to university among mature students (Rovai, 2003) and distance education (Tresman, 2002) has found that Tinto's model needs to be adapted.

However, perhaps the strongest criticism comes from those scholars embracing social and cross-cultural studies (Attinasi, 1989; Guiffrida, 2006; Rendon, Jalomo, & Amaury, 2000; Tierney, 1999). Tierney (1999) questions the usefulness of Tinto's model in minority student groups because it suggests abandonment of ethnic identities, or what is worse, "merely inserting minorities into a dominant cultural frame" (Tierney, 1992, p. 611). He argues that the model should include a cultural integrity approach based on concepts such as cultural capital and habitus. A similar opinion is shared by Guiffrida (2006) who criticises the lack of a cultural domain in Tinto's model and suggests that conceptual tools such as cultural norms and motivational orientation could help in that regard. Likewise, Neumann and Finaly-Neumann (1989) admit that Tinto's model is useful for studying the process of retention/departure of first-year students but they strongly doubt its applicability in later years of tertiary study. This argument is also supported by Webb (1988) who concludes that the model is inadequate for the study of students attending two-year community institutions.

Despite its limitations, Tinto's theory is still a relevant conceptual tool for the study of transition to university. According to Halpin (1990), since its inception, Tinto's model has provided researchers

with theoretical foundations when research was restricted to "correlational studies with no grounding of findings in a conceptual or explanatory framework" (Halpin, 1990, p. 22). In some particular research contexts the theory of student departure has provided a conceptual lens. For example, Pascarella and Terenzini (1980) have applied it to first-year students who attended a large, selective, residential university in the United States. In another study, Pascarella and Chapman (1983) have used this theory to study American tertiary settings with dissimilar institutional characteristics (e.g. two-year community institutions, residential universities and predominantly commuter universities).

The theory of student departure has also been the conceptual tool for the study of "less traditional students" or minority student groups. For instance, Ashar and Skenes (1993) have explored retention of adult learners attending a management and business educational institution. On the other hand, additional research (Fox, 1986) has confirmed the relevance of the model in the context of economically and academically disadvantaged students who attended an urban, non-residential American university. Others (see also Allen & Nelson, 1989; Boyle, 1989; Grosset, 1989; Halpin, 1990; Voorhees, 1987) have similarly found Tinto's theory useful for the study of young students' transition to university.

2.5.3.1 Tinto's theory and vision impairment

Tinto's theory has also attracted the attention of scholars interested in the university life of students with disabilities in general (Belch, 2004; Duquette, 2000; Hadley, 2011). Some studies have used his approach to study a specific group of impairments such as learning disabilities (DaDeppo, 2009; Reiff, 1997; Troiano, Liefeld, & Trachtenberg, 2010). Fewer studies, with a focus on students with vision impairments, have used Tinto's approach to explore the academic performance and the adjustment of this group of students to the university setting (Almog, 2011; Hodges & Keller, 1999; Scott, 2009). However the specific context of the transition experience of students with vision impairments is yet to be studied and understood.

Tinto's theory needs to be expanded or redefined to consider the potential utility of ICTs for the transition experience of students with disabilities, including those with vision impairments. When Tinto developed and refined his theory in the 1970s and early 1990s, new technologies such as the Internet were not in the stage of commercial diffusion and were only used and accessed by a very few people (Bell, 1999). Even computer-mediated networks were not widely used in the tertiary environment. Thus, we do not yet know how Tinto's model works when ICTs are used for the transition process. Nowadays, ICTs are more embedded in students' everyday activities. Thus, there is a need to include these tools in the study of the transition process and to understand the role played

by new technologies as ICTs are not only changing the way education is delivered but also how students communicate and interact in the tertiary setting (Gatz & Hirt, 2000).

To sum up, while Tinto's theory is a useful conceptual tool; its potential limitations have recently become more evident as a result of a changing world. The increasing number of students with disabilities, including those with vision impairments, attending university poses a challenge for research, policy and practice. Thus, the understanding of the transition to university experience also has to consider the particular challenges, needs as well as the perceptions of students with disabilities and the way they make sense of their transition instead of a perspective that focuses on the adjustment of the students and their retention/departure from the tertiary setting.

2.6 University Education and Self-determination

In the literature self-determination has been analysed from different perspectives. Some stress the need to teach self-determination skills to people with disabilities (Algozzine, Browder, Karvonen, Test, & Wood, 2001), while others highlight the importance of the concept but warn that self-determination may be particularly unachievable for people with severe disabilities (Wehmeyer, 2005). In the context of tertiary education, the main focus of research has been best practices among university service units to enhance students with disabilities' self-determination skills (Field, Sarver, & Shaw, 2003), and its impact on students' academic performance (Konrad, Fowler, Walker, Test, & Wood, 2007). However, the importance of ICTs for the development of self-determination among people with disabilities has been insufficiently explored. The few available studies suggest that ICTs are positively related to higher levels of self-determination among people with psychiatric disabilities, particularly in terms of making important personal decisions (Cook et al., 2005) as well as being a means of empowerment (Mehra, Merkel, & Bishop, 2004; Tilley, 2009). Nevertheless, the relation between ICTs and self-determination in the specific context of transition to university, particularly for young people with vision impairments is still unknown. The study of this relation may not only help us to understand the transition experience of students with vision impairments but also provide practitioners with valuable insights they can use to improve their practice and services.

The concept of self-determination has been extensively discussed in the social sciences. Psychologists were the first to conceptualise the term in the following broad sense: "To be self-determining means to experience a sense of choice in initiating and regulating one's own actions" (Deci, Connell, & Ryan, 1989, p. 580). Scholars and practitioners from the areas of disability, special education and rehabilitation have discussed the notion of self-determination as an intervention and an outcome (Algozzine, Browder, Karvonen, Test, & Wood, 2001). The idea that self-determination is an

outcome has gained support as it recognises that people with disabilities can achieve self-determination through lifelong learning, opportunities and experiences (Wehmeyer, 1996). Based on these ideas, self-determination is understood as:

> *"[A] combination of skills, knowledge, and beliefs that enable a person to engage in goal-directed, self-regulated, autonomous behavior. An understanding of one's strengths and limitations together with a belief in oneself as capable and effective are essential to self-determination. When acting on the basis of these skills and attitudes, individuals have greater ability to take control of their lives and assume the role of successful adults in our society." (Field, Martin, Miller, Ward, & Wehmeyer, 1998, p. 2)*

Wehmeyer and Schwartz (1997) describes the four characteristics of a self-determined person with a disability: autonomous, self-regulated, psychologically empowered and self-realised. An autonomous person "acts according to his or her own preferences, interests and/or abilities, and independently, free from undue external influence or interference" (p. 246). The person is also self-regulated when she or he can make "decisions about which skills to use in a situation; examine the task at hand and their available repertoire; and formulate, enact, and evaluate a plan of action with revisions when necessary" (p. 246). A psychologically empowered person acts based on the beliefs that she or he has the capacity to perform behaviours needed to influence outcomes in their environment and, if they perform such behaviours, anticipated outcomes will result (p. 246-247). Finally, a person with disability is self-realised when she or he uses "a comprehensive, and reasonably accurate, knowledge of themselves and their strengths and limitations to act in such a manner as to capitalize on this knowledge in a beneficial way" (p. 247).

Previous research highlights the importance of self-determination in the lives of people with disabilities. Research has found that overall self-determination has implications for the improvement of the quality of life of people with disabilities (Lachapelle et al., 2005; McDougall, Evans, & Baldwin, 2010; Wehmeyer & Schalock, 2001). In this respect, interventions that enhance self-determination make young people with disabilities actively involved in their transition to university planning (Test, Mason, Hughes, Konrad, & et al., 2004) and perform better academically (Fowler, Konrad, Walker, Test, & Wood, 2007). In the long term, self-determined young people with disabilities are likely to be employed at a higher rate and earning more than their peers who are not self-determined (Wehmeyer & Schwartz, 1997) and develop participation, independence and autonomy in community activities (Frankland, Turnbull, Wehmeyer, & Blackmountain, 2004;

Sowers & Powers, 1995). To sum up, the evidence supports the idea that self-determination has significant implications for the personal development of young people with disabilities.

2.7 ICTs: Implications, Perspectives and their Role for Disability

2.7.1 The discussion about the limitations and advantages of ICTs

Since the inception of ICTs, especially the Internet, scholars have discussed their implications for people's lives. The following sub-sections present some of the main points of this debate. First, I start with the arguments against technological developments on people's lives. These arguments are based on early literature that mainly outlines the negative socio and psychological impact of ICTs. Although this literature seems out of date, it is still relevant for this study not only because it was influential and highly cited in academia at that time but also because it now allows a contrast with how these views have changed in recent times. Following this, in the subsequent sub-section, I present the main arguments about the benefits of ICTs. Recent literature has a less pessimist view of ICTs and shows that new technologies can also play a useful part in many aspects as they have been incorporated by people in their everyday lives.

2.7.1.1 The limitations

Researchers have outlined that ICTs can have a negative effect on people's lives. This concern arose especially in the early years of the inception of the Internet and the growing use of computer devices. For instance, research about young people's Internet dependence (Morahan-Martin & Schumacher, 2000; Scherer, 1997) has highlighted that heavy use of this ICT tool results in students' declining grades, failure to accomplish major academic and social responsibilities, and health problems such as sleep deprivation (Scherer, 1997). Similarly, Morahan-Martin and Schumacher's (2000) study of undergraduate Internet users concluded that young males who use technologically sophisticated sites and online games were more likely to be affected by this medium. As a result, the term Pathological Internet Use (PIU) was coined to describe certain disturbed patterns in one's life as a result of excessive Internet use (Davis, 2001; Weiser, 2001). Additionally, mental health professionals and scholars have argued that heavy Internet usage is associated with depression (Young & Rogers, 1998) and also loneliness (Lavin, Marvin, McLarney, Nola, & Scott, 1999).

Similarly, detrimental effects of ICTs on "social wellbeing" are highlighted in some studies (see Kraut et al., 1998; Nie & Erbring, 2002). Through a designed panel study conducted during two years, Kraut and members of his team (1998) found that the Internet was associated with declines in people's communication with family members in the household and in the size of their social circle, alongside

increases in their depression and loneliness (Kraut et al., 1998, p. 1017). Similarly Nie and Erbring (2002) argued that people who spend more time surfing online are also more likely to lose contact with their offline social environment. In this respect, people not only spend less time with "real human beings" (p.280), especially friends and family members, but they attend fewer events outside the home such as shopping in stores. Even less television watching has been reported because of the Internet (Nie & Erbring, 2002, p.280).

Additionally, negative physical consequences have been identified among heavy computer users. According to Attewell, Suazo-Garcia and Battle (2003), young children who spend more than eight hours using online applications, such as Internet games, tend to devote much less time to sports and outdoor activities than non-computer users. Moreover, they also have substantially higher body mass indexes than children who do not use home computers (Attewell, Suazo-Garcia, & Battle, 2003). Caplan (2003) points out that in some cases ICTs, especially the Internet, are not the primary reason for diminishing psychological health; however, its excessive use could exacerbate existing psychosocial problems (Caplan, 2003).

2.7.1.2 The advantages

On the other hand, research has also found that ICTs can have beneficial effects on the social and psychological aspects of people's lives (Amichai-Hamburger & Ben-Artzi, 2003; Caplan, 2003; Morahan-Martin & Schumacher, 2003). For instance, people who are already isolated and have some form of psychological impairment or distress tend to spend more time using the Internet (Morahan-Martin & Schumacher, 2003). This tendency to use the online medium makes people who suffer loneliness more likely to develop a preference for online social interaction than healthier people (Caplan, 2003). Additionally, research has shown that the use of ICT platforms can be a means of enhancing people's social networks and support (Morahan-Martin & Schumacher, 2003). This is because their personal relationships, group memberships, social identity and, thus, community involvement are promoted or/and maintained through new technologies (Boase, Horrigan, Wellman, & Rainie, 2006; Ellison, Steinfield, & Lampe, 2007; Spears, Postmes, Lea, & Wolbert, 2002). As people have adjusted or modified the Internet and related applications according to their needs and experiences, ICTs have helped them to add a new way of keeping in touch with friends and family members (Hampton & Wellman, 2003). Rather than spending more time with the computer at the expense of physical interaction, ICT-meditated communication links people to other real people, or more specifically, as Boase, et al., (2006) affirm, to their dispersed social networks. Thus, the Internet could also be a source of social wellbeing.

Supporting this claim, research has found that Internet-based tools supplement and/or reinforce social connections within neighbourhoods (Hampton & Wellman, 2003). Likewise, family connections can be positively affected by the use of the Internet as a 2008 Pew Internet study, conducted by Kennedy, Smith, Wells, and Wellman, suggests. This research focused on the perceptions of married-with-children households about the online medium. It found that 33% of the adult respondents considered that the Internet has improved their connections with friends to a large extent, while 23% stated that it has greatly improved their connections with members of their family (Kennedy, Smith, Wells, & Wellman, 2008). The study also found that new forms of family connectedness are being created by the use of mobile phones and communal Internet experience.

Similarly, researchers in New Zealand have explored the implications of the Internet for socialising. Overall, a growing number of New Zealanders use the Internet for social connectedness. Surveys conducted in 2007 and 2009 on behalf of the World Internet Project show that the percentage of users that check their email daily has increased from 77% to 82% respectively (see Bell, et al., 2007 and Smith, et al., 2009). In addition, over 60% of the respondents considered that the Internet has increased their contact with other people living overseas (Bell et al., 2007) as well as friends and family members (Smith et al., 2009). Similarly, the use of social networking sites is part of the online experience of nearly half of users. A quarter of the respondents also answered that they have made friends online and a slight majority of them have met these friends in person (Smith, et al., 2009).

Recent research has also highlighted the benefits of technological developments such as social media and mobile devices particularly in the everyday lives of young people. For example, in her study of the online activities of American teenagers, Boyd (2014) argues that these tools (e.g. Facebook and Instagram) have reshaped the way young people build and participate in online communities. While in the past young people's online interaction was encouraged by sharing common interests, nowadays friendship is the organising tenet. Her findings also highlight that social media is now "an everyday part of life, akin to watching television and using the phone" (p. 8) and that young people via these applications carry on core activities of their daily lives such as chatting and socialising, engaging in self-expression, grappling with privacy, and sharing media and information (Boyd, 2014, p. 8). Some authors such as Rainie and Wellman (2012) explain that currently young people represent a "hyperconnected" generation that uses "many media for (almost) continuing communication presence" (p. 112). They suggest that ICT-lead "hyperconnection" may increase people's interests and participation in political matters. A well cited study conducted by Wellman, Haase, Witte, and Hampton (2001), for example, has already highlighted "that heavy Internet use is associated with increased participation in voluntary organizations and politics." (p. 436). Other authors have similarly

outlined that ICTs, especially the Internet, may help to reduce people's apathy and disengagement with politics because new technologies support organisational coordination and internal debate (Olsson, 2007), the formation of political identity (Amadeo, 2007) and the development of new forms of participation (Hasebrink and Paus-Hasebrink, 2007) among others.

Similarly, the growing use of portable devices (e.g. smartphones and tablets) is argued to be increasing the social and cultural changes that were already underway in part for the inception of the Internet. For example, Rainie and Wellman (2012) argue that there is a "mobile revolution" happening in which ICTs have become "body appendages allowing people to access friends and information at will, wherever they go…There is a possibility of a continuous presence and pervasive awareness of others in the network" (Rainie & Wellman, 2012, p. 12). As a result of the increasing access to portable devices, they add, the digital divide is decreasing "even more quickly than the earlier digital divide in Internet use" (p. 87). For instance, a recent Pew Internet study, conducted by Smith (2015), shows that in the United States the percentage of people using smartphones to connect to the internet has almost doubled since 2011. Users, especially young and low-income people, use their devices for accessing health-related information, online banking, searching for work, educational information and government services.

2.7.2 ICTs and disability

The relationship between ICTs and disability has been a topic for discussion and analysis among scholars (Dobransky & Hargittai, 2006; Goggin & Newell, 2004; Lupton & Seymour, 2000; Moser, 2006; Roulstone, 1998). While the literature has mainly looked at this relationship from a top-down perspective, research about the role of ICTs in the everyday life experience of people with disabilities is growing but still insufficient (Lupton & Seymour, 2000). In the literature, two main views, the medical and the social-cultural, have dominated scholarly analysis. The following sub-sections discuss the tenets of these approaches.

2.7.2.1 The medical perspective on technology

The medical or therapeutic perspective on technology originates from ideas grounded in a medical model of disability (Goggin & Newell, 2003; Roulstone, 1998). It assumes that with the provision of new technologies, people with disabilities will be unambiguously assisted (Roulstone, 1998). The core idea of this perspective is that "it succeeds in either attenuating the physical or sensory problems the disabled person has or that it augments the person, who because of a disability has not attained the normal and accepted range of abilities" (Roulstone, 1998, p. 11). Since the introduction and diffusion

of ICTs, commentators embracing the medical view have appraised the potential of technology to help people with disabilities to live independently and increase their chances of getting a job among other benefits (Giannini, 1981; Hazan, 1981).

This perspective openly holds a technologically deterministic approach. It defends the idea that the development of software and hardware is a panacea for the physical improvement and/or recovery of people with impairments. For instance, virtual reality, a replication of a real world environment based on a software application, is argued to enhance rehabilitation (Holden, 2005). Similarly, improvements in motor learning and performance have been reported among people that had experienced strokes, brain injury, Parkinson's disease, and orthopaedic rehabilitation through the use of virtual reality environments (Holden, 2005).

However, opponents of the therapeutic perspective on technology (see Goggin & Newell, 2003) argue that it "conceals the political and social contradictions and conflict" related to any technology from the wheelchair to the Internet (Goggin & Newell, 2003, p. 9). Citing the case of the development of the wheelchair, Goggin and Newell (2003) argue that "rather than being seen as socially shaped, [the wheelchair] is considered as unproblematic, with design changes driven almost entirely by science and technology" (Goggin & Newell, 2003, p. 9). The same situation, they add, can be attributed to ICTs when they are uncritically seen as independent revolutionary tools (Goggin & Newell, 2003). They also affirm that the therapeutic or medical view "individualizes disability, suggesting that individuals have diseases or incapacities as inherent attributes" (Goggin & Newell, 2003, p. 23). In their view the therapeutic perspective "professionalizes disability" as it considers that impairments are a matter for professional judgments (p. 23). They conclude that this perspective limits the understanding of the relationship between ICTs and disability as it boasts about its authoritative knowledge to prescribe what technology is right and proper for people with disabilities (Goggin & Newell, 2003).

2.7.2.2 The social and cultural perspective on technology

Scholars have also looked at ICTs and disability in terms of the social and cultural implications of this relationship. It is argued that ICTs can have unanticipated consequences for the wellbeing and personal development of people with disabilities. Tilley (2009) calls this a 'double-edged sword' as ICTs could potentially dis-empower them. A study conducted by Carr (2010) reports the barriers experienced by deaf participants through the use of Second Life, a 3D virtual world freely available online. The participants experienced exclusion from friendships, conversations and events when an integrated voice feature was added to the website's existing typed text-chat in 2007 (Carr, 2010). A

similar concern is expressed by Bowker and Tuffin (2003) in their study about issues of deception among people with disabilities who take part in online interaction and communication. They warn that Internet-based tools could also be an environment with unexpected outcomes as people with disabilities are potentially exposed to others' malevolent online behaviours.

A strong view about the disabling nature of ICTs, especially the Internet, is held by advocates of the social model of disability. Goggin and Newell (2003), for example, emphasise that disability is constructed in and through ICTs and that as a result people with impairments experience a "digital disability". Some supporters of the social model admit that ICTs help to compensate for people's impairments but warn that there is a "high price" which is the reproduction of boundaries "between abled and disabled, and normal and deviant" (Moser, 2006). In the same way, it is argued that inequalities arise when people with disabilities are unable to access ICTs or when issues such as high set-up costs, inadequate technical support and exclusive design practices prevent their use (Watling, 2011).

However, in contrast to what advocates of the social model claim, research has highlighted that people with disabilities can also take advantage of ICTs to address loneliness and promote empowerment. In terms of managing isolation, there is evidence that the elderly and people with disabilities living alone have experienced a new sense of camaraderie and friendship because the Internet has helped them to overcome loneliness (Bradley & Poppen, 2003). Others such as Coursaris and Liu (2009) have looked at the relationship between the Internet and social support for individuals with HIV/AIDS and found that the use of online self-help groups is an important means of providing information and emotional support. It is argued that the empowering potential of the Internet equalises the level of wellbeing between adolescents with hearing impairments and their peers without disabilities (Barak & Sadovsky, 2008). Internet-driven empowerment is also linked to the increase in the level of perceived independence among physically-challenged people (Grimaldi & Goette, 1999) and in the meeting of pressing needs (Dobransky & Hargittai, 2006) that ultimately will help them to participate in community life.

Additionally, it seems that ICTs support people with disabilities' self-representation in society. Thoreau's (2006) study of representation of disability by people with impairments via the Internet concluded that the online medium can bridge the representation gap exerted, for the most part, in traditional media. Her research on Ouch!, a BBC website which is produced by a group of people with disabilities themselves, found it to be a cheap, responsive, nonlinear and flexible medium. According to her, these characteristics of the Ouch! website allowed people with disabilities to

represent disability based on their personal choices and encouraged a sense of community. In addition, unlike mainstream media, the content of this website was easily updated, altered, and corrected by users with disabilities. She concludes that the opportunity for self-representation "is dependent on how the technology is used and what influence disabled people have on the production of content" (Thoreau, 2006, p. 460).

Similarly, Ellis (2010) analysed the impact of user-generated content websites such as YouTube for self-representation and participation of people with disabilities. She argued that, because this video-sharing platform is "a different media", people with disabilities are using it in an innovative way. She examines two case studies of videos produced by people with disabilities that highlight "the intersecting experience of impairment and social disablement" from a people with disabilities' perspective (p.214). Besides being a means of redefining the representation of disability, the use of YouTube has encouraged the development of disability communities networking with disabled people and working behind the scenes to make the platform more accessible (Ellis, 2010).

2.7.3 ICTs in the context of vision impairment

The potential of ICTs to support people with vision impairments has been highlighted in the literature. Studies have looked at the integration of several technologies to facilitate mobility among people with vision impairments. For example, Helal, Moore and Ramachandram's (2001) research explored the benefits of the navigation system called Drishti – which incorporates wearable computers, voice recognition and wireless networks such as Geographic Information System (GIS) and Global Positioning System (GPS). The system provides the user with contextual information about traffic congestion or road block while the user with vision impairment is walking along the road (Helal et al., 2001). Enthusiasts such as Strobel, Fossa, Arthanat and Brace (2006) predict that low vision and blind people are among those who will continue benefiting from the development of more accessible applications such as Braille display equipment.

Research has also looked at the implications of ICTs for people with vision impairments with regard to diverse aspects of their everyday lives. Tollefsen and Flyen (2006) look at online games and how these tools can provide "good motivation" and fun. Although online and virtual games are mainly visual products, some of them can be accessible, and thus enjoyed, by the blind. The development of handy technological products based on sound interfaces or audio guiding has also been receiving some attention (Velleman, van Tol, Huiberts, & Verwey, 2004). Lately, the development of novel drawing techniques and software is argued to allow the design of 3D geometric shapes by people with vision impairment (Kaneko et al., 2010). To a great extent, technology can be used as a tool to assist

the disability community but it should not be taken for granted that it will always have beneficial repercussions.

2.8 The Role of ICTs in the Educational Environment for Students with Vision Impairments

There is still insufficient research about the role of ICTs in the university experience of students with vision impairments in New Zealand and overseas. Despite the emergence of a wide range of innovative and collaborative new technologies in recent years, available studies mainly focus on the role of assistive technologies (see Hersh & Johnson, 2010; Manduchi, & Kurniawan, 2012), and/or their impact on primary and high school children (see Presley & D'Andrea, 2009). Some studies have looked at the topic but in the context of people with disabilities in general and not only for accessing tertiary education but also employment (see Burgstahler, 2003).

Similarly, in the literature, assisting physical mobility and navigation has been one of the most researched roles of technology for people with vision impairments in general. Researchers have been developing and testing different products that seek to allow people to navigate independently in everyday life. The technological innovations include for instance portable GPS navigation systems such as RouteCheckr (see Völkel & Weber, 2008), a wearable audio navigation computers such as SWAN with an obstacle detection system that warns the user of obstacles in range while travelling (see Wilson, Walker, Lindsay, Cambias, & Dellaert, 2007) and audio tactile mapping system such as BATS (see Parente & Bishop, 2003). In 2008, a review of existing technological developments for people with vision impairments identified 146 aids, systems, and devices available in the market for this end (Roentgen, Gelderblom, Soede, & de Witte, 2008).

In the context of the transition to university experience of students with vision impairments, research has not specifically looked at the roles of ICTs. However, in reviewing the literature, I have found that technology plays four main roles in the educational experience of this group of students in general: vision compensation, information access, facilitating communication and assisting learning.

2.8.1 Vision compensation

The view of ICTs as supporting vision compensation is guided by the assumptions of the medical model of disability (see sub-section 2.7.2.1) and mainly refers to assistive technologies. Some commentators argue that technology is one of the "greatest equalizing forces" (see Michaels & McDermott, 2003, p. 29) because it can "compensate or enhance functioning of cognitive, sensory, language, and motor skills" (Asselin, 2014, p. 228). By using technology, students with vision

impairments are provided with "the best possible sight enhancement or sight substitution mechanism" that allows them to perform visual tasks (Söderström & Ytterhus, 2010, p. 305) and can increase their functional independence in the context of the educational environment (Stumbo, Martin, & Hedrick, 2009). Assistive technologies such as electronic Braille and screen magnification software have supported the tertiary experience of students with vision impairments in terms of improving environmental orientation, mobility and reading (Wisniewski & Sedlak, 1992). In the 1980s these tools were expensive and often lacked technical support (Hollier & Murray, 2006) or they simply did not respond to the particular needs of each student, who were unable to fully benefit from them or decided not to use them. Despite these barriers, assistive technologies were well regarded for potentially facilitating normalcy or augmenting current functioning of students with disabilities (Wisniewski & Sedlak, 1992). As previously mentioned, there is a large range of new technologies designed to mitigate the visual challenges of people with vision impairments from personal digital assistants with speech and Braille output to screen magnification systems, speech synthesisers and more recently mobility-aid solutions for mobile phones which support trip planning. In general, commentators concur that by using ICTs to compensate for or reduce the impact of their vision impairment, students with disabilities, including those with vision impairment are able to participate in tertiary education, and thus increase their future chances of employability and independent living.

2.8.2 Information access

The role of ICTs in providing people with vision impairments with access to printed and electronic information has been largely documented in the literature (see Hersh & Johnson, 2008; Presley & D'Andrea, 2009; Smith & Kelly, 2014). The varied range of available ICT represents an alternative to traditional forms of information access. New technologies have made it easier for this group of students to access texts from newspapers, journals, magazines and books and also graphical information such as pictures and mathematical equations through technologies that enhance vision, touch and hearing (Presley & D'Andrea, 2009). For example, closed-circuit television systems (CCTV), which use a video camera connected to a monitor, are being used to enlarge the size of text and images from books and other course-related material and also to adjust their colour and background. By using assistive technologies, students with vision impairments depend less on the help of other people to read course material for them. They also do not need to photocopy articles and other course material in larger dimensions such as on A3 paper.

ICTs have also supported access to information available electronically and/or online. Hersh and Johnson (2008, p. 385) highlight that developments in speech processing and speech synthesis

technology have opened new opportunities for a wider use of audio as an information interface for students with vision impairments (e.g. text-to-speak software). This kind of ICT development includes stand-alone reading systems and reading systems that are computer-based, which can also be used with printed material (Hersh & Johnson, 2008). Personal computers, laptops and the Internet are also regarded as important in terms of facilitating information searching and access for students with vision impairments especially in cases when the amount of information available online is vast (Hersh & Johnson, 2008; Ritchie & Blanck, 2003). Early studies about the role of the Internet from the perspective of people with vision impairments demonstrate that the online medium increases access to information (Williamson, Wright, Schauder, & Bow, 2001). This trend is confirmed by recent research which shows that people with vision impairments, especially the younger generations, have embraced the Internet as the main means to access information and that they also consider themselves as competent users (van der Geest, van der Meij, & Van Puffelen, 2014). The possibilities for information access via the Internet do not solely refer to the content of websites but also other sources such as digital text files, PDFs and eBooks which can also be manipulated with the support of assistive technologies.

2.8.3 Facilitating communication

One of the main roles of ICTs for people with vision impairments is that they are an additional tool that supports and enhances communication (Cook & Polgar, 2014; Seymour & Lupton, 2004). In the case of writing communication, using a pen and a piece of paper to write a letter or assignment can be arduous and time-consuming for students who cannot see properly, and impractical if she or he is totally blind (Presley & D'Andrea, 2009). However, the barriers against writing communication can be reduced with the use of assistive technologies. For example, blind students can accomplish writing tasks by using laptops with Braille capability. Some students use dedicated electronic word processors for note taking in classes which can be saved electronically and transferred to a desktop or laptop (Presley & D'Andrea, 2009). The inception of ICT tools such as email and text/SMS messages has also made writing tasks easier to achieve for people with vision impairments easier to achieve. Similarly, recent research shows that young people with vision impairments combine their use of assistive technologies with applications and the built-in accessibility features of portable devices (e.g. smartphones and tablets) for short and quick written messages (Scott, 2013).

On the other hand, Internet-based tools are also supporting oral and face-to-face communication of people with vision impairments. In addition to phone calls, video chats (e.g. Skype) and social media (e.g. Facebook and Twitter) are tools which young people with vision impairments can benefit from.

A longitudinal study about Internet use among teenagers with vision impairments found that those who had access to the online medium used it to communicate regularly with others via emailing, instant messaging or online chatting (see Kelly & Wolffe, 2012). Another study (Pfeiffer & Pinquart, 2013) not only found no difference between Internet use between teenagers with vision impairments and their peers without disabilities, but also that blind adolescents used their computers more often than adolescents with low vision, especially for communication matters.

2.8.4 Assisting learning

The potential of ICTs as an innovative way to provide students with impairments with access to and participation in education and learning, in both the school and the tertiary settings, has been highlighted in academia. The use of and access to information technology can be a key component in the successful transition to university, in particular for students with vision impairments (Hutchinson et al., 1998; Nochajski, Oddo, & Beaver, 1999; Sutcliffe, 1999). It is argued that ICTs help students to have control over their learning by promoting independence (Sutcliffe, 1999) and enhancing their academic performance (Smith & Kelly, 2014). For example, making course material accessible via electronic formats and providing alternative ways to support writing needs through assistive technologies allow students with vision impairments to manage study and learning demands (Hutchinson, et al., 1998). In line with this claim, research by Li et al. (2012) has found improvements in the performance of high-school students with vision impairments who used the Internet to take comprehension, calculation, and science tests. In another study, a group of students with disabilities, including some vision impairments, reported that ICTs supported their study experience and helped them to develop academic skills (Kim-Rupnow & Burgstahler, 2004).

Although information technologies can provide a positive educational experience and outcome, an important condition is that these tools have to be available and accessible to students with vision impairments (Nochajski, et al., 1999; Sutcliffe, 1999). Research has found that the lack of knowledge of stakeholders about appropriate hardware and software and/or insufficient funding to buy them are the main reasons why technology is not made available to students with disabilities (Burgstahler, 2003). Even if technology is physically available, it has to meet the needs of the students in diverse areas. In this respect, a practical situation affecting students with disabilities in general in the tertiary setting occurs when assistive technology is placed in a special education resource room but not in general education classrooms where the technology could be used to complete in-class assignments (Burgstahler, 2005).

Another limitation for students with vision impairments relates to the use of speech and Braille output systems. These tools can only read text on a computer screen, thus students could have difficulty accessing some websites in which information is only available within graphic images (Burgstahler, 2005). In the same way, students struggle with reading too small text on the computers screen. To deal with such obstacles, they need special software to enlarge screen images. Such technology has to be customised to the features of their vision impairment as some students cannot distinguish one colour from another or are hypersensitive to light. Others have visual field limitations that result in tunnel vision or alternating areas of total blindness and vision. If these challenges are not solved opportunely, students may decide not to use technology, making the transition to tertiary education even more complex. For example, Mull and Sitlington's (2003) study has identified the main reasons for technology abandonment among people with learning disabilities attending higher education. These reasons, which can be considered in the context of students with vision impairments, are the following: technology did not improve the independent functioning of students; it was too difficult and expensive to repair; it required too much assistance from another person; it was difficult for the student to use; it needed a long or complicated series of commands; it failed to function as intended; it was not always reliable; it did not always address the actual demands of the curriculum (Mull & Sitlington, 2003, p. 30).

2.9 ICT-based Practices and Tools for Students with Vision Impairments

There are a number of ICT-based practices and tools that can be used to support students with disabilities, including those with vision impairments, during their university journey. Some of these practices and tools include, for example, assistive technologies, distance education (as well as e-learning), Web 2.0 and online communities of practice. The following sub-sections explain them:

2.9.1 Assistive technologies

Assistive technologies are defined as "any item, piece of equipment, or product system, whether acquired commercially off the shelf, modified, or customized, that is used to increase, maintain, or improve functional capabilities of individuals with disabilities" (Scherer, 2002, p. 1). With the use of assistive technologies, people with vision impairments not only have the opportunity to be independent at home, school, university and work but also to "compete successfully with sighted people and to have equal access to printed information" (Abner & Lahm, 2002, p. 98). For example, screen magnifier software is an assistive technology used by people with vision impairments while speech output systems are the same for students with dyslexia. Specific assistive technology for students with vision impairments includes electronic Braille, digital talking book players, CCTV

cameras, note-taking devices, digital voice recorders, magnifying and text-to-speak computer programs among others.

In the context of tertiary education, assistive technologies can support the university experience of students with vision impairments. As previously mentioned, research has found that students with vision impairments who used assistive technologies in different educational settings were academically successful (Kelly & Smith, 2011). These ICT developments and services hold potential for the transition experience of students with disabilities. Studies regarding the usefulness of assistive technologies for students with learning disabilities have found, for example, that these tools are "effective for some students in compensating for specific deficits in such areas as writing and reading" (Raskind & Higgins, 1998, p. 37). New assistive technology developments and approaches not only support the teaching and learning experiences of students with vision impairments but can also assist them in their involvement with the social system of the educational environment (Krishna, Colbry, Black, Balasubramanian, & Panchanathan, 2008). The role of assistive technologies will be investigated in this study.

2.9.2 Distance education and e-learning

In distance education, a method in which students can study in their own time, at the place of their choice, and without face-to-face contact with teachers, technology plays a critical role (Bates, 2005, p. 5). The multi-functionality of advanced ICTs provides students with pedagogically useful and versatile services compared with more traditional media (Peters, 2004). The personal computer, for instance, offers specific teaching functions. It can be used as word processor, animation appliance and for rapid and ubiquitous data access and data exchange (Peters, 2004).

The importance of ICT-based distance education for people with disabilities is that it is an option that supports access to the educational experience (Newell & Debenham, 2005). It helps them to overcome their inability to attend the school and/or university environment and it offers flexibility of study hours. It has been reported that students with learning disabilities enrolled in distance education benefited from the use of a computerised learning environment as it enhanced their learning experience (see Klemes, Epstein, Zuker, Grinberg, & Ilovitch, 2006). Additionally, international research has found that videoconferencing-based teaching programmes for students with disabilities living in remote rural areas are as effective as traditional on-campus programmes for a similar population of disabled students (see McDonnell et al., 2011). Independently of the benefits of using ICTs in distance education, there are also some concerns. It is claimed that distance education may cause or reinforce students with disabilities' lack of social engagement (Newell & Debenham, 2005)

or limit student participation due to the way the distance education environment and ICTs are designed and accessed (Burgstahler, 2002).

Similarly, in e-learning, a "learning and teaching that is facilitated by or supported through the smart use of information and communication technologies" (Ministry of Education, 2006, p. 2) in the classroom or at a distance, ICTs are also an important component. As in the case of distance education, access and design are potential barriers to the adequate delivery of e-learning (Seale, 2006). Research in England has shown that blind students are satisfied with using ICTs for their learning experience but when the design of learning material is impractical for access, they prefer not to use them (Evans & Douglas, 2008).

Although transition in the context of distance education is a relevant research topic, this study only focuses on the transition to university of on-campus students with vision impairments. This is because, as previously mentioned, there is an increasing number of students with disabilities in general pursuing tertiary education. However, this recent phenomenon remains to be studied. Thus, the implications of distance education will not be included in this study.

2.9.3 Web 2.0 and social media

The development of more interactive and participative Internet-based applications, known as Web 2.0, may have an impact on the way students deal with the challenges of transition to university. Research conducted by Ellison, Steinfield and Lampe (2007) about Facebook found a strong relation between use of this social networking site and the formation and maintenance of social capital. Social capital is defined by Putnam (2000) as the set of connections among individuals which includes social networks and the norms of reciprocity and trustworthiness that arise from them. Using undergraduate students as a sample, Ellison et al.'s (2007) findings suggest that Facebook is mainly used to maintain existing offline relationships or to consolidate connections that would otherwise be ephemeral, temporary acquaintances or weak ties. They add that in the future "such connections could have strong payoffs in terms of jobs, internships, and other opportunities" for the students (p. 1164). In the context of the tertiary setting, Facebook is being incorporated as a learning environment that effectively supports teaching (English & Duncan-Howell, 2008). Shih (2011), for example, found that it supports university students to achieve course-related objectives. Another study (Çoklar, 2012) explored students' perceptions of Facebook as an educational tool. It found that the students considered the online platform useful in terms of dissemination of information, arousing interest, motivation, and presenting interaction opportunities. Similar research has been conducted in regard to Twitter (another popular social media site) in tertiary education (see Mistry, 2011; Veletsianos, 2012).

Another Web 2.0 application seems to corroborate similar positive outcomes. In Japan, a recent study explored students' satisfaction with Skype as a tool for learning English (Tsukamoto, Nuspliger, & Senzaki, 2009). Using web conferences to communicate with other high school students in the United States, Japanese students were found to play more active roles in the classroom, to speak more English during conference calls than in their ordinary lessons, and most importantly they enjoyed interacting with American students through web conferences (Tsukamoto et al., 2009). Although the study was focused on English as a second language, it also suggests that social interactions are enhanced by the use of Skype, or any other similar social networking software, and can have social benefits such as lifelong learning (Tsukamoto et al., 2009).

While all this research has been conducted with students without disabilities, students with disabilities may also benefit from the use of Web 2.0 to manage transition issues. As this study looks at the role of ICTs in general, Web 2.0 will be included in the context of transition to university of students with vision impairments.

2.9.4 Online communities of practice

Communities of practice (CoPs) are defined as "groups of people who share a concern, a set of problems, or a passion about a topic, and who deepen their knowledge and expertise in this area by interacting on an ongoing basis" (Wenger, McDermott, & Snyder, 2002, p. 4). The online component of CoPs relates to the use of ICTs to support members' interactions, instead of face-to-face meetings (Wenger et al., 2002). What makes them different from other kinds of online communities is that online CoPs share and develop a common practice, not only similar interests, and focus on "a domain of knowledge and over time accumulate expertise in this domain" (Wenger, 2001, p. 1).

Online COPs of practice appropriate technology in different ways (Wenger, White, Smith, & Rowe, 2005). Some online CoPs adapt existing technologies to their purposes. Other COPs make use of technological resources designed specifically to support communities in achieving their goals (Wenger et al., 2005). A diverse range of technological tools and platforms can be used to help online CoPs. Some tools are useful for asynchronous interactions among members of the online CoPs, for example e-mail, discussion boards, and Usenet. Other tools facilitate synchronous communication (e.g. chatting, instant messaging, video conferencing and voice calling over the Internet). Besides both types of communication, technological tools can be intended for publishing (e.g. newsletters and RSS feeds). Additionally, there are platforms that facilitate individual participation such as a personal profile page. Finally, subgroups and member directories are tools that can be used for community

encouragement. There are also tools that integrate many of the features mentioned above such as social networking sites (Wenger et al., 2005).

The use of online CoPs in distance education and e-learning has been reported to provide useful experiences for students. Potential for building learning communities has been shown by Sorensena and Murchúb's (2004) research about two online CoPs set up in Danish and Irish universities and which include postgraduate students. Although both online CoPs used different ICT tools to support their interaction and communications, the authors concluded that the community of practice approach contributes to the "much-needed development of a variety of innovative pedagogic-didactic strategies enhancing online learning and promoting collaborative knowledge building processes online" (Sorensena & Murchúb, 2004, p. 198). Similarly, in the United Kingdom, Miers et al. (2007) used online CoPs based on a discussion board among health university students. The study found that members of the online CoPs interacted in a supportive manner and shared professional knowledge which "demonstrated successful interprofessional collaboration online", overcoming the logistical difficulties inherent in interpersonal learning (Miers, et al., 2007, p. 529).

Online CoPs seem to be useful for enhancing teaching and learning in diverse educational setting. However their potential has not been explored in the context of the transition process to university nor the particular needs of students with vision impairments in the tertiary setting.

2.10 Chapter Summary

In this literature review chapter I have identified the research gap in relation to the issues or factors that affect the transition to university of students with vision impairments and the role of ICTs to manage the transition experience. First, I described the context of disability in New Zealand and showed that initially a medical model dominated the view of disability and the way it has been approached. While in recent years the approach based on the recognition of "disabling" social barriers has gained prominence, the voices and needs of people with disabilities have still received little attention considering that one in four New Zealanders has an impairment. Likewise, I have established the working definition of vision impairment for this study which is based on the educational perspective. Following this, I discussed transition to university, the different approaches to studying transition to university and its characteristics in relation to students with disabilities. I have highlighted that little is known about the transition issues or factors that particularly affect students with vision impairments. The last sections of this literature review have discussed the limitations and benefits of ICTs in general and in the particular context of disability. I have also found that research about the

roles of ICTs in the context of students with vision impairments' transition to university is limited and out of date. The following chapter will describe the research strategy and design of this study.

Chapter 3: Research Strategy and Design

3.1 Chapter Overview

This chapter describes the strategy and design that guided this research project. It starts with a discussion of the main philosophical paradigms used in social sciences research (including their ontological, epistemological and methodological assumptions). It outlines and justifies constructivism as the philosophical stance that guided this research. Then, the chapter continues with a discussion about the features of quantitative and qualitative research. I explain why the latter, qualitative research, is the chosen strategy for this study. I also discuss action research (AR), the research method adopted to conduct the study and collect data. In doing so, I describe the two AR cycles and the interventions undertaken in this study to understand transition to university and support the transition experience of the participants. This chapter concludes with the description of the techniques employed for data collection, the approach used for data analysis and a discussion of the credibility of the study.

3.2 The Research Paradigm

In the context of research in the social sciences, a 'paradigm' (Guba, 1990), also known as a 'philosophical assumption' (Orlikowski & Baroudi, 1991) and/or 'knowledge claim' (Creswell, 2003), is critical as it informs and guides the action of the researcher regarding what and how she or he will learn (Creswell, 2003). Guba and Lincoln explain that a paradigm "represents a *worldview* that defines, for its holder, the nature of the "world," the individual's place in it, and the range of possible relationships to that world and its parts" (Guba and Lincoln, 1998, p. 200) By representing the way the researcher understands the world, a paradigm is not "open to proof in any conventional sense" (Guba & Lincoln, 1998, p. 201); thus, it must be accepted not simply on faith but on the basis of well-supported arguments (Guba & Lincoln, 1998).

How does the researcher choose one research paradigm from those available? It seems to be accepted that it depends on the way she or he responds to three fundamental and interconnected questions (Guba, 1990; Guba & Lincoln, 1998). These three questions are linked to ontological, epistemological and methodological assumptions and the answer given to any of these questions, no matter in which order, constrains how the others may be answered (Guba & Lincoln, 1998). These questions are:

- The ontological question: What is the form and nature of reality and, therefore, what is there that can be known about it?
- The epistemological question: What is the nature of the relationship between the inquirer and what can be known?
- The methodological question: How can the inquirer go about finding out whatever he or she believes can be known?

More recently, Guba and Lincoln (2005) and Mertens (2010) have included a fourth question concerning an axiological assumption: What is the nature of ethics? However, complete agreement about this question has not been reached yet in the scholarly community.

Adopting a paradigm was important for this research because it represented the way I see the social world. It provided me with the assumptions that underpinned my research. It located my research and guided the way I approached it in terms of the research method, the techniques for data collection and the analysis I applied. Adopting a research paradigm was also important because it established the kind of relationship I had with the research participants, whether a closed and collaborative relationship or a distant and unobtrusive one.

Paradigms or knowledge claims have been identified and classified differently within the social sciences (see Bryman, 2008; Creswell, 2003; Crotty, 1998; Guba & Lincoln, 2005). Overall, classifications and terminologies coincide to some extent. Paradigms are argued to be competing (Guba & Lincoln, 1998), in some cases contentious (Fitzgerald & Howcroft, 1998; Klein & Myers, 1999) and more recently interweaving (Guba & Lincoln, 2005). The following sub-sections will underline the main features of three of the most important paradigms used in social sciences research: positivism, constructivism and critical theory.

3.2.1 Positivism

Positivism has been the most influential paradigm in the social sciences since the late 19th century, especially due to the work of theorists such as Comte, Mill, and Durkheim (Smith, 1983). In the IS field, positivism has similarly been a dominant approach (Orlikowski & Baroudi, 1991). The ontological principle of the positivist approach is realist. It claims that an objective physical and social world exists *out* there and that it is driven by unchangeable natural laws (Guba, 1990; Orlikowski & Baroudi, 1991). Under this premise, the role of the researcher is to discover the true nature of reality (Guba, 1990) based on "time and context-free generalizations, some of which take the form of cause-effect laws" (Guba & Lincoln, 1998, p. 204). This implies that, epistemologically, the researcher assumes a passive, neutral and non-interventive role (Orlikowski & Baroudi, 1991) in order to "wrest nature's secrets without altering them in any way" (Guba, 1990, p. 19). Consequently positivism holds a dualist and objectivist view regarding social phenomena (Guba & Lincoln, 1998). In this respect, both the researcher and the object of study are considered to be 'independent entities' in which the former is argued to be able to study the latter "without influencing it or being influenced by it" (Guba and Lincoln, 1998, p. 204). Another epistemological feature of the positivist approach is its concern with the empirical testability of theories (Orlikowski & Baroudi, 1991). In doing this, the positivist researcher applies a deductive approach to find out unilateral, causal relationships that are the basis of generalised knowledge and predictable behaviour (Orlikowski & Baroudi, 1991). In terms of methodology, positivism borrows experimental and manipulative methods from the natural sciences (Guba & Lincoln, 1998; Mertens, 2010). Hence, the positivist researcher states questions and/or hypotheses in propositional form which are subjected to empirical tests in order to be verified or falsified (Guba & Lincoln, 1998).

3.2.2 Constructivism

Constructivism holds a very different set of beliefs in contrast to the positivist paradigm. Constructivism argues that knowledge, and therefore all meaningful reality as such, is built on the

interaction between human beings and their world, and transmitted through such human practices (Creswell, 2013; Crotty, 1998; Mertens, 2010). It rejects the assumption that truth and meaning are waiting to be discovered and that they are permanent, unvarying and inherent in the world's objects as the positivist paradigm does (Guba & Lincoln, 2005). In the view of constructivist proponents, Crotty (1998) explains, the world and objects in the world "may be pregnant with potential meaning, but actual meaning emerges only when consciousness engages with them" (p. 43). Thus, constructivism supports the view that there are multiple realities and that they exist in people's minds based on their experiences (Creswell, 2003; Guba, 1990). Guba emphasises this point when he argues that "realities exist in the form of multiple mental constructions, socially and experimentally based, local and specific, dependent for their form and content on the persons who hold them" (Guba, 1990, p. 27). In addition, meanings or mental constructions are not static but they are apprehendable, sometimes conflicting and changeable as human beings become more informed and sophisticated (Guba & Lincoln, 1998; Mertens, 2010). To sum up, all these assumptions reveal that relativism is the ontological view of the constructivist paradigm.

In epistemological terms, constructivism is transactional and subjective (Guba, 1990; Guba & Lincoln, 1998). Subjectivism favours the development of a close relation between the researcher and the participant(s) being studied, with one influencing the other and vice versa (Creswell, 2007, Guba & Lincoln, 1998; Mertens, 2010). Rather than adopting a distant posture, as the objectivist epistemology proposes, the constructivist researcher actively seeks to deconstruct borders between herself or himself and the participants(s) (Rosen, 1991). The role of the researcher is, therefore, "to understand the complex world of lived experience from the point of view of those who live it" (Mertens, 2010, p. 16). She or he avoids the use of any external category, hypothetical deductions and/or covariance when studying social reality (Rosen, 1991). Another important assumption is that the researcher's interaction with the object of study is not value-free. In this regard, the researcher recognises that setting her or his own subjectivity aside is not possible, nor can she or he "stand outside the arena of humanness created by the other persons involved" (Guba & Lincoln, 1989, p. 88). In the same way, there is acknowledgment of the influence that participants' own values exert over the inquiry (Guba & Lincoln, 1989).

Methodologically, constructivism adopts a hermeneutical and dialectical approach (Guba & Lincoln, 1989, 1998; Mertens, 2010). Constructivism describes hermeneutics as "a way to interpret the meaning of something from a certain standpoint or situation" (Mertens, 2010, p. 16). A hermeneutical approach within the constructivist paradigm demands the researcher carry out her or his research in a particular way. Such a way includes exposing "the constructions of the variety of concerned parties,

open each to critique in terms of other constructions, and provide the opportunity for revised or entirely new constructions to emerge" (Guba & Lincoln, 1989, p. 89). Guba and Lincoln (1989) affirm that applying hermeneutics in social research will result in better understanding of the interactions in which human beings are engaged. As result of the hermeneutical process the variable and personal natures of social constructions are argued to be elicited and refined as well as contrasted through a dialectical interchange (Guba & Lincoln, 1998).

3.2.3 Critical theory

Critical theory is a research paradigm embracing the ontological view of historical realism (Guba & Lincoln, 1998). This assumption is driven by the view that social reality is a social and historical practice undertaken by human beings who, as active actors of change, produce and reproduce it (Myers, 1997; Myers & Klein, 2011; Orlikowski & Baroudi, 1991). Critical theory argues that economic, political and cultural structures, among others, constrain human beings from changing their material and social circumstances (Orlikowski & Baroudi, 1991). It states that an objective reality exists but the constraining effects of these various structures create a 'false conciouness' that dominates humans beings. As a consequence, critical theory argues that "contradictions inherent in existing social forms tend to lead to inequalities and conflicts" (Myers & Klein, 2011, p. 19). Under these circumstances, the role of critical theory is to raise human beings to the level of 'true consciousness' (Guba, 1990). In doing so, research using critical theory focuses on the emancipation of individuals and the improvement of the human condition in society, in general (Myers & Klein, 2011; Ngwenyama, 1991). Acording to Guba (1990) critical theory, which includes neo-marxism, feminism and Freirerism, is, in conclusion, an "ideologically oriented inquiry" (p. 23).

Like constructivism, critical theory assumes, in regard to epistemology, a transactional and subjectivist view. This implies an interactive researcher-participants relation. In critical theory, a researcher's values (e.g. open democracy, equal opportunity) are advocated and inevitably influence the inquiry (Myers & Klein, 2011). In addition, instead of theorising, she or he has the role of bringing to "consciousness the restrictive conditions of the status quo" (Orlikowski & Baroudi, 1991, p. 21) and working actively in transforming the object of study, which, by an effect reflection, will also transform her or him (Orlikowski & Baroudi, 1991). These epistemological assumptions are in alignment with its practical and collaborative methodological stance (Creswell, 2003; Ngwenyama, 1991). In this sense, critical research is conducted "with" others rather than "on" or "to" others (Creswell, 2003, p. 11) giving primacy to the participation of the participants in the creation of a social world with meaning appropriate to them (Ngwenyama, 1991, p. 119).

3.2.4 The choice of the research paradigm

For this study I followed the tenets of the constructivist paradigm. I subscribe to the view that the social world is subjective and relativist. In other words, people construct multiple and different meanings of their world based on their personal experiences, context, background, and in interaction with others. The philosophical stance of constructivism was suitable for my research purposes as it allowed me to uncover and deconstruct the different and evolving meanings that the participants held during their transition to university and how they perceived and used ICTs in that context. While other philosophical stances may tend to establish or predict what is a right or wrong transition to university, constructivism allowed me to research the topic based on the views, perceptions and experiences of the participants without adopting pre-established assumptions, hypotheses and theoretical models.

Taking into consideration the voice of the research participants required me, the researcher, to interact closely with them. I could not take a distant position as the epistemology of positivism, for example, demands. On the contrary, I had to be a close inquirer in order to uncover and interpret participants' evolving meanings of their transition and the way these meanings have been shaped and socially negotiated. Specifically, by adopting the constructivist stance, I was able to enhance interaction and collaboration with and among the participants which resulted in the collection of rich data and the identification of significant findings.

Finally, although some points of coincidence with critical theory (e.g. the interactive researcher-participant relation) could be argued, the philosophical stance of this study was fundamentally distant from the principles of critical theory (see Myers & Klein, 2011). As a researcher, I did not take any value position to critique social-historical conditions. I was not oriented towards students with vision impairments' emancipation nor did I assume that improvement in society is part of the nature of my research endeavour. As previously mentioned, the focus of my research has been the understanding of students with vision impairments' personal and collective construction of meaning about their transition to university and how they used ICTs to manage the transition.

The outcomes of this study confirmed that my choice of the constructivist paradigm was reasonable decision and that it suited the research method adopted for this study. Chapter 10 includes further discussion about the use of constructivism for the outcomes of my research.

3.3 The Qualitative Research Strategy

As well as the choice of a research paradigm, the researcher needs to decide what research strategy is most suitable in order to carry out her or his research project. A research strategy, which is informed

by the paradigm chosen by the researcher (Myers, 1997), provides specific direction for procedures in a research design as it operates at a more applied level (Creswell, 2003, p. 13). In the social sciences, including the field of IS, three main research strategies or approaches are identified: the quantitative approach, qualitative approach and mixed method approach.

The social sciences have witnessed a long-lasting divide and/or discussion on the adequacy of two particular research approaches (Crotty, 1998; Denzin & Lincoln, 2005): the quantitative and the qualitative approaches. In the IS field, for instance, the quantitative strategy has been the prevailing approach, especially in the 1960s and 1970s, but its use of methods derived from the natural sciences has been increasingly challenged since then (Morgan & Smircich, 1980). Basically, the quantitative research strategy emphasises the collection of quantitative data (Bryman, 2008). In this sense, it employs methods and techniques based on quantities or numbers to represent values and levels of theoretical constructs and concepts. The quantitative researcher assumes that the use and analysis of quantitative data provides strong scientific evidence of how a phenomenon works (Straub, Gefen, & Boudreau, 2004). Among the quantitative methods most commonly used in IS research and the social sciences are surveys, laboratory experiments as well as formal and numerical methods such as econometrics and mathematical modelling (Creswell, 2003; Myers, 1997). Bryman (2008) explains that the quantitative researcher is usually deductivist, objectivist and mainly, but not always, embraces the philosophical views of positivism.

Although data in quantitative research can be arithmetically precise, they sometimes fail to fit reality (Berg, 2009). With this view in mind, qualitative research emerges as an alternative for seeking and accessing unquantifiable facts about social and cultural phenomena. A well-known definition of qualitative research is provided by Denzin and Lincoln (2005) who describe it as a "situated activity that locates the observer in the world". They add that qualitative research includes a number of "interpretive, material practices" that "transform the world" (Denzin & Lincoln, 2005, p. 3). Qualitative research uses methods and techniques that allow the collection of qualitative data, such as interviews, documents, conversations, field notes, photographs, recordings and participant observation data, to understand and explain social phenomena (Denzin & Lincoln, 2005; Myers, 1997). In applying these, the qualitative researcher seeks "answers to questions by examining various social settings and the individuals who inhabit these settings" (Berg, 2009, p. 8) in order to understand how participants make sense of their environment (Berg, 2009).

Rossman and Rallis (2003) assert that learning is the ultimate purpose of qualitative research and that, thus, the qualitative approach should have "the goal of improving some social circumstance, whatever

form it takes" (p. 4). By learning they refer to the process of transforming information, any data such as images, sounds and words arranged in patterns, into knowledge. In this regard, the purpose of qualitative researchers is "to learn about some aspect of the social world and to generate new understandings that can then be used. As qualitative researchers, they become part of the process, continually making choices, testing assumptions, and reshaping their questions" (Rossman & Rallis, 2003, p. 4). From curiosity or wonder, the learning process of qualitative research moves to understanding and knowledge building, which produce a change or transformation in the researcher and also in the participants (Rossman & Rallis, 2003).

Commentators have described the main characteristics of qualitative research (see for instance Berg, 2009; Bryman, 2008; Flick, 2002); however, a comprehensive depiction of eight key features is provided by Creswell (2003), and Rossman and Rallis (2003):

- Qualitative research takes place in the natural setting. Data is collected in the field, for instance an office or a school, instead of a laboratory.
- It uses multiple methods that are interactive and humanistic. Steadily, involvement of participants in the research is increased due to the development of multiple methods for data collection.
- Qualitative research is emergent rather than tightly prefigured. This has to do with flexibility of the conceptual framework that can result in changes or refinement of questions and data collection during the research process. Thus, qualitative research refuses to force a priori and rigid frameworks on the social world.
- It is fundamentally interpretative. Field notes and snippets of interviews or interviews transcriptions do not speak for themselves, thus the researcher involves herself in a process of interpretation from a description of the participant or setting to the drawing of conclusions and lessons learnt about the phenomena of study.
- It is, at the same time, a holistic process that makes the study appear broad and panoramic.
- The qualitative researcher systematically reflects on who he or she is in the inquiry and is sensitive to his or her personal biography and how it shapes the study.
- Qualitative research requires the use of complex reasoning that is multi-faceted, iterative, and simultaneous.
- The qualitative researcher adopts and uses one or more strategies of inquiry, such as interviewing, observing, focus groups, and examining material culture, as a guide for the procedures in the qualitative study.

Considering its features, I decided to undertake a qualitative strategy. The methods and techniques of qualitative research allowed me to understand, interpret and learn about the diverse and complex meanings of students with vision impairments in regard to their transition experience and the role of ICTs. Instead of using schematic experimental procedures, the interactivity of the qualitative approach favoured a deeper understanding of students' perceptions and experiences. Another important consideration for choosing qualitative research was its flexibility. By using a qualitative approach, I was able to use an open research framework which could be adjusted or refined if needed. In practice, adopting a qualitative strategy was particularly beneficial during the second phase of this study, for example. It allowed me to manage some challenges related to data collection by adding other techniques for data gathering and to adapt online tools to support my interventions with the participants. In this respect, I incorporated and organised focus groups in order to improve data gathering, as the data's quality was limited and insufficient at the start of the data collection process, and I added social media as another tool to help the participants in managing different transition issues.

3.4 The Research Method

A research method is understood as "the way of finding empirical data about the world" (Myers, 2009, p. 53). Thus, it influences the way the researcher collects data (Myers, 1997). In qualitative research the range of available research methods is diverse and the extent of their use differs from one discipline to another. In the field of IS some common qualitative research methods are (Myers 1997): ***case study research***, which describes a phenomenon within its real-life context; ***ethnography***, in which the researcher spends a significant amount of time in the field to study the social and cultural context of the people she or he is studying and ***grounded theory***, which focuses on theory building based on the systematic analysis of the data collected.

All the mentioned research methods were potential candidates for my research. However, among this variety of options, I chose ***action research*** (AR). One of the reasons for using AR in this study was that it is a rigorous research method that not only favours the use of a variety of qualitative techniques for data collection but more importantly it supports iteration which makes the quality of the data and findings richer. Another reason was the problem-solving nature of AR. In chapter 2, I identified that transition to university is a difficult period of change challenging students in general and that it can be more problematic for students with impairments to the extent that they are more likely to drop out and/or to stay longer at university before graduation. As a researcher, it was appealing that AR not only generates relevant knowledge but also that it seeks solutions or improvements to practical problems. Thus, by applying AR interventions, I was also able to help the participants in making

sense, individually and collectively, of their transition to university, to support their actions to manage transition issues and the way they used ICTs to cope with transition. The following sub-sections will further explain AR and the way I applied this research method in the particular context of this study.

3.4.1 What is action research?

The origin of action research (AR) can be traced from a number of intellectual traditions over time (Berg, 2009; Brydon-Miller, Greenwood, & Maguire, 2003; Hinchey, 2008). However, most commentators (Brydon-Miller et al., 2003; Holter & Schwartz-Barcott, 1993; Kemmis & McTaggart, 2005; Noffke, 1997; Whitehead & McNiff, 2006) agree that action research owes its theoretical inception to the work of social psychologist Kurt Lewin.

Lewin not only coined the term AR (Kemmis, 2007) but, more importantly, pioneered an approach that sought to combine the generation of theory with change of the social system (Susman & Evered, 1978). By stating that "research that produces nothing but books will not suffice", Lewin claimed that social research must lead to social action (Lewin, 1946, p. 35). He understood AR as "comparative research on the conditions and effects of various forms of social action" (p. 35) which is by nature a cooperative work among participants rather than the sole effort of the researcher. He also saw AR as a process "in a spiral of steps each of which is composed of a circle of planning, action, and fact-finding about the result of the action" (Lewin, 1946, p. 38). Lewin labelled his approach as scientific and emphasised that it has to include "mathematical and conceptual problems of theoretical analysis" and, above all, "laboratory and field experiments in social change" (p. 36). In stressing his view of social research guiding social action, Lewin (1946) argued that his approach contributes to the building of independence, equality, and cooperation.

Although core elements of Lewin's definition are, to some extent, currently embedded in the overall understanding of AR, it has not been a simple task to build a consensual definition of AR among scholars. Despite this, a point of departure for conceptualising action research in the AR community is the synergy between research and praxis (Baskerville & Wood-Harper, 1996; Noffke, 1997), which are the core ideas in Lewin's definition. For my research I used a well-cited definition of AR by Rapoport (1970):

> "Action research aims to contribute both to the practical concerns of people in an immediate problematic situation and to the goals of social science by joint collaboration within a mutually acceptable ethical framework" *(Rapoport, 1970, p. 499).*

In order to better understand social phenomena, AR argues that it is necessary to introduce changes into the social processes and observe the effects of these changes (Baskerville, 1999). In doing so, AR encourages purposeful and active involvement of the researcher, along with participants, during the research process (Baskerville & Wood-Harper, 1998). On the other hand, as AR is collaborative by nature, it should be undertaken within a mutually acceptable ethical framework (Hult & Lennung, 1980; Rapoport, 1970).

Some commentators refer to AR as an umbrella term that describes either "a group of ideas emergent in various contexts" (Noffke, 1997, p. 306) or a family of practices (Bradbury, 2010). McCutcheon and Jung (1990) argue that the influence of diverse epistemological beliefs explains the varied usage and conceptualisation of the term AR. Following this argument, Masters (1995) identifies three kinds of AR based on epistemological assumptions:

- **The scientific-technical** view of problem solving, which is based on positivist beliefs.
- **Critical-emancipatory** AR, which seeks political and practical action to promote change; and,
- **Mutual-collaborative/practical-deliberative** AR, which is related to constructivist/interpretative assumptions.

As seen above, AR can be undertaken under different paradigms. However, as constructivism and critical theory are sometimes seen as overlapping philosophical stances, a contentious situation may arise when using this research method (Bradbury & Reason, 2003). A point of coincidence between these two paradigms is found in their epistemological assumptions. Both of them, constructivism and critical theory, are transactional/subjective as researcher and participants "are assumed to be interactively linked" (Guba & Lincoln, 1998, pp. 206-207).

As AR promotes interactive collaboration and participation among researcher and participants, it seems that it fits both constructivism and critical theory at the same time. However, a key point to differentiate AR conducted from a constructivist versus a critical stance is the way in which researchers from each paradigm work with participants (Bradbury & Reason, 2003). From a constructivist perspective, the researcher-participant interaction in AR promotes the co-creation of meanings or 'findings'. Even the distinction between researcher and participant(s) may become quite blurred in the course of what is usually a lengthy, collaborative relationship (Bradbury & Reason, 2003). On the other hand, from a critical perspective, researcher-participant interaction is based on the assumption that participants need to reach 'true consciousness' (see sub-section 3.2.3). Thus, the researcher has to make participants realise they are oppressed, so they need to emancipate themselves

to get rid of 'false consciousness' (Guba & Lincoln, 1998). In this case, there can be an elitist relationship and, thus, interaction, with the researcher as a better informed expert deciding what is best for the participants.

AR emphasises on the ideas of intervention and change. However, the connotations of these two terms are quite different when they are applied from a constructivist compared to a critical stance. As this research followed a constructivist stance, it attempted to represent as faithfully as possible the perspectives of students with vision impairments regarding their transition to university. Thus, as a constructivist AR researcher, I was not a catalyst for change. As far as possible, any form of action, and potential improvement caused by such action, was a collective creation based on the way the students constructed their practices and their situations about transition to university. A further discussion about this point can be found in Chapter 10.

The diverse and contrasting research paradigms in the social sciences have contributed to the development of a number of AR approaches (Coghlan & Brannick, 2005). Some of those approaches include participatory action research (PAR), action learning, action science, cooperative inquiry and reflective inquiry (Coghlan & Brannick, 2005). These distinctions in the action research 'family' are also due to the diversity in data collection procedures (Hinchey, 2008). For instance, involvement of one or more than one researcher in data gathering and/or how data is collected, analysed, reported and used can determine what kind of approach is used.

3.4.2 AR in IS

Action research is a relevant research method for the field of information systems (IS) (Baskerville & Myers, 2004; Baskerville & Wood-Harper, 1998). The IS discipline is a highly applied field and AR is clinical in nature as it combines theory and practice in synergy (Baskerville & Wood-Harper, 1998). Any kind of social setting (e.g. commercial and non-commercial enterprises, homes, universities, and local communities) represents the 'primary laboratory' of IS. Consequently, researchers are provided with "a rich setting for investigating the work, management, and technology issues associated with information systems" (Braa & Vidgen, 1999, p. 26). The main implications of AR for the IS field are highlighted by Baskerville (1999, pp. 6-7):

- Action research aims at an increased understanding of an immediate social situation, with emphasis on the complex and multivariate nature of this social setting in the IS domain.
- Action research simultaneously assists in practical situation solving and expands scientific knowledge. This goal extends into two important process characteristics: first, there are

highly interpretive assumptions being made about observation; second, the researcher intervenes in the problem setting.

- Action research is performed collaboratively and enhances the competencies of the respective actors. A process of participatory observation is implied by this goal. Enhanced competencies (an inevitable result of collaboration) are relative to the previous competencies of the researchers and subjects, and the degree to which this is a goal, and its balance between the actors, will depend upon the setting.
- Action research is primarily applicable for the understanding of change processes in social systems.

The growing use of AR in the IS field shows that the research community is aware of its benefits. This trend has been documented by Lau (1997) who has examined AR studies from the 1970s to the 1990s. He found an increase in the number of AR studies and the different topics they have addressed which confirms that AR "can provide the type of pragmatism needed in IS research through its focus on change and improvement in practice" (Lau, 1997, p. 62). AR projects have also been conducted successfully in the School of Information Management at Victoria University of Wellington. Molina (2008) used it to study the role of ICTs in knowledge transfer mechanisms in the context of business clusters in New Zealand. Joe's (2010) AR study explored how ICTs support organisations in regard to older workers' knowledge retention. Finally, Watson's (2010) AR-based thesis focused on counselling service organisations in New Zealand and the way they use ICTs for enhancing the professional development of their staff. There is, thus, strong evidence for the knowledge contribution of AR in the field of IS.

This AR study is an opportunity to understand transition to university from an IS perspective. By studying a particular social system (a group of young people with vision impairments) within a specific organisational setting such as university and its relation with information systems (e.g. assistive technologies, the Internet and portable devices), this study seeks to expand the contributions initially made by disciplines such as education and psychology in regard to the topic.

3.4.3 AR: research participants and host organisation in this study

In this sub-section I describe the group of students with vision impairments who participated in this AR study. I also depict the Disability Services unit, the host organisation that supported this research.

3.4.3.1 Research participants

The selection of the participants for this AR study was purposeful. I focused on students with vision impairments from Victoria University of Wellington because I was looking for deep understanding of their transition experience and their use of ICTs to manage it. I was not interested in capturing data in order to make empirical generalisations. My strategy for selection of the participants was based on what Patton (2002) calls *"homogeneous samples"*, which centres on describing "some particular sub-group in depth" (p. 235). Students with vision impairments represent a sub-group within the wider disability community at Victoria University of Wellington. Because of their limited sight, these students have specific needs and may experience transition challenges differently compared with their peers with other impairments. Thus, by studying this "homogeneous" sub-group, I was able to understand in more detail their transition to university experience.

Participants in this AR study were undergraduate students, aged between 18 to 24 years old, first enrolled at Victoria University of Wellington in trimesters 1 and 2, 2012, and trimester 1, 2013. These students participated in one of the two AR cycles developed in this study (further description of the two cycles is discussed in sub-section 3.4.5). Over a third of the participants came from Wellington and the rest from different cities and rural areas of New Zealand. The schooling background of the students was diverse. Some came from special education schools, boarding schools and public schools where they had received dedicated teaching support. Students coming from outside Wellington were living in university accommodation or flatting. Almost all the participants were school leavers and only few of them had been working and living independently before arriving at university. All the participants were registered with the Disability Services unit. Some of them registered themselves and met their Disability Advisers well before the academic trimester started, while more than half sought the support of the unit during the first weeks of the trimester. To maintain the identity of the participants confidential, I used code names to report about research data they provided to this study.

The first cycle of this AR study was conducted with students with vision impairments. Because of the difficulty recruiting new participants for the second cycle in July 2012, I decided to include students with mobility impairments in the research as well as students with vision impairments. These students were identified and invited to take part in the study in Trimester 1, 2013. Several students accepted the invitation; however they withdrew from the study for different reasons at different stages of the research. Because of this situation, I continued the study only with students with vision impairments, as originally planned (see Table 4).

Table 4.

Research Participants in the AR Study

AR cycle	Participants
Cycle One	• Seven participants started at the beginning of trimester 1, 2012 (two of them withdrew from the study a few weeks later). • Two senior students with vision impairments took part in the website pilot.
Cycle Two	• In July 2012, three students initially agreed to participate in the study but two of them withdrew. Cycle two had to be postponed due the lack of participants. It started again in the weeks prior to the start of the 2013 academic year when new prospective students accepted to take part in the study. • Seven participants took part at the beginning of cycle two. The majority were prospective students. Two of them did not enroll at university in trimester 1, 2013. The remaining five students did so and participated actively until the end of the study.

3.4.3.2 The host organisation

The host organisation for this study was the Disability Services at Victoria University of Wellington. The unit is a provider of advice and support for students with disabilities within the university. It offers a number of services including transition advice, support arrangement and guidance in regard to assistive technologies. Its Disability Advisers are a key component in the structure of the unit as they work closely with the students during their university experience. The unit, for example, liaises with Course Coordinators and other university units in order to meet the needs of the students. It also organises the work of volunteers such as note-takers whose help most students with vision impairments use for lectures.

In October 2011, I approached the Disability Services to ask for collaboration on the study. After some months of negotiations, entrance to the unit was allowed in March 2012. I started working as a volunteer and a part-time research staff member. At that time, the unit did not have a researcher in its team but it was open to allowing me to join as a research student who could offer an 'independent view' to improve students' university experience. Although this research did not focus on any specific organisational and ICT-related issue faced by the unit, the organisation agreed to sponsor the study because transition to university is one of its main areas of activity. The unit also considered the potential benefits of the study for its future work with students with disabilities particularly in the context of ICTs. When I started this research the ICT approach of the unit was based on advising students about assistive technologies and providing them with some special equipment on campus. At that time, the unit was interested in using social media and other online tools to engage students with disabilities. Having me as a researcher as a part of its team was also an opportunity for the unit to gain insights about the implications of interactive and collaborative online tools for transition to university.

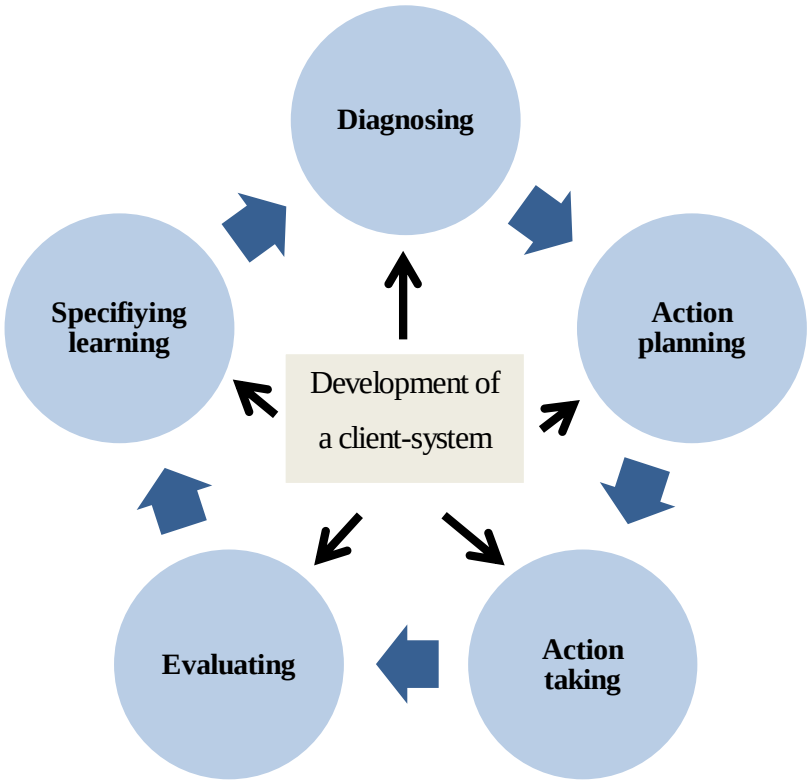
The AR literature highlights the importance of "collaborative management research" (Coghlan and Brannick, 2010, p. 48) between the host organisation and the researcher in order to manage the "double challenge" of action and research in AR projects (Avison, Baskerville, and Myers, 2001, para. 2). Although the outcomes from this research were based on the collaboration between myself as the researcher and the participants, the contribution of the Disability Services was also critical for the study. For example, the unit was vital in identifying and contacting potential participants. I closely worked with one staff member in this respect and also coordinated with her on some logistical tasks for the study, such as room booking for focus groups and interviews. Likewise, the open conversations with the Disability Advisers and other staff members not only provided me with an understanding of the work of the unit but most importantly it gave me contextual information about the research participants and their transition needs. To keep the collaborative momentum with the unit, I helped with some administrative work and took part in transition-related activities such as Orientation Day. I periodically informed the unit about the progress and the challenges of the research. While the Terms of Reference document formally set up the working relationship between the Disability Services and myself, the supportive and collaborative environment made this relationship flexible. For example, when I needed to stay in the unit for a longer period to continue the research, the unit allowed me to do so.

The relationship with the host organisation was not exempt from challenges. These challenges and the way I managed them are discussed in sub-section 10.6.

3.4.4 The cycle and stages of AR

There is general agreement that action research is a cyclical process. Although the seminal understanding of AR includes two basic stages – the diagnostic and therapeutic phases (Baskerville & Myers, 2004) further conceptualisation of AR has extended the structure of the AR process (Baskerville & Wood-Harper, 1998; Susman & Evered, 1978). Based on Susman and Evered's (1978) client-system infrastructure model, the AR process (see Figure 3) has come to include the following stages: diagnosing, action planning, action taking, evaluating, and specifying learning (Susman & Evered, 1978).

Figure 3. The Cyclical Process of AR



Note: Adapted from "An assessment of the scientific merits of action research" by G. Susman and R. Evered, 1978, *Administrative Science Quarterly* 23(4), p. 588.

This extended model was adopted for this study because it offers a more holistic picture of the development of the study and the impact of the AR interventions. These AR stages are defined as follows (see Table 5) with a definition of each stage of the AR cycle provided by Davison, Martinsons and Kock (2004) and Baskerville and Wood-Harper (1998).

Table 5.

Definition of AR Stages

AR stage	Definition
Diagnosing	• The situation or problem(s) is identified by the researcher in collaboration with the participant(s). • Understanding of the causes and context of the problem is required in order to decide the type of intervention needing to be undertaken (Davison, Martinsons, & Kock, 2004).
Action planning	• The researcher, with or without the collaboration of the participants, specifies an intended sequence of actions (Davison et al., 2004). • Such actions are planned based on the understanding developed during the diagnosing stage setting up both the target for change and the approach to change (Baskerville & Wood-Harper, 1998).
Action taking	• This stage refers to the implementation of the planned action(s). • It is about intervening actively in order to improve the situation affecting the participants or organisational setting (Baskerville & Wood-Harper, 1998).
Evaluating outcomes	• In this phase the outcomes of the planned action(s) are assessed and compared to the objectives of the project and its expectations (Davison et al., 2004).
Specifying learning	• It takes place during the different stages of the AR process but it is formally assessed last (Baskerville & Wood-Harper, 1998). • It provides an opportunity to reflect explicitly on the activities and outcomes of the project so far. It should enable the action researcher to reach a decision as to whether or not to proceed through an additional process cycle (Davison et al., 2004, p. 73)

In the context of the AR cyclical process shown above, a client-system infrastructure is understood as "the specification and agreement that constitutes the research environment. It provides the authority, or sanctions, under which the researcher and the participants may specify actions" (Baskerville, 1999, p. 14). For instance, the client-system infrastructure could delimit the boundaries of the research

domain. It could also define the responsibilities of the researcher and the participants to one another or it could establish the level of the researcher's authority to disseminate the learning that is gained in the research (Baskerville, 1999b). A client-system not only involves an organisation but it can also entail another kind of setting such as social groups (e.g. students with vision impairments). Baskerville (1999b) stresses that a crucial element for developing a client-system infrastructure is collaboration. While the researcher works closely with participants, participants provide the necessary knowledge and insight to understand the problem being studied.

3.4.5 The AR cycles for this study

As previously mentioned I followed Susman and Evered's (1978) five phases of the AR process to develop this study and collect data. AR is iterative which means it mostly requires more than one cycle for knowledge generation and problem-solving outcomes. Iteration in AR projects demands that the researcher and the participants are, to a greater or lesser extent, "acting together on a particular cycle of activities, including problem diagnosis, action intervention, and reflective learning" (Avison, Lau, Myers, & Nielsen, 1999, p. 94). This research required two AR cycles. The first cycle provided me with a general understanding of transition issues but limited insights into the role of ICTs. Furthermore, the intervention carried out during this cycle had little impact on supporting the transition to university of the participants. In the second AR cycle, I was able to improve on the issues encountered in the first cycle in order obtain rich information and insights to answer the two research questions of this study and to conduct an intervention, which the participants perceived as supporting and relevant. The following sub-sections describe the activities and events during these two cycles. I also include an account of a 'frustrated' cycle which affected the way I conducted this study.

3.4.5.1 Cycle one

The first cycle of this AR project began in early March 2012 as soon as I gained entrance to the Disability Services and coincided with the start of trimester 1, 2012 at Victoria University of Wellington. Seven students with vision impairments participated, to different extents, at this stage of the study. The participants were identified and approached with the collaboration of a staff member of Disability Services. They were asked about their participation and also if they had any issue about disclosing their disability to me, the researcher. In a few cases, I met the participants' parents and explained the purpose of the study to them as well. Those students who agreed to participate or wanted further information about the study were emailed a copy of the Information Sheet and Consent Form as well as my contact information.

A description of the research participants who took part in the first cycle of the study is presented in the following table:

Table 6.

Description and Background of Participants in Cycle One

Participant Code name	Age	Programme of study	Background
VIS- JM	20	Geography	From Wellington region (born overseas). Previously studied in a polytechnic for one year.
VIS-NA	19	Music Studies	Born in New Zealand. Grew up in Europe.
VIS-NO	18	Law	From Wellington.
VIS-NT	19	Sociology	From Wellington region.
VIS-GF	19	Samoan Studies	From Wellington region.
VIS-BL	19	History	From Wellington.
VIS-CO	18	Psychology	From Waikato region. Studied in a boarding school.
VIS-RA	20	Art History	From Christchurch. Senior student who took part in the website pilot.
VIS-AN	22	Management	From Hamilton (born overseas). Senior student who took part in the website pilot.

One of the first activities I carried out in cycle one was attending the appointments of the participants with their Disability Advisers as an unobtrusive observer. In the meetings, which took on average forty minutes, the students told their Disability Advisers the issues that concerned them and wanted to know what support was available. In the meantime, I listened and took notes. In the majority of cases, these were the first appointments for the participants and only a few students had previously met their Disability Adviser before the beginning of the trimester. As the needs of the participants varied according to the type of vision impairment, some of them required monthly follow-up appointments. During this AR cycle, only one participant needed weekly meetings and she allowed me to attend them as well. My observations of students' appointments with their Disability Advisers took place during the first four weeks of trimester 1, 2012 and helped me to identify transition issues

and compare them with the existing literature. I also had informal conversations with some participants that not only complemented these transition insights but also gave me some context and information about their background. Similarly, during the first weeks of the trimester I interviewed staff from Disability Services and complemented the information collected with informal conversations about the students in general and the work of the unit.

While I was gaining insights about transition issues I started thinking about my AR intervention for the study. I decided to set up a website to support the transition to university of the students. In mid-April 2012, after analysing different options, I chose the Moodle platform because of its user-friendly features, its privacy safeguards and its collaborative tools. I called the website "Goingtouni" and I spent about six weeks getting used to the features of the Moodle platform and searching and preparing the content of the website. The content was based on the insights obtained during the informal conversations with the participants and my observations of their meetings with the Disability Services. The conversations with the Disability Services staff and the available literature about transition also provided some ideas for the content of the website. The website included information, links, YouTube videos, pictures, forums and other resources to help students manage transition issues. I also sought the advice of the Disability Services team to make sure the language and style of the website were suitable for people with vision impairments. I searched for guidelines on web accessibility and usability and complied with them as well.

As a part of the implementation of the planned AR intervention, in late May 2012, the Goingtouni website was piloted with two senior students with vision impairments. Their feedback helped me to improve the website. Overall, they commented that the website was useful for first-year students and that they would have liked to use it for their own transition. However, they suggested I use a more colloquial style and include more videos instead of a lot of text to avoid straining the limited vision of the students. These practical recommendations were incorporated in the website before it was presented to the research participants.

In early June 2012, I introduced the website to the research participants. At that time two students had already withdrawn from the study due to personal and course workload issues. I invited the remaining five students to use the website. I created their personal accounts and the students activated them. None of the participants reported any issue about logging in and navigating through the website. The students visited the different sections of the website and accessed the links to videos and the information in PDF format. I then tried to encourage interaction among the participants via the forum feature of the website. I posted some general questions asking them about how to improve the website

and how university life was for them so far. However, online conversation among the students did not happen in the way I expected.

At that stage of the AR cycle, I wanted to know why the students did not interact and collaborate with each other. I invited the students for individual interviews. Three participants accepted but, as the examination period and the mid-year break were approaching, the interviews took place at the beginning of trimester 2, 2012. I also used the interviews to collect information about the transition experience of the participants.

There were some important lessons I learned from cycle one. One of them was that the AR intervention was carried out too late as the participants had already experienced the main events of their transition to university. I also realised that in order to enhance online interaction and collaboration among the students, they needed to know and have some level of trust in each other. Thus, my role as a researcher also required me to facilitate face-to-face interaction between the participants. I also realised that my relationship with the participants was not close enough to encourage their participation and commitment to the study. Another lesson was that for the students, there were also important transition events happening before the start of the academic trimester. In that sense, I needed to understand those events as well to have a broader picture of the transition to university of the students. Although some relevant data about transition issues were collected, the outcomes of cycle one in terms of practice were insufficient to support the transition to university of the participants. Thus, I concluded that a second AR cycle had to be conducted and that I should consider the lessons mentioned above.

3.4.5.2 Cycle two

Initially, I planned to start the second AR cycle with a group of new students who were starting university in trimester 2, 2012. However, finding enough participants was one of the main issues I faced at that stage of the study. Before the trimester started in mid-July 2012, only three new students joined the study. Considering this limited number of students, I invited the participants from trimester one to support their new peers via the communication tools of the Goingtouni website. However, two of the new participants withdrew from the study a few days after the beginning of the academic trimester. With only one participant, I was unable collect data and put into action a meaningful AR intervention. Thus, I had to start afresh the second cycle in the 2013 academic year and rethink my approach for the following academic year.

For the second AR cycle, I decided to include in the data collection the experiences and perceptions of the participants when they were still prospective students and were exploring the possibility of studying at university. My purpose was to identify early transition issues and the role of ICTs and gain a bigger picture of the transition experience of the participants. To this end, from December 2012 to the first weeks of March 2013, I attended, observed and took notes in prospective students' meetings with the Disability Advisers. Being in these meetings was also an opportunity to introduce the Goingtouni website to prospective students and its resources for transition to university. At that point of the second cycle, I met seven prospective students and all of them allowed me to attend their appointments with the Disability Services unit as an observer. However, two of them did not enrol at Victoria University in 2013. The other five prospective students did so and participated in this research until the end of the study.

Table 7 presents a summary of the background of the research participants who took part in the second AR cycle.

Table 7.

Description and Background of Participants in Cycle Two

Participant code name	**Age**	**Programme Of study**	**Background**
VIS-WP	19	Accounting	Wellington region. Withdrew from the study in the first day of trimester 2 2012.
VIS-CP	18	Psychology	From Wellington region. Withdrew from the study in the first day of trimester 2 2012.
VIS-EG	18	Development Studies	From Nelson.
VIS-SM	18	Did not know what to study yet	From Napier. Prospective student who did not enroll at university in 2013
VIS-KE	18	Planned to study Art History	From Auckland. Prospective student who did not enroll at university in 2013
VIS-GR	18	English	From Wellington.
VIS-GE	19	Law	From Hawke's Bay.
VIS-CA	21	Accounting	From Dunedin. Was working and living independently before going to university.

VIS-JO	21	Law	From Auckland. Was working and living independently before going to university.
VIS-MO	18	English	From Wellington region

Once the academic trimester started, I included focus groups for data collection. I organised three focus groups in the first six weeks of trimester 1. These focus groups were an opportunity to collect significant data about the evolving perceptions and experiences of the participants about their transition during the first weeks of the trimester. I was the facilitator of the focus groups and initiated the conversations with some ice-breaking activities. Then, I continued the conversation asking the students about how university life was going. I also invited some staff from Disability Services and a senior student from Can Do, a representative group for students with disabilities at Victoria University, to the meetings. I invited them because I wanted to give the participants an opportunity to express their needs and concerns about their transition to pertinent members of the university community. In doing so, the students received advice and were offered some solutions by the invitees. Another result of this was that the participants realised the benefits of the meetings and became more involved with the research project. One of the focus groups was an exercise about using the Goingtouni website and social media. This meeting provided me with insights about the way the students used ICTs, not only assistive technology, for their transition. In the later weeks of the academic trimester, I planned a last focus group but the participants were unable to attend because of timetable clashes and course workload.

While the main purpose of the focus groups was to collect data, they also served as group support meetings for the participants. Through these meetings students got to know each other, shared experiences and gave each other advice about managing transition matters (e.g. how to navigate safely around the university campus). Considering that university life was the first experience of the participants as independent students and young adults, the focus groups were an opportunity for them to make new friends and manage feelings of isolation and loneliness. As reported by the participants, the new social connections initiated in the focus groups continued with catch-ups on campus and online interactions.

As previously mentioned, I was the facilitator of the focus groups. However, the conversational and colloquial environment of the meetings and the interest of the participants in sharing their experiences made my role more secondary and sometimes unnecessary. After initiating the conversations, I had

no need to facilitate them as the students chose the topics they wanted to talk about. The focus groups were initially set to last 45 minutes but they extended between an hour and an hour and a half because the students were actively participating in the discussions. In the case of the group exercise with online tools, the participants continued their conversation online via social media after the meeting finished.

My AR intervention in cycle two also involved the use of social media to support the transition of the students. At the beginning of the trimester, I set up a Facebook group page to complement the face-to-face interactions from the focus groups. My decision to use social media was determined by the suggestions of the participants who commented in interviews and informal conversations that they use these kinds of tools daily, for different matters and not only on their laptops but also smartphones. At that point of the second cycle, the Facebook group page was one of the main means of communication with and among the participants. The Goingtouni website, on the other hand, was kept as a repository because the participants only used it before and a few days after the academic trimester started.

My support of students' university experience via the Facebook group included posting relevant transition-related information. This information comprised pictures, YouTube videos, online resources from the university's website and re-posts of updates from its Facebook account as well as links from other relevant sources (e.g. news outlets). As an administrator of the Facebook page I tried to be responsive to the needs of the students and make sure that the information was useful and opportune. I posted information taking into consideration the issues mentioned by the students during the focus groups. I also noted the main university activities and events (e.g. writing assignments, the examination period) for the academic trimester to help me decide what information I should post and when. I also encouraged online interaction. While the participants accessed the information they did not comment on it in the Facebook group. They did so privately through their personal accounts. Online interaction via the Facebook group only occurred when miscellaneous questions were posted. Also, the participants posted information on the occasion of sudden events such as the earthquake that suspended classes temporarily in July 2013. Besides being an intervention to support students' transition to university, the Facebook group was also a source of data collection.

In cycle two I also conducted individual interviews with the participants. I scheduled the interviews in trimester 2, 2013 because I wanted to obtain the perceptions of the participants in regard to their first trimester at university. Considering the insights from cycle one, the first trimester at university seemed to be critical for the transition to university. The interviews in cycle two confirmed this assumption. All the students agreed to be interviewed and responded about the transition issues they

faced and how ICT supported their transition responses. They also commented on the impact of the face-to-face and online activities I organised to support their transition. Likewise, the students compared their transition experience at the beginning of the academic year with their impressions of the second trimester at university. After I collected valuable insights from interviews, it was clear that my AR interventions had a significant impact on the participants. In late October 2013, I decided to concentrate on processing and analysing the data in more depth and writing the final report of this study. The following table summarises the main activities and events that occurred in the two AR cycles.

Table 8. *Outline of Events during the AR Cycles*

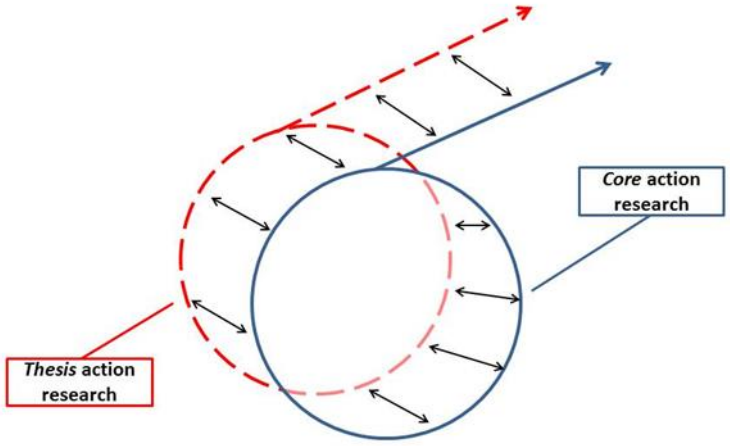
AR stage	AR events – cycle one	AR events – cycle two
Diagnosing	• Access to the Disability Services (DS). • Observations of participants' meetings with their Disability Adviser, at the start of the participants' academic trimester. • Dialogue with the participants to identify transition issues. • Use of researcher diary. • Gathering of documents and conversations with DS staff.	• Observations of the participants' meetings with their Disability Adviser before and at the start of the participants' academic trimester. • A face-to-face group (focus group) is organised in the first week of the academic trimester.
Action planning	• A website via the Moodle platform is planned. • The website is thought to be a source for transition-related information. • It was also planned to be an online space for interaction and collaboration among the participants.	• The website is kept but as a repository of information for prospective students before the trimester starts. • A Facebook group page is set up and started running at the beginning of the academic trimester. • More face-to-face group meetings are planned to allow the participants to meet and share transition experiences.
Action taking	• The website was operative and it included transition-related information. • The website was tested with senior students and feedback was also received from Disability Services staff. • Students' feedback was gathered via interviews.	• Transition-related information and links are posted permanently on the Facebook group. • Additional group meetings are planned and organised.

Evaluating outcomes	• The participants accessed and used the information on the website but indicated that it was only useful for prospective students. • Limited online interaction occurred. No collaboration among the participants occurred. • Limited impact of the website on supporting participants' transition experience.	• Group meetings encouraged interaction, collaboration and trust among the participants. • ICTs are used by the participants to complement new social connections among them. • Online information and posts on the Facebook group page are regarded as "useful" to manage transition issues. • Participants started interacting and collaborating via social media. • Individual interviews were conducted.
Specifying learning	• AR intervention had little impact and the students managed their transition by themselves. • The participants commented that the website was not appropriate for online interaction and that online participation was difficult when they had not met each other physically. • Suggested by the participants, I realised that I should have used the online tools they employ for their study and everyday activities. • I learned that trust was important in order to encourage collaboration and support among the participants. • I concluded that I needed a second AR cycle.	• Research findings were presented to the participants. Feedback was received. • Offline and online interventions supported participants' responses about their transition to university. • Implications of ICTs for self-determination were also identified.

3.4.6 AR and its dual imperative

When undertaking action research, the researcher needs to be aware that there are two AR goals operating at the same time (Coghlan & Brannick, 2010; McKay & Marshall, 2001). This means that AR has a 'dual imperative' (McKay & Marshall, 2001) of serving 'two masters' (Kock & Lau, 2001) which is more evident when AR is carried out for academic accreditation such as a PhD (Coghlan & Brannick, 2010). In this sense, there is first a core AR cycle, as explained by Coghlan and Brannick (2010), which has to do with the problem-solving goals of the research project. The second cycle is the thesis AR cycle whose purpose is the generation of knowledge (see Figure 4). It is an action research cycle about the action research cycle (Coghlan & Brannick, 2010). As AR is also iterative, these dual cycles can also take place in subsequent phases of the AR project.

Figure 4. The Dual AR Cycle



Note: Adapted from "The dual imperative of action research" by P. McKay and P. Marshall, 2001, *Information Technology & People* and *Doing action research in your own organization* by D. Goghlan and T. Brannick, 2010, Los Angeles: SAGE Publications.

A dual imperative makes action research more challenging but also more relevant (Kock & Lau, 2001). As an AR researcher I tried to maintain a synergic relation between the core and the thesis AR of my study. While I worked collaboratively with the participants in order to manage their transition to university, I was also careful that the actions and interventions were relevant to generating the knowledge required for completing the demands of the PhD degree. Dealing with the dual AR imperative can be a demanding experience and may not bring the desired outcomes initially. For

example, in the first phase of my AR study, the interventions had limited impact on the participants' needs to manage their transition and I was unable to collect significant data and insights for the PhD project. For this reason I had to conduct a second AR cycle whose outcomes allowed me to serve the two masters. At the end, I managed with my interventions to help the participants in finding solutions to the diverse challenges of their transition to university. At the same time, I was able to obtain relevant data and uncover insights that constitute a knowledge contribution to the research community.

3.4.7 The role of the AR researcher

Lau (1999) points out that the role of the researcher should be made explicit in the research project. AR stresses that the researcher is a key participant in the research process as she or he contributes with active and conscious involvement (McKay & Marshall, 2001). However, when conducting research, the level of involvement of the researcher varies depending on the nature and needs of the study. Baskerville and Wood-Harper (1998, p. 95) suggest three kinds of researcher involvement to be considered when applying AR (see Table 5):

Table 9.

Types of Research Involvement in AR

Collaborative involvement	• The researcher is an equal co-worker with the participants of the study. The study tasks are shared without distinction and the participants' backgrounds are assumed to be equally valuable.
Facilitative involvement	• The researcher adopts an expert role among the participants. Although their work still remains cooperative, their tasks are quite different. The burden of solving the immediate problem setting rests with the participants. The researcher's role is to facilitate or help the participants with expert advice, technical knowledge or an independent viewpoint. Participants are responsible for determining exactly what interventions will be created.

Expert involvement	• The role of the researcher is as an expert among the participants. This kind of involvement still entails cooperation and distinct tasks. However the burden of solving the immediate problem setting rests with the researcher. The researcher's decisions will determine to a large degree what interventions will be created.

Note: Adapted from Baskerville and Wood-Harper (1998, p. 95).

The nature of my research made it necessary to adopt a flexible approach in order to understand the way students with vision impairments construct the meaning of their transition to university. While my role in the research was strongly collaborative, it was sometimes facilitative as well depending on the demands of the research process. For example, during the diagnosing stage, my role was collaborative as I worked with the students to identify transitions issues. They were not treated as research subjects but as partners and their first-hand experiences of transition were equally appreciated. I also adopted a collaborative role during the action planning stage of the second AR cycle when I took seriously the suggestions of the students about using social media to complement the interactions enhanced during the support group meetings. Sometimes, depending on the specific needs of each student I changed my role as a researcher. For example, during a group exercise with the repository website on Moodle, a few students had problems logging into it and/or using its forum feature. In this particular situation I adopted a facilitative role. As administrator of the website, I led a training session to help the students learn how to use the website while I maintained my collaborative role with those students who did not have difficulties using the website.

This AR study was not exempt from challenges. In Chapter 10 I discuss this point and comment on how they were managed.

3.5 Research Design and Procedures

This sub-section describes the strategy for data collection. I explain what research techniques I used in order to gather data from the participants and the procedure followed for data analysis. Finally I discuss the credibility of the study.

3.5.1 Data collection

Data collection is "a series of interrelated activities aimed at gathering good information to answer emerging research questions" (Creswell, 2007, p. 118). These activities form a "data collection circle" that involves locating participants, gaining access, collecting, recording and storing data among other activities (Creswell, 2007). In the social sciences, qualitative researchers use a number of research techniques for data gathering. These techniques can be classified in four basic groups, according to Creswell (2007, p. 129):

- Observations, which can be non-participant or participant.
- Interviews, which can be close-ended or open-ended.
- Documents, which can be private or public; and,
- Audio-visual materials, which includes, for instance, videotapes, musical sounds, and footprints.

This classification of techniques for data gathering is not exhaustive. There are emergent forms of data gathering, such as the use of journaling in narrative story writing, and (synchronous and asynchronous) online-group interviews and email texts, that are not "easily placed into one category or another" (Creswell, 2007, p. 129). On the other hand, research techniques do not exclude each other but they can be used in combination depending on the research strategy and approach adopted by the researcher.

In the IS field, action research (AR) has been shown to be very flexible in terms of research techniques for data gathering. A seminal review conducted by Lau (1997) shows that AR researchers have been using a variety of techniques such as interviews, participant observations, questionnaires, focus groups, site visits, field notes, document review and video recording in order to collect data (Lau, 1997). Usually, data collected for AR projects is qualitative and interpretative (Baskerville, 1999). Because of the problem-solving nature of AR, data has to be systematically collected over time in order to track the impact of interventions and desirable change (Elden & Chisholm, 1993, p. 128).

For this AR study, the data collection process started in October 2011 when I located the host organisation and I started negotiating access to it. From October 2011 to March 2012, I discussed entrance to the Disability Services unit at Victoria University of Wellington. The unit was critical to help me to identify and contact potential participants. It also provided me with contextual information about students with vision impairments enrolled at the university.

Data gathering per se started in March 2012 and finished in October 2013. It was a flexible process and I used different techniques that allowed me to obtain rich information and understand the way

students with vision impairments were constructing, individually and collectively, their transition to university. I chose to collect data from online tools, observations, a researcher diary, focus groups and semi-structured interviews. As the research was based on the perceptions and behaviour of students with vision impairments, I sought first approval from the School of Information Management's Human Ethics Committee and then informed consent from the participants.

In Table 10 (see below) I present an overview of the kind of data I collected for this study and also how the data was synthesised.

Table 10.

Overview of Data Collected in AR Cycles One and Two

Data collection technique	AR cycle one	AR cycle two
Observations	In cycle one I attended and observed the meetings of seven participants with their Disability Advisers. Observations were the primary technique for data collection at the beginning of cycle one. Data were mainly collected at the beginning of participants' first academic trimester at university. I was an unobtrusive observer. The data mainly provided preliminary insights about transition issues. I wrote down my observations in my researcher diary.	I attended the meeting of ten participants with their Disability Advisers (including prospective students who at the end did not enrol at university). These data confirmed some of the early transition factors identified during my observations in cycle one. The data also allowed me to identify a pre-entry transition stage. I included observations to complement data gathering during the focus groups in cycle two and gain insights about participants' ICT skills. My observations were written down on my researcher diary.
Data from online tools	Data was collected via the Goingtouni website. These data originated from participants' access of and activities on the website as well as their comments posted on the forum section. I use these data to identify the type of transition information the participants were looking for. I compare these data with data	Data from the Goingtouni website and the Facebook group were collected in cycle two. I used the Goingtouni website for the same purpose described in cycle one. The website was mainly used by the participants before and in the first weeks of the academic trimester.

	from my observations which offered me a clearer picture of transition issues.	Data from the Facebook group were based on the online interactions of the participants. Facebook "likes" and "seen by" also provided an overview of participants' information needs.
Researcher diary	A researcher diary was used through the research project A paper-based diary was used to describe events (e.g. my observations of participants' meetings) along with an electronic version which I used for in-depth reflection of the data gathered. I used the diary not only to identify transition issues and the role of ICTs but also to plan and evaluate my AR interventions.	For cycle two I kept my diary and followed the same procedure as in cycle one. My reflections of the data gathered helped me to realise the need to readjust my data collection and interventions to include focus groups and a Facebook page.
Focus group	None was conducted in cycle one.	Three focus groups were conducted in cycle two. Five participants took part on them besides one Disability Services staff and a member of Can Do. Discussions were based on the data collected from my observations and participants' comments on the Facebook group. Focus group meetings allowed the collective construction of the transition experience among the participants. The data also unveiled new transition issues and stages not described in the literature. The focus group also provided insights about the way participants use and adapt ICTs for transition-related matters.
Semi-structured interviews	Four participants were interviewed in cycle one. Two of them were first-year students and the other two senior students who piloted the Goingtouni website.	In cycle two I conducted five interviews. These interviews were conducted in trimester two 2013 after the participants finished their first trimester at university. The participants reflected on their transition experience. They, for

	The interviews with the senior students helped to improve the Goingtouni website in terms of content and style. I centred the interviews with the first-year students on their transition experience during the first academic trimester, the challenges faced and how ICT were used to manage them. I also collected students' views about the impact of my AR intervention (the Goingtouni website).	example, provided further details about the impact of turning points which were identified during the focus groups meetings. In the interviews I asked the participants to talk in more detail about the transition issues they faced and that emerged from the online tools and focus groups data. The participants also evaluated the impact of the AR interventions (group support meetings, the Goingtouni website and the Facebook group) on their transition experience.

3.5.1.1 Data from online tools

My AR interventions not only provided support to the research participants in order to cope with transition challenges, they were also an important means for data gathering. As previously mentioned, I set up a repository website via the Moodle platform and a Facebook group page. The website on the Moodle platform called "Goingtouni" helped me to collect data about transition issues. As administrator of the website, I was able to see what links and sources were accessed by the students especially in the weeks prior to and after the start of their first academic trimester (e.g. items on managing the university's physical environment, academic matters, and financial issues). The significance of the transition issues was corroborated a few weeks later with data collected from the focus groups and the individual interviews with the participants. I also used the Moodle website to encourage some online interaction among the participants. Although the participants did not specifically use the website for that purpose, some occasional online interaction occurred in the form of participants' asynchronous comments. This data was also used to complement my understanding of the impact of transition issues on participants' first trimester at university.

The Facebook group page was another important source for data collection and its use for this research was suggested by the participants. This data was collected in the form of online conversations, "likes" and the "seen by" feature on Facebook. While participants' online interaction via Facebook was mainly private, I managed to encourage some online group conversation that allowed me to expand my understanding of students' transition experience. For example, on one occasion the participants commented on financial issues and shared tips to avoid overspending during the academic trimester. The data collected from the Facebook group page also supported my AR interventions. I often used the group page to post links, resources and information about university-related matters when some concerns emerged from the focus groups and informal conversations with the participants. Also, its "seen by" feature allowed me to notice that the participants immediately accessed the resources and/or links once I posted them. This sort of information, for example, gave some insights that the students were permanently connected to social media and using this tool not only for online interaction but also for information access.

3.5.1.2 Observations

Observations were the first data collection technique used in the study. They were particularly useful for obtaining data about the early stages of the transition experience of the participants when they were still prospective students or were in the first weeks of the academic trimester. When the participants met their Disability Adviser I was invited to attend their meetings as an unobtrusive

observer. In doing so, I was able to capture the concerns, expectations and interests of each participant about university life. During the meetings, I took some notes regarding the transition issues the students were concerned about or were already experiencing as well as the kind of support needed. All the participants allowed me to attend their first meeting with their Disability Adviser and in a few cases they invited me to also attend the next meeting.

I also conducted participant observation during the support group meetings I organized for the research. Along with participating and listening to the conversations with and between the students, I observed their actions and behaviour. Participant observation allowed me to understand what transition issues were affecting the participants individually, how they were coping with these challenges and the support and advice they shared with each other. Although I took a more active role, I tried not to intervene too much during the meetings but to facilitate the conversation in order to encourage trust among the students.

3.5.1.3 Researcher diary

I also employed a 'researcher diary' to support and complement data gathering. The use of a researcher diary is not only recommended in AR projects (McNiff & Whitehead, 2010) but also in topics involving educational research (Borg, 2001) such as the transition to university. Its use suited the purposes of this study. I employed it to keep records and facilitate retrospective analysis of my experiences during the different stages of the research process (Borg, 2001). I also used it to recall past thoughts and events which guided subsequent actions and decisions. The use of a researcher diary helped me to record my progress and achievements and evaluate the outcomes of my research (Borg, 2001). I concur with Coghlan and Brannick (2010) that its use helps the AR researcher in developing reflective skills as she or he learns over time to differentiate various experiences and ways of dealing with them (p. 27). As claimed by Borg (2001), a researcher diary can be a complementary source for data collection as events or situations that passed unnoticed can be documented and used during the data analysis stage. I purposively used a researcher diary soon after each observation, focus group and individual interview I conducted because I needed to describe and reflect on some behaviours of the participants and events that were not *visible* through a digital record, for example. I also used it to write down my thoughts about the quality of the data collected and how to improve the outcomes of the focus groups and/or individual interviews. It was a useful tool that helped me to remember some events and reflect again on them. It also helped me to plan data collection, and define, for example, the interview questions and the discussion topic for the focus groups. My researcher diary was a combination of a notebook and an electronic document on my desktop. The notebook was used to

write down information during or just after the observations, focus groups and interviews. It was used for describing events and behaviors and to outline and remember emerging themes. The electronic format on my desktop was used for in-depth reflection on the data gathered.

3.5.1.4 Focus group

Conducting a focus group is a research technique for data gathering and involves organised discussion with and among the research participants to gain information about their views and experiences of a topic (Gibbs, 1997). It encourages interaction among members and the joint construction of meaning (Bryman, 2008; Morgan, 1996). Through focus groups, participants "construct a framework to make sense of their experiences, and in interaction with others these experiences will be modified, leading to the construction of new knowledge" (Ivanoff & Hultberg, 2006, p. 125). There is a close link between focus groups and qualitative research (Morgan, 1989; Bryman, 2008). Its use is recommended to explore a topic when little is known about it (Stewart, Shamdasani, & Rook, 2007), to understand how interacting participants interpret the general topic in which the researcher is interested (Bryman, 2008), and to study the ways in which individuals collectively make sense of a phenomenon and construct common meaning around it (Bryman, 2008).

A number of focus groups were conducted for this study. While I organised them as a means for data collection, they were also part of my AR intervention to support the transition to university experience of the participants. In this sense, the participants and I used the focus groups as support group meetings as well. The focus groups (or support group meetings) were introduced as a part of the data collection process during the second cycle of the AR study because limited interaction and participation was obtained in the first AR cycle. Three focus groups were organised in weeks one, three and five of trimester 1, 2013. The focus groups were a critical source of data as they allowed me to understand how the perceptions of the participants about their transition to university evolved through the first weeks of the academic trimester. They were carried out in a friendly, supportive and respectful environment which encouraged the development of trust among the participants and an opportunity to share transition experiences freely. I intended to organise a fourth focus group at the end of the trimester but the pressure of course workload and assignments made it difficult for the participants to meet again.

An important issue regarding focus groups is the role of the moderator. There are no widely accepted requirements for selecting a moderator, and the criteria for choosing one depends on previous moderating experience, personal characteristics (age, gender, personality) and/or educational background (Stewart et al., 2007). For this study, I invited a member of the Disability Services unit to

share the moderation of the focus groups. There were some practical reasons for this decision. The participants trusted the Disability Services unit and inviting one of its staff members provided a more familiar and comfortable environment for the students, who had not met before. A shared moderating role also allowed me to spend more time conducting participant observation and taking notes on relevant behaviour of the participants.

3.5.1.5 Semi-structured interviews

Another important means for qualitative data collection is the use of semi-structured interviews. The main feature of this technique is its open-ended approach to interviewing (Patton, 2002). Semi-structured interviews are based on an incomplete interview script or guide. The researcher may have prepared a list of topics or some questions beforehand, but there is a need for improvisation (Myers & Newman, 2007). Semi-structured interviews are flexible in the sense that "the interviewee has a great deal of leeway in how to reply" (Bryman, 2008, p. 438). Also, questions that are not considered in the script could be asked depending on what emerges from observing or from the previous answers of interviewees (Patton, 2002).

For this research, semi-structured interviews were conducted after the participants completed their first trimester at university. The interviews aimed to gather the reflection and evaluation of the students with regard to their transition experience. All the interviews were recorded and conducted at the Disability Services unit and lasted between forty minutes and one hour. I prepared an interview script and asked the students about transition issues and their impact on their university experience. I was also interested in their perceptions of ICTs in terms of helping to manage transition issues. While interviewing the participants was one of the primary sources of data, I also interviewed Disability Services staff to gain secondary data and contextual information about students with vision impairments' transition to university. I also wanted to understand the types of services and support the participants received from the university.

3.5.2 Data analysis

In short, data analysis is the process of transforming data into findings (Patton, 2002, p. 432). To this end, in this study I used an inductive approach for data analysis. In a few words, inductive analysis is "making sense of data" (Lincoln & Guba, 1985, p. 202). It is an approach through which patterns, categories, and themes are built from the "bottom-up", by organising the data into increasingly more abstract units of information. It requires the researcher to work "back and forth" between the themes until she or he establishes a comprehensive set of themes (Creswell, 2007, p. 38). Through adopting an inductive approach, the findings of this study are data-oriented. In other words, instead of

confirming a hypothesis and theoretical pre-assumptions (Bryman, 2008), the concepts, categories and conceptual framework I developed in this study were based on what the data was revealing. In this sense, I read transcripts and listened to interviews several times to identify categories. I revised the data to refine my interpretations and allow new categories to emerge. I agree with Lincoln and Guba (1985) that inductive analysis allows the researcher to identify multiple realities from the data and that it makes the interaction between the researcher and participant(s) explicit, recognisable, and accountable (Lincoln & Guba, 1985). An inductive data analysis approach helps the researcher to fully describe the setting and to make decisions about transferability to other settings easier and to identify the mutually shaping influences that interact (Lincoln & Guba, 1985, p. 40).

I started data analysis in parallel with data collection. Some authors (see Kaplan & Maxwell, 2005) argue that this kind of procedure for data analysis is common in qualitative research considering that the large amount of qualitative data can be quite "messy" to deal with. My analysis of the data was an ongoing and iterative process that not only helped me to refine my interpretation of the findings but also to improve my AR interventions and support students' transition to university. It was ongoing because it took place along the different stages of the AR cycles and it was iterative because my interpretation of the data was refined several times as more data was collected and I reflected in more depth about their meaning.

The inductive data analysis for this research followed Lincoln and Guba's (1985) two stages: unitising and categorising (p. 203). Unitising is a process of coding raw data into units or single pieces of information that are interpretable in the absence of any additional information. In the categorising stage, previously unitised data are arranged according to categories "that provide descriptive or inferential information about the context or setting from which the units were derived" (p. 203). Lincoln and Guba's approach was undertaken during data gathering in the first AR cycle and the findings were used to improve data collection, develop new AR interventions for the second AR cycle, and uncover the main findings for this research.

The following sub-sections describe my data analysis in the context of the two AR cycles and theory development of this study. In the case of the AR cycles, data analysis was not only important to allow preliminary research findings to emerge but also to support the planning and implementation of my AR interventions.

3.5.2.1 Data analysis in AR cycle one

In the first AR cycle, data analysis started as soon as I collected data from the observations of students' meetings with their Disability Advisers at the beginning of trimester 1, 2012. I used my researcher

diary to write down and reflect on the needs and concerns of the participants. This data was unitised into codes and organised in categories of issues affecting students' transition to university. This preliminary analysis of data supported the diagnosing stage of my AR study. It provided me with a general (but still introductory) picture of the transition experience of the participants. Additional data from informal conversations with the students and staff from the Disability Services unit complemented my analysis.

The utility of analysing data from an early stage of the research process also had significant impact on subsequent activities for this study. The analysis derived from the first set of data collected as mentioned above was used to improve data gathering through the individual interviews that were conducted at the end of the academic trimester. Specifically, the preliminary findings helped me to refine interview questions and expand on some emerging issues with the participants (e.g. the importance of social connections for transition). Similarly, early data analysis helped me in the planning and implementation of my AR intervention during the first AR cycle. For example, the content included in the different sections of the Goingtouni website was based on the preliminary findings of students' perceptions and identification of transition needs (e.g. information and resources to manage the physical environment of the university).

Moreover, in the context of an AR project, early data analysis can be crucial for deciding whether an additional cycle is needed. For this study, the analysis of the data from the first cycle provided me with an understanding of the transition issues faced by the participants; however insights related to the role of ICTs were insufficient as my intervention had little impact on the participants. Thus, I realised that a second AR cycle was an imperative in order to have a more comprehensive picture of the transition experience of students with vision impairments. The findings from the first AR cycle were also critical to improve the way I supported students' transition in the second AR cycle, namely via face-to-face meetings and the Facebook group.

3.5.2.2 Data analysis in AR cycle two

In the second AR cycle, data analysis was also conducted in parallel with data gathering. As in the first AR cycle, I started with the analysis of my observations of students' meetings with their Disability Advisers and the informal conversations I held with the participants. In contrast to the first AR cycle, data collection and thus analysis started several weeks before the beginning of trimester 1, 2013. As a result, I was able to expand the findings of students' early transition experience. For example, I identified other transition issues (e.g. the role of family) that were not initially apparent in my analysis of the data collected in cycle one. Similarly, while in this round of data analysis transition issues were

consistent with my preliminary analysis from the first AR cycle, the data gathered at the beginning of cycle two enriched my comprehension of those issues. In addition, collecting and analysing data prior to the start of the academic trimester revealed that, for the participants, transition to university started as early as in high school.

Likewise, the data analysis and preliminary findings also informed the AR interventions I carried out during the second AR cycle. For example, the analysis of the data revealed students' preference for social media and using it on their laptops and smartphones. These insights made me decide to set up a Facebook group page to support the transition of participants instead of persisting with the Goingtouni website on the Moodle platform.

In contrast to the previous AR cycle, in cycle two I incorporated focus groups for data collection in the first weeks of trimester 1. My analysis of the data gathered from these meetings at different stages of the academic trimester expanded my understanding of the way transition issues affected the participants. The analysis showed me how the students individually and collectively managed these issues and how ICTs were used to support their responses to those issues. The interest of the participants in interacting and sharing their experiences with their peers during the focus groups contributed to the collection of rich data for the study. I continually reflected on these findings and wrote them down in my researcher diary.

I also conducted a preliminary analysis of the data generated from the Facebook group page. The analysis not only complemented my understanding of some transition issues faced by the participants during the academic trimester but also supported my intervention via the Facebook group. For example, during the group exercise with the social media tool, the students commented that they were coping with some academic issues and feeling the pressure of university life. Based on these comments, in the subsequent days, I started posting resources and links to university services that dealt with improving study skills. I also posted YouTube videos with inspirational talks to motivate the participants.

3.5.2.3 Data analysis for theory development

Data analysis also takes place as a specific step in qualitative research for theory development. Thorne (2000) explains that this is an explicit stage of analysis in which the researcher conceptually interprets the data "as a whole, using specific analytic strategies to transform the raw data into a new and coherent depiction of the thing being studied" (p. 68). In this study, my analysis of the data for theory development started nearly at the end of the second AR cycle. The main reason for this was that my attention during the preliminary data analysis was focused on gaining insights about transition issues

that could inform my interventions during the two AR cycles. Once I found that I had collected significant data and no more interventions were needed, I concentrated on deconstructing and uncovering the meaning of the whole data set. This process of analysis, which started in October 2013, resulted in the development of the conceptual framework of Transition 2.0 (see Chapter 4 for further description).

During data analysis for theory development, I used the qualitative data analysis software NVivo. I first scanned and read all the written material and transcripts of the data I collected. Simultaneously, the data (observations, researcher diary, focus groups, semi-structured interviews, and data from online tools) was imported into NVivo. In doing this, I gained a general idea about what the information was about. Then, I started unitising the information into small *chunks* of information (codes) and I represented each one with a name or label to describe relevant ideas, activities or events. I revisited the codes several times and renamed them if necessary with a more precise description. This coding procedure via NVivo included audio coding of the interviews to support the transcripts. I did this because I realised that in some cases the content of the transcripts did not represent the tone and mood of the participants during the interviews.

Once the codes were created, I started categorising them and looking for general themes. To support this analysis, I included the graphs and notes I made during the preliminary analysis of the data collected in the two AR cycles. These graphs and notes contained my inductive reflection on the transition experience of the participants. Then, I grouped the emerging themes according to their similarities and connections with the research questions. In doing this, I was able to expand my understanding of transition issues, the types of ICTs used by the participants and the perceived roles of ICT tools for transition. For example, during the analysis a new theme emerged in regard to transition issues. I noticed that, for the participants, both passing grades and unsatisfactory performance were important events in their university experience. I grouped the codes generated from the participants' comments into a category that described a new transition issue and I named it "perceived academic performance". This transition issue was not apparent in my early analysis during the two AR cycles. The deeper analysis of the whole data set also revealed a number of overlapping transition stages which supported the notion of Transition 2.0 and contrasted with previous conceptualisations of transition to university. In the same way, when analysing student's perceptions of ICTs for their transition, the in-depth data analysis uncovered that, in addition to assistive technologies, portable devices and social media were being used to actively deal with the challenges of university life. I then developed a set of categories describing the different roles of ICTs for

transition to university. To assess the credibility of my interpretations I conducted a member check with the research participants (see sub-section 3.5.3.1 for further detail).

3.5.3 Credibility of the study

Quality is an important and highly debated issue in qualitative research (Seale, 1999). The qualitative researcher has to demonstrate how authentic (LeCompte & Goetz, 1982) and rigorous (Guba & Lincoln, 1986) her or his research is. However, criteria for evaluating qualitative research have remained controversial (Seale, 1999) because "qualitative inquiry is itself still emerging and being defined" (Lincoln, 1995, p. 275). Discussion about the quality of qualitative research has resulted in a number of divergent views (Creswell, 2007). One of these views argues that criteria developed to evaluate quantitative research can also be used to assess the quality of qualitative research (Creswell, 2007) or their meanings can be altered to fit the demands of 'good' qualitative research (Bryman, 2008). For example, Mason (2002) affirms that the quantitative criterion of 'generalisability' is also useful for qualitative research. She argues that empirical but especially theoretical general claims based on research results and analysis can be made in a variety of ways in qualitative inquiry. She believes that any kind of generalisation must be clearly linked with other aspects of the research design and practice. Similarly, validity, which is understood as the truth value of the inquiry (Guba & Lincoln, 1986), is a quantitative criterion used to assess qualitative research (Creswell, 2007; Miles & Huberman, 1994).

In contrast, others stress that qualitative inquiry is a distinctive approach in its own right, and therefore, using quantitative criteria for assessing its quality is inadequate (Mays & Pope, 2000). Among these scholars, Lincoln and Guba (1985, 1986) suggest that criteria for evaluating constructivist-based qualitative research should focus on assessing trustworthiness and authenticity (Lincoln & Guba, 1986). They argue that there is no unique and true reality on which research may converge. On the contrary, what exists is a set of multiple and socially constructed realities that need to be holistically and contextually studied (Lincoln & Guba, 1986).

Independently of this discussion, commentators agree that following a number of procedures, strategies and/or techniques can help to safeguard the credibility of qualitative research in the social sciences. Some of these procedures are prolonged engagement, persistent observation, triangulation, peer review or debriefing, puzzles, negative case analysis, and member checks (Creswell, 2007; 1986; Kaplan & Maxwell, 2005; Miles & Huberman, 1994).

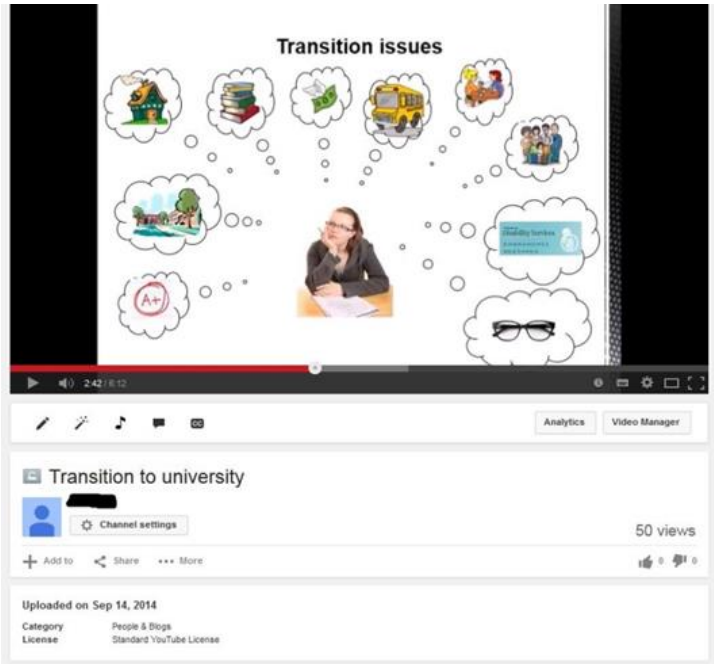
To ensure the credibility and rigour of this study I used the following strategies: online member check, triangulation, and discrepant evidence and negative case analysis.

3.5.3.1 Online member check

Member checking is a critical technique for assessing research credibility (Creswell, 2007). It is about "systematically gathering feedback about one's conclusions from participants in the setting studied and from others familiar with the setting" (Kaplan & Maxwell, 2005, p. 45).

For this research I sought feedback at different stages of the study. Considering the particular needs of the participants and some practical challenges, I had to innovate in order to present my findings and obtain their comments. To this end, I carried out an 'online' member check to show the participants my interpretations and conclusions about their transition to university and the role of ICTs. I prepared a six-minute audio/video presentation and uploaded it to YouTube in September 2014 (see Figure 5). A link to the video was emailed to the participants and posted on the Facebook group page as well. I incorporated an online member check strategy for the following reasons. First, it was difficult to bring all the participants together for a face-to-face meeting to discuss research findings as they mentioned they were busy with heavy academic responsibilities. Second, sending them a written document with a summary of findings was not an option either. Through the study the participants told me how easily they get tired and/or have blurred vision during or after reading. I tried to avoid stressing the participants. Thus, their extensive use of smartphones and social media made posting an online video a logical option for seeking feedback. Once the video was shared, one participant commented that the results of the study would "helps others". The video also received some "likes" from the participants on the Facebook page.

Figure 5. Online Member Check via YouTube.



I also sought participants' feedback during the data collection process. At the beginning of each focus group meeting, I prepared and presented a brief synopsis about what I thought were the key ideas, issues and lessons shared by the participants in the previous session. The feedback I received not only helped me to corroborate the quality of the data collected but also to focus my AR intervention on the specific needs of the participants at that moment and to understand how those needs were evolving over the academic trimester. For example, in the second focus group, after I summarised the key transition issues mentioned by the participants in the previous meeting, the students commented that after a few weeks at university some issues were no longer concerning them (e.g. campus navigation) and that other aspects (e.g. social connections and academic matters) became more important. Based on their feedback, I focused my attention on these issues and posted information and resources on the Facebook group page to help the students cope with them. As the focus groups also operated as group support meetings, I realised that organising more meetings could help the students to cope with social connection matters. The member check procedure also included giving the participants the opportunity to check their interviews at the end of the data collection stage.

3.5.3.2 Triangulation

Triangulation is the "use of multiple and different sources, methods, and theories to provide corroborating evidence" (Creswell, 2007, p. 208) and increase the robustness of the research findings and in consequence the credibility of the study (Kaplan & Maxwell, 2005). As previously mentioned, I collected data via observations, a researcher diary, focus groups, semi-structured interviews, and data from online tools. Along with these different data collection techniques, I gathered data at different points of time in the transition experience of the participants. This approach of triangulation provided the study with convergence to the research findings. For example, in order to identify transition issues, I attended participants' meetings with the Disability Services unit at the beginning of the trimester and conducted unobtrusive observations. I was able to find out what aspects of the early university experience were worrying the students. The prevalence of these issues was examined again during the focus groups conducted at different times in the trimester. The individual interviews with the participants after the end of the academic trimester also helped me to corroborate how students' perceptions of transition issues evolved at the end of the academic trimester. My approach to triangulation not only helped me to corroborate the richness of the data collected but also it reduced the risk of bias from only using one source or method (Maxwell, 2004).

3.5.3.3 Discrepant evidence and negative case analysis

To ensure the rigour and credibility of this study, I searched for and analysed negative cases; in other words I included those exceptions that did not fit to the pattern (Patton, 2002) and that challenged my interpretation of the findings (Maxwell, 2004). In doing this, both supporting and discrepant data were included in my analysis and writing up of this thesis. Negative case analysis also helped to manage the "strong pressures to ignore data that do not fit prior theories or conclusions" (Kaplan & Maxwell, 2005, p. 46). For example, in analysing students' overall perception of their transition experience, I found that the majority of participants highlighted that after their first trimester at university they felt adjusted. However, there was one exception: a student who still was struggling with some aspects of university life. Despite being one discrepant opinion, I included and analysed it because it helped me to enrich my understanding of transition to university as a complex and personal experience.

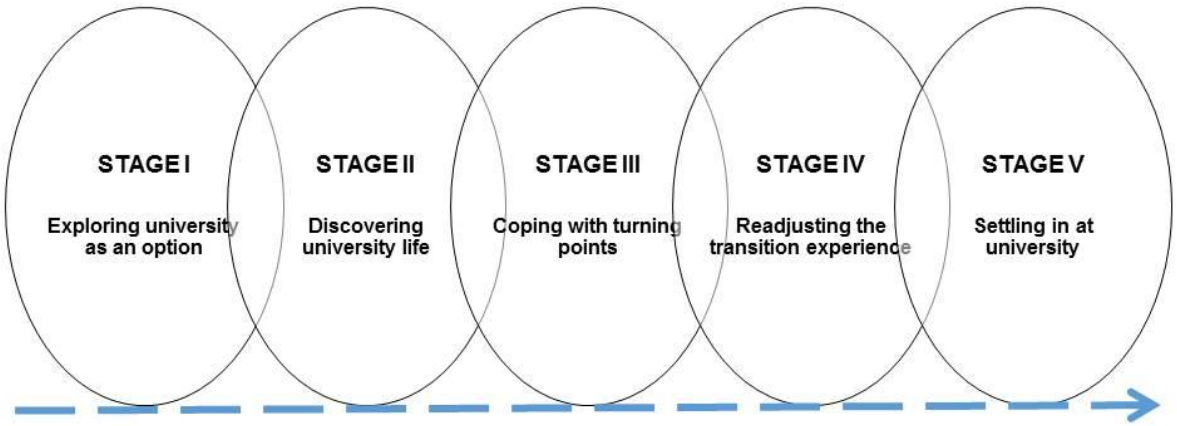
3.6 Chapter Summary

This chapter has presented the strategy and design for the research project. First, it discussed the theoretical paradigms most commonly used in social science research. The choice of the constructivist paradigm for this research project was justified. Next, the reasons for the selection of qualitative research as the most suitable strategy were given. Additionally, this chapter provided a description and rationale for the use of action research (AR), the chosen research method for this project. Then, I described the actions and events that occurred during the two AR cycles of this study. The data collection and data analysis procedures of this inductive study were also described. This chapter also included the criteria that were used to ensure research quality. The following chapter will report on the research findings. Specifically, it introduces the concept of Transition 2.0 as a new way to think about transition to university for students with vision impairments.

Chapter 4: Transition 2.0

4.1 Chapter Overview

In this chapter I introduce Transition 2.0, a concept which is the main contribution of this research. First, I describe the conventional view of transition to university, which I call Transition 1.0. Then, I present Transition 2.0 as a new way to think about transition from the experience of students with vision impairments, their pro-active attitude towards it and their use of ICTs to manage transition needs. In describing Transition 2.0, I include its five overlapping stages and then I describe the different transition issues or factors faced by the students during Transition 2.0.



Transition 2.0 for students with vision impairments

4.2 From Transition 1.0 to Transition 2.0

The findings in this research lend support to the claim that we need to rethink the transition to university. The literature describes transition to university as an individual experience. The student is seen as passive about her or his transition and is meant to adapt to the demands of the university. In that context, ICTs, especially assistive technologies, are used to ameliorate the impact of her or his impairment in the tertiary setting. This research, however, has found a different scenario. Nowadays, the student is pro-active and aware of the potential challenges posed by the impairment. The student perceives transition as a collective endeavour as well. She or he similarly adapts ICTs innovatively and uses them to participate, interact and collaborate with their peers in order to manage transition challenges. Because of the active use and permanent adaptation of these tools, the student is able to develop self-determination skills and uses these skills not only to cope with transition but also for her or his personal development as a young adult.

Considering this scenario, the findings suggest a paradigm shift to what could be called Transition 2.0. This new view about transition is based on the perceptions of the research participants and the way they constructed the meaning of their transition in interaction with their peers. Likewise, the current use of Web 2.0 by the students does not define Transition 2.0. These tools are part of a new social and attitudinal context in which the student with vision impairment aims to be in charge of their transition. In this sense, Web 2.0 and other ICTs are enablers. Further arguments to support the move towards Transition 2.0 will be developed in the following sub-sections.

4.2.1 Transition 1.0

As described in Chapter 2, the conventional view of transition to university, which hereafter I call Transition 1.0, has focused on the personal need of the students to adjust to the university setting. Transition 1.0 is seen as a period of psychological and academic changes for the students, who also have to deal with an unknown university environment where there is no longer a dedicated and personalised support system available for them. The student not only feels alone and stressed but also has to rapidly learn the skills for independent learning. In Transition 1.0, students with disabilities are accommodated to fit into the demands of the tertiary setting, especially in regards to its academic responsibilities. In this respect, Transition 1.0 centres on the normalisation of the students, so they are able to perform academically as normal students in order to obtain satisfactory grades. Thus, responses to smooth over the transition experience of the students have centred on compensating and/or ameliorating the impact of their impairment through the provision of a range of specialised

services and resources. These actions have also sought to promote equity and inclusion, and reduce the physical and cultural barriers that prevent the students from engaging and adjusting to university.

At the same time, Transition 1.0 has included interventions to teach the students self-determination skills which will enable them to manage their transition experience. However, the scope of such interventions has only focused on instructing the students to learn the skills required for improving their academic performance (Fowler et al., 2007). In Transition 1.0, the students are still seen as passive recipients of support. Thus self-determination interventions have mostly aimed at the students being able to function and/or adjust themselves according to the university demands. Independently of the support provided, Transition 1.0 is, to a large extent, a personal journey in which students with disabilities have to cope with transition challenges on their own and fit in at university.

In the context of Transition 1.0, assistive technologies have played a primary role in compensating for the impairment of the students in the university setting. These tools are used to support students' academic duties and performance. For example, the students are encouraged to use assistive technologies such as electronic Braille and screen magnification software to help them to read course material.

Transition 1.0 also involved the opportunities brought by the inception of the Internet and the increased use of personal computers in the 1990s. For students with disabilities these kinds of ICT tools have facilitated, for example, access to information and communication. The use of a personal email service, for instance, made it easier to be in contact with friends and relatives, overcoming issues of distance and time. Similarly, a personal computer adapted with other assistive technology allowed the student to enlarge the fonts or change the brightness on the screen, making course material readable. Despite the benefits, the technological developments of that period, particularly web interface and design, also increased the concerns regarding accessibility and usability. Some have speculated that ICTs were disabling (Goggin & Newell, 2003) and/or creating a disability divide for people with disabilities (Dobransky & Hargittai, 2006).

To sum up, Transition 1.0 centres on the changes experienced by the students at university at an individual level and the support provided to them to accommodate and/or compensate for the impact of their impairments. To a large extent, in Transition 1.0 the students make sense of their transition on their own, individually, and ICTs are basically used to support impairment compensation and manage the academic challenges of the students with vision impairments. In other words, ICTs are fundamentally used to reinforce the transition experience as an individual journey.

4.2.3 Transition 2.0

Transition 2.0 represents a significant shift from the way transition to university has conventionally been seen by scholars and practitioners. The evidence from this study shows that students with vision impairments are using ICT tools innovatively and creatively to cope with the challenges of their transition experience. Transition 2.0 does not mean a rupture from the conventional approach of Transition 1.0 but an evolution from it. The elements that characterise Transition 1.0 are still present in Transition 2.0. For example, in Transition 2.0 the students are still recipients of specialised support, indeed they still need it, and use assistive technologies to compensate for their vision impairments. The difference is that in Transition 2.0 the students have a more pro-active attitude. They understand that transition involves changes and challenges and they want to face them their way. They incorporate ICTs such as Web 2.0 and portable devices into their university experience so they are able to work, learn, collaborate and interact with their peers in order to manage their transition. As a result, transition to university becomes a collective experience in which the students are able to develop self-determination skills in their own fashion. Thus, in this context, Transition 2.0 can be defined as:

> The personal and collective experience of the student with vision impairment of making sense of her or his transition to university by sharing, learning, interacting and collaborating via ICTs, especially Web 2.0 and Internet-enabled portable devices. In doing so, the student starts acquiring and/or developing the skills, attitudes and knowledge for self-determination that allow her or him to manage the challenges of university life and nurture her or his personal development as a young adult.

Transition 2.0 is driven by a behavioural and/or attitudinal change among students with vision impairments in relation to the way they see themselves at university and as young adults. The research findings show that the majority of participants also took the initiative in relation to their transition. Before the trimester started, they tried to foresee transition issues, arrange some support to manage their impairment and learn about how university works. They tried to make sense of their transition in their own terms. Such a can-do attitude did not mean that they did not make mistakes. They did so throughout the academic trimester but they were also open to seeking support and advice, and readjusting their transition experience accordingly. As staff of the Disability Services have similarly observed, nowadays students with vision impairments "want to do it [transition] themselves. They want to make their own mistakes which is a form of [looking for] independence" (DA-1). In Transition 2.0, the students "do not want to be seen as somebody that is different". They, on the contrary, want to show self-reliance and that they are able to be part of the university and pursue their

personal goals. Another staff member of the Disability Services unit also noticed how this attitude differs from past behaviour:

> *"I've been at university five years now and a lot more students with disabilities and impairments are here than there was when I started. That is a fantastic thing. More students are recognising that they are able to go to tertiary study because there are services, like us, that are more aware that everybody is able to come to university…A lot more students are recognising that they are just as capable as anybody else and that they deserve to be here"(DA-2).*

Not only do students with vision impairments feel capable of being at university as highlighted above, they also have no doubts that they are entitled to do so. In this respect, while in Transition 1.0 the students were thankful and believed that any university help they received was a favour, in Transition 2.0 attending university is perceived as a right and, thus, the students expect that their needs will be met by the tertiary institution. For example, the research findings show that a number of students talked with lecturers and course coordinators to let them know about their needs. One student was categorical that teaching staff "should understand my needs. I talked to them before every first lecture". Similarly, another student claimed that "lecturers should become familiar with this sort of thing [vision impairment]. They don't have to be reminded [about my needs]". A third student pointed out that "if I have the right things in place, if I have the things I need, I can be reasonably independent [as a student]". In other words, the students expected the university to share responsibility for their transition to university. There is clearly a behavioural and/or attitudinal change among the new generation of students with vision impairments that supports the claim for Transition 2.0. This move contrasts with Transition 1.0 in which the students were understood to be passive recipients of support who needed to be adjusted and normalised according to the demands of the tertiary setting. In contrast, Transition 2.0 is about students seeking to lead their transition and the university meeting the demands and personal needs of these students based on this new context.

On the other hand, Transition 2.0 differs from Transition 1.0 in that the students' transition is not only an individual experience but also a collective one. Certainly, each student with vision impairment deals with her or his transition in their own fashion. Their vision impairment, personality and background, for example, all have an impact on the way each of them experience and manage transition challenges. However, in Transition 2.0, the transition is far from being an isolated journey. Making sense of it is also a collective endeavour in which the student learns along with their peers how to deal with different university challenges. There is extensive evidence from this research

showing that students with vision impairments sought support from, worked and/or collaborated with their university peers, former high school friends and personal connections to manage different issues at different stages of their transition. Also, once familiar with the university, these students were eager to advise and share their transition knowledge and experience with others. The implications of these findings suggest that universities should not ignore these actions/attitudes of the students that occur in parallel with the formal support provided by the tertiary settings.

In Transition 2.0 ICTs are enablers used by students with vision impairments to make sense of their transition. The behaviour and attitudes of the students discussed in this chapter are supported by the use of diverse technological tools, not determined by them. Thus, the "2.0" in Transition 2.0 does not refer to an advanced version of the Internet, known as Web 2.0, shaping students' university experience. In Transition 2.0 the students incorporate and adapt according to their personal needs a range of ICTs with which they are familiar. Web 2.0 along with assistive technologies and portable devices is part of these tools that support the actions of the students to manage their transition. For example, the research findings show that social media applications such as instant messaging and Skype complemented and/or supplemented face-to-face interaction and communication of the students with their families and friends. Similarly, the students also enhanced collaboration with their peers and their own learning via tools such as Facebook, YouTube and Blackboard. In other words, Transition 2.0 centres on the individual and collective experience of the students who used ICTs to manage their transition.

Transition 2.0 also refers to a generation of young students with vision impairment which has grown up using ICTs as part of their daily lives. The students are, to a greater or lesser degree, competent ICT users. This trend of ICT competency has also been noticed by the Disability Services unit. Some of its advisers agreed that "the students are very technology savvy" and that "even if we introduce new technology to them like a magnifying program that they haven't used before; because they've already got those skills in place, they can pick it up really easily". Indeed, the research findings show that a few students called themselves "ICT savvy". Transition 2.0 comprises, then, a generation of young students with vision impairments that does not limit itself to assistive tools. This generation is familiar with interactive and collaborative applications such as social media. They not only consume but also produce and share their own content online. They adapt tools such as digital cameras and voice recorders to cope with university challenges and enjoy the mobility provided by portable devices such as smartphones. This trend is supported by the observations made by the advisers of the Disability Services unit:

> *"Even just five years ago we were providing students with technology, with individual technology and supporting them by providing specific equipment. Now students are coming in and telling us the latest app and they are sharing that information with other students. I think we just got the wave of change that is led by them" (DA-1).*

Clearly, the current generation of students with vision impairments differs from older ones in the way it uses and adapts ICTs for university and everyday activities. This situation suggests a generation gap also observed by the Disability Services staff:

> *"I have older students who use Braille machines and they get their information that way; they carry on doing that. So, there is quite a generation gap. The younger students are already tech savvy and what that means is when the new technology advances, which it is still doing quite a lot in this area, they can adapt to it because they get how to use technology. I have an older student in her fifties doing a PhD and we are providing her quite a lot support that an eighteen-year old would not need…She is learning ICT but her ability to mould it and use it for the fine detailed work that she needs for her thesis is not easy, not possible really, to pick up and do the thesis at the same time. That is why she is getting somebody doing reading and writing for her" (DA-3).*

As previously mentioned, the findings of this research have uncovered a generation of students with vision impairment that want to be seen as unique and independent individuals. This suggests that transition can no longer be addressed in terms of making the students fit into university and/or only meeting academic demands. The behavioural changes and current use of ICTs for transition show that in Transition 2.0 students with vision impairments are able to develop self-determination skills and that that has an impact on the way they manage their transition (see sub-section 10.2 for further discussion about ICT-enabled self-determination). Thus, Transition 2.0 should also be seen as an opportunity to support students' needs and aspirations of becoming self-determined young adults and not only well-adjusted students.

The table below summarises the key differences between Transition 1.0 and Transition 2.0.

Table 11.

Differences between Transition 1.0 and Transition 2.0

Transition 1.0	Transition 2.0
• It is the conventional view of transition to university. • Transition to university is an individual journey for the student. • In Transition 1.0 the student is expected to fit into the tertiary setting. • The student is a passive receptor of support and "thankful" about it. She or he is still dependent on others. • The student is concerned about disclosing her or his disability/impairment. • Support focuses on "normalising" the student and ameliorating the impact of her or his impairment in the tertiary setting. • There is a focus on teaching the student self-determination skills, mainly to perform well academically. • ICTs, namely assistive technologies, are used to compensate for student impairment at university. Other tools (e.g. the Internet, email, desktop computers) are used to facilitate access to information and communication, to arrange disability support and assist learning.	• It represents a paradigm shift about the way students with vision impairments experience their transition. • Transition to university is not only an individual journey. It is also a collective one, constructed in collaboration with peers. • The student is aware that she or he is still expected to adjust to university but she or he also requires the university to share responsibility for her or his transition. • The student is pro-active about transition and seeks to manage it in her or his own terms and to learn about it by doing. She or he wants to show independence and self-assurance. • The student is mainly open about disclosing her or his disability/impairment with their peers. • The student does not ask but demands services and support to be available to her or him. • The student uses and adapts a range of ICTs (portable devices, social media) for her or his transition in addition to assistive technologies. • ICTs are used to manage different transition issues (e.g. social connections, accommodation) and not only academic-related matters.

	• In addition to access to information, communication and supporting learning, ICTs enable the student's participation, collaboration and interaction with and among their peers and the tertiary setting. • The student develops self-determination which is supported by her or his use of ICTs.

4.3 The Stages of Transition 2.0

The findings in this study indicate that Transition 2.0 involves five stages: exploring university as an option, discovering university life, coping with turning points, readjusting the transition experience and settling in at university (see Chapters 5, 6, 7, 8 and 9).

The identification of these stages updates and expands previous descriptions of the transition process. A key feature is that they are dynamic and overlapping stages. The research findings show, for example, that while some students were in the midst of the discovering stage – still learning about the university's academic system and physical environment – they were also coping with the turning point of being unable to make new friends. These findings differ from previous research regarding disability and transition to university (see Duquette, 2000; Hadley, 2011) which has been guided by the work of Tinto (1993). According to Tinto, students' persistence in staying at university includes the experience of going through three static and separate stages: separation, transition and incorporation. In this respect transition is seen as a stage. This research emphasises the nature of Transition 2.0 as a process involving five dynamic and interwoven stages.

A second key feature is that ICTs are incorporated in the understanding of the stages of Transition 2.0. The evidence from this study reveals the different roles played by ICTs in the transition stages for students with vision impairment, from vision compensation to increasing collaboration. While technology is absent from Tinto's stages, research regarding disability and transition has limited ICTs to the compensatory role of assistive technologies. The evidence from this research clearly states that the stages of Transition 2.0 are linked to the different roles of ICTs (see sub-section 10.4).

The following sections summarise the stages of Transition 2.0 including how they are affected by the dynamics of ICT.

4.3.1 Exploring university as an option

Exploring is a pre-entry stage. Students think and decide about tertiary studies when still in high school. University is seen as a pathway for personal development and a "passport" for independent life. Despite having priorities and set goals students still need support. Then they start seeking information, and looking for specialised advice. Their main concerns are how to manage their impairment and learning about what university life looks like. They ask friends and other contacts about their university experiences.

The participants are already users of a diverse range of assistive technologies for vision compensation. They also use the Internet (e.g. the university website and YouTube) to find information about specialised support, accommodation and university entrance requirements. Personal email supports communication with university staff, particularly from the enrolment, accommodation and Disability Services units.

4.3.2 Discovering university life

The discovering stage refers to the first real encounter with university life. It starts from day one at university. The students feel anxious and lost and are concerned about having timely and adequate support in place (e.g. a note-taker in their lectures). The change from high school to university is perceived as an "overwhelming" experience. Their vision impairment is also perceived as a "hindrance" in their transition. In this stage, some transitions issues (physical environment, academic system, accommodation matters, transportation among others) become more apparent. The increasing amount of course workload makes them feel stressed especially with reading course material.

ICTs are used to deal with the first transition issues that emerge at the beginning of the academic trimester for example the physical environment issue. The students used a map of the university in PDF format emailed to them or retrieved from the university's official website. Alternatively, they used the Google Maps application on their smartphones for campus navigation. In relation to the academic system issue, the students brought their laptops to the lectures, and in some cases, digital voice recorders and cameras, to support vision compensation and their learning experience. Similarly, they employed assistive technologies provided by the university such as a CCTV camera to manage reading tasks. The students also used social media and their smartphones to receive updates from their university halls of residence (accommodation matters) and search for information about bus timetables (transportation issue).

4.3.3 Coping with turning points

The participants identify and cope with turning points. Turning points are critical life events and/or experiences that make the student adopt changes and/or acquire new meanings about their transition. Turning points arise at any moment of the academic trimester and are not always caused by a negative event or experience. The main causes of turning points are events related to the academic system issue (e.g. writing assignments, the amount of course-related readings) and social connections issue (difficulties making new friends).

In this stage, ICTs are an important medium used by students with vision impairments to manage turning points. They use Facebook (e.g. their personal profiles, course and research project pages) and the online forum on Blackboard to seek and share information. They collaborate and work with theirs peers via online platforms to manage a range of academic challenges (e.g. assignment writing). The social connection issue is managed by the use of tools such as Skype, Facebook, texting and instant messaging, which support communication and allow the students to keep in touch with their families, high school friends and university peers.

4.3.4 Readjusting the transition experience

After coping with turning points the students rethink and make changes that not only affect their transition but also their university experience as a whole. Changes are related to the academic system issue. In general, the participants decide on new directions or goals that include dropping papers, changing their enrolment status to part-time or changing their major in the next trimester. In some cases they reaffirm previous goals. The readjusting stage reflects the commitment of the students in regard to their university-related long-term goals and personal development.

The students use ICTs in order to make informed decisions. They refer to the university website to find information about administrative procedures for changing enrolment status and papers available in the next trimester. Then, again via the university website, they proceed to make the changes online. Social media (e.g. the Facebook group page for this research) was also used for receiving updates about next trimester deadlines. In addition to Facebook, other tools such as video calling software (e.g. Skype), texting and instant messaging were employed to seek feedback and advice from family members and other trusted social connections in real time.

4.3.5 Settling in at university

In the settling-in stage the students feel more familiar and in control of their transition experience. Although transition issues are still present they are perceived as manageable. Overall the participants

are more confident and secure but they are also aware that they still need support. The majority of students develop a sense of belonging and perceive themselves as independent and self-determined young adults. Even those students who mention that they are still "finding my feet" have developed some self-determination skills. Some features of a sense of belonging are getting used to the academic responsibilities and being able to make new friends. Settled-in students are predisposed to give advice and share the lessons from their transition experience. They recommend not being afraid about asking for support, planning ahead and getting support in advance.

The participants evaluated the role of ICTs in their transition experience and concluded that these tools are "one of the biggest helps" for students with disabilities. From their experience, assistive technologies make it easier to manage their vision impairment. They advised new students to make sure that the required technology is in place and to get used to it before the trimester starts. The students also mentioned the different benefits of ICTs for communication and support arrangement. In relation to social media tools, they concluded that these platforms have been "great" in supporting their transition to university, in particular when coping with the social connection issue.

4.4 Transition Issues in Transition 2.0

The research findings update previous studies regarding transition issues for students with vision impairments which date back to the 1990s (see Erin & Wolffe, 1999; Hutchinson, Atkinson, & Orpwood, 1998). The research also expands the contribution of more recent studies (see Bakken & Obiakor, 2008; Kochhar-Bryant, Bassett, & Webb, 2009; Steere, Rose, & Cavaiuolo, 2007), which focus on students with disabilities in general, by incorporating in the analysis the role of ICTs.

As mentioned in the literature review, this research has also found that the academic system, social connections, transportation, family, accommodation, financial issues and vision impairment are issues experienced by the students. Although prior studies tended to see these issues as barriers, the participants in this research also perceived them as enabling their transition. Furthermore, this study unveils three transition issues not included in the literature: physical environment, perceived academic performance and support system. The nature of these transition issues is discussed in the following sub-sections.

Although all the students with vision impairments go through these transition issues, the way they experience them differs from one student to another. The evidence from this study shows, for instance, that while the academic system was a critical issue for all the participants, some of them were more affected by specific aspects of it such as writing assignments or managing the large amount of course reading. On the other hand, the same transition issue, for example the social connections issue, was

for some students a constraint but for others an incentive to stay at university. What is more, some issues which were considered at the beginning of the academic trimester as constraining the transition experience were later perceived as easing it. For example, some students who initially were unhappy and complained about their accommodation found later that it offered an appropriate environment for study.

More importantly, transition issues were found to be interconnected to the extent that managing one issue helped the students to cope with another one. A good example is the social connections issue. Students who were able to make new friends were also able to manage the academic system as they studied, supported and collaborated with their new network of friendships. Finally, some transition issues were more lasting or recurrent than others. For instance, getting around the university's physical environment was an issue during the first weeks of the academic trimester until the students set daily routes from one lecture theatre to another. However, for some participants, financial constraints affected them throughout the entire trimester.

4.4.1 Academic system

The research findings show that the academic system, which entails formal study activities and academic responsibilities set by the university (Tinto, 1993), is one of the most crucial transition issues. It is a recurrent issue experienced along the five stages of Transition 2.0. For instance, during the exploring stage the students were not only concerned about the university's entry requirements but also how university works in academic terms. When in the discovering stage, the students were "overwhelmed" by new academic experiences such as lectures, tutorials, assignments and course workload and started comparing them with past practices from high school. Even during the coping with turning points and readjusting transition stages, the academic system was a prevalent issue and the main responses involved managing situations such as writing assignments and choosing to change to part-time studies. Most students perceived that they were not ready for university or did not have the required skills to deal with the unknown academic culture of the university.

While this issue was the cause of stress among many students, it also led to some gratifying experiences, in particular when some students saw that they were able to write a research essay on their own. Reaching familiarity and confidence with the academic system issue was for some students a signal that they were in the settling-in stage as well.

Within the academic system issue, students with vision impairments stress the role of teaching staff for their transition. This finding is supported by previous studies (see Chang & Schaller, 2002; Dimigen, Roy, Horn, & Swan, 2001) as discussed in Chapter 2.

4.4.2 Social connections

This research shows that having or lacking a network of relationships at university affects the transition experience of students with vision impairments. These results match those observed in early studies in which the "social world of the university" is argued to be as important as the "academic world" (see Pittman & Richmond, 2008; Tinto, 1993; Wilcox, Winn, & Fyvie-Gauld, 2005). The evidence in this study indicates that being able to make new friends among peers attending the same lectures and/or living in the same university accommodation, for instance, not only provided the students with emotional support and fun but also offered the opportunity to collaborate, work and manage together different academic duties. However, when the student was unable to build new friendships, the feelings of loneliness and stress were also reinforced to the extent that dropping out of university was considered.

The research findings, however, differs from previous studies in that they highlight the importance of those social connections located outside the physical borders of the university setting. Indeed, the research evidence shows that during the exploring stage some participants sought advice and information about university life from their close friends and/or acquaintances who were already studying at university. Moreover, during the discovering and coping with turning points stages, those students who struggled with meeting new people; looked for the support of their former high school peers not only for socialising but also managing some university concerns and tasks. Authors such as Tinto (1993) have argued that university students, particularly those who live in residential universities, have to separate from "the communities of the past" in order to adjust to university. However, as the findings show, students with vision impairments who lived in university accommodation did not disconnect at all from their external networks but relied on them. Indeed, they were concerned about maintaining their existing social connections in good health. All this evidence suggests that social connections offer benefits and support that could complement the services provided through universities' formal support system.

4.4.3 Transportation

The research findings accord with those early observations that highlight the impact of the transportation issue on the transition to university (see Chapter 2 for further details). This transition issue was particularly challenging during the discovering stage when the students started university. For those students who lived far from the university or had to travel from one campus to another, it was difficult to see bus and train timetables on the stops. A couple of students even reported having taken the wrong bus on their way to university. At the beginning of the trimester, some students had

to take taxis but that was expensive. Others needed the help of relatives during the first weeks of the trimester until they got used to the city's transport system.

Eventually the participants developed some transportation management skills and ICTs were an important tool in this respect. The use of laptops and/or smartphones with Internet access made it easier to search for information online about bus timetables.

4.4.4 Family involvement

The research findings support previous studies regarding the impact of the level of family involvement on the transition experience. The findings corroborate the idea that family participation is important for students' transition planning (Defur, Todd-Allen, & Getzel, 2001; Morningstar & Turnbull, 1995). The participants mostly regarded as helpful the support and advice of their parents and other relatives during the exploring stage. For example, family input influenced students' decisions about undertaking tertiary studies and/or choosing where to study. Sometimes it put some pressure on the students. In most cases, parents helped the students to seek information and contact the Disability Services unit and other service providers. Some parents, particularly mothers, accompanied the students at least once to their first meeting with a Disability Adviser. When parental involvement was passive or non-existent, the students sought the support of other relatives (e.g. an older sibling) to manage other issues such as accommodation.

Family involvement was also observed during other stages of Transition 2.0. It was particularly significant during the first weeks of the academic trimester (discovering stage) when the students started feeling loneliness and/or homesickness. In most cases, family provided the emotional support the students needed. Although some students received a student/disability benefit and very few worked part-time, family was still an important source of financial support as well. Family involvement was similarly relevant during the coping with turning points stage. The findings show that some students looked for family support when they were stressed by social connections issues and financial strain. While the students made their own decision about readjusting their transition, they also sought the backing of their families in regard to the new directions they had chosen.

Although some literature outlines the negative impact of overprotection and family dependency (see Chapter 2), none of the students reported any of those. However, there were a few cases in which parents were insufficiently involved or "not interested" in the transition experience of the students. In those cases, as mentioned above, the students took the initiative in contacting trusted social connections such as high school teachers and other relatives for transition advice.

4.4.5 Accommodation matters

The results of this research support previous studies about the need of people with vision impairments to find appropriate accommodation (see Chapter 2). The findings seem to be consistent with other research which found that location, space, safety and security are some of the main aspects that influence the decisions of people with vision impairments when choosing a place to live. However, little research has investigated the role of the accommodation or housing factor in the transition to university of people with vision impairments. This research brings some insights that can help to close the gap. For example, the findings reveal that the accommodation issue can have an impact on the way the students manage other transition issues. The evidence of this research shows that the type of accommodation (e.g. University Hall) helped the students to cope with the challenges of the academic system as sharing common spaces allowed them to work and collaborate together in course assignments and tests. The findings also indicate that the social connections issue was more likely to be better handled by those participants who lived with other university students. In the case of those students who lived with their relatives, the accommodation issue seemed, to some extent, to prevent them from making new friends and spending more time in the university setting. However, these students benefited from closer access to family support when they faced some difficulties with their transition. Those students who were living on their own and far from their parents' home perceived that they had reached a sense of independence.

The importance of the accommodation matters issue was more noticeable in some stages of Transition 2.0. During the exploring stage it was one of the issues the students wanted resolved before starting university. When the students went through the coping with turning points stage, it was perceived differently by the students. Some considered that their accommodation made it difficult to manage some academic challenges and meet their peers. Others found it helped them to manage these issues.

4.4.6 Financial issues

The findings of this research are also consistent with previous studies that outlined the impact of financial issues on the quality of life of students with vision impairments (see Chapter 2 for further detail). Financial issues affected, to a greater or lesser extent, all the participants in this study. It was identified in different stages of Transition 2.0. For example, in the exploring stage, the decision of some participants about where to study and live was influenced by potential financial costs. Financial issues made the students look for some alternative funding such as grants and scholarships and also government benefits such as disability/student allowances. During the discovering stage, some

students also reported that in the first weeks of the academic trimester it became unsustainable to take taxis from and to university and they had to minimise the use of this transportation option. Some students commented that they were unable to pay their rent or living costs. The findings also illustrate that financial issues affected the academic experience of some students. For example, in Chapter 6, one student reported being unable to afford assistive technology. Without these tools, it was difficult for him to manage some study duties such as writing essays and assignments.

4.4.7 Vision impairment

As the students reported, having vision impairment is a "hindrance" or "barrier" for the transition to university. It affected their transition experience to the extent that a number of them had to drop some courses or change their enrolment status to part-time. It had repercussions on different academic tasks, particularly reading. The students reported for example that they spent more time reading course material than their peers without disabilities. Independent of the type of vision impairment, they reported losing concentration quite often, getting blurred vision and tiring easily when reading course material. During tests, the students needed some extra time or/and a special room accommodated to their needs. Overall, their vison impairment made the transition experience of these students more challenging. For most participants it is likely that it will take more time to complete their degrees compared with their peers without disabilities.

Vision impairment not only affected students' experiences of the academic system. It was also connected to other transition issues along the different stages of Transition 2.0. As reported in this study, in the discovering stage the students found it difficult to navigate around the university campus because they were unable to distinguish signs. Their impairment also made it harder to take a bus or train from or to university as they could not read bus numbers and timetables on the bus stops. In the coping with turning points stage a few students believed that their impairment also contributed to their difficulties in meeting new people at university.

4.4.8 Physical environment

The physical environment of the university was one of the most worrying issues for students with vision impairments at the beginning of their transition. The findings indicate that as soon as the exploring stage the students were concerned about not being able to navigate around the campus. Some students visited the university before classes started or took a guided tour to have an idea of how accessible the main campus was. When meeting with a Disability Adviser they wanted to know what accessible routes were available. Despite the precautionary measures, when the students arrived at the discovering stage, all of them still struggled with the physical environment. Some even pointed

out that they "got lost many times". It was not only the difficulties of navigating around the unfamiliar corridors or not being able to see signals and notices clearly, it also included the lecture theatres and the way lighting, whiteboards and furnishing were arranged that made the first weeks of their transition a challenging experience. Eventually, the students got used to the university physical environment. They managed it by setting a daily route to lecture theatres and seminar rooms and arriving early to have closer view of the whiteboard.

4.4.9 Perceived academic performance

In this study perceived academic performance emerged as a transition issue. This contrasts with previous research in which academic performance and/or achievement has been mostly studied and measured as an outcome of the university experience as a whole (Jorgensen et al., 2005). The findings of this study show that students with vision impairments were concerned about doing well academically throughout the transition to university experience. Final grades gave them an overall indication of their accomplishment during the academic trimester. However, their interest in managing this issue was manifested even before starting university when they began looking for information and arranging support to deal with academic responsibilities. At the beginning of the academic trimester, results and marks of their first lab exercises, tests and assignments were an indication of their individual progress. Their perception of academic achievement differed from one student to another. While some students expected to achieve as "well" as in high school, others were pleased with passing marks and grades. Perceived academic performance, as shown in this study, can have positive and negative implications for the transition experience of the students. It can be one of the main reasons for turning points (see Chapter 7 for further explanation). On the one hand, it can increase stress and frustration in the students. On the other hand, it can work as an incentive and enhance confidence among the students.

4.4.10 Disability support system

For students with vision impairments specialised support from the university and other service providers was another critical factor for their transition to university. From their perspective, having "strong services available…really does help our transition and gives that degree of confidence" about university life. Aware of the impact of their impairments, the students sought help and advice, particularly; from the Disability Services and the Blind Foundation, as early as the exploring stage. The findings show, for example, that students' decisions on where to study were to some extent influenced by the availability of disability support. From the view of the participants, disability support helped them to manage different transition issues. In particular, they commented that they were able

to manage the impact of their vision impairment as specialised staff showed them some coping strategies and gave them advice. Among the guidance received the students commented they were asked to rely more on other senses such as hearing, enrolling as part-time students to reduce course workload and considering the use of assistive technology to ameliorate reading challenges.

The disability support system was also important in terms of managing the challenges of the academic system, physical environment, and financial issues. The disability support had an impact at different stages of Transition 2.0 but it was more noticeable during the exploring, discovering and coping with turning points stages. All the participants commented, for example, that at the beginning of their transition, the Disability Services unit was an important point of contact and source of information regarding academic responsibilities and liaising with lecturers and coordinators. They highly appreciated meeting their Disability Adviser periodically to follow their progress. The kind of support received consisted of electronic course material arrangement, note-takers, exam preparation, test and lab arrangement and advice about how to use university learning facilities, including online tools, and assistive technologies among others. As the findings show, at the beginning of their transition the students were concerned by the physical environment of the university. Despite being lost in many cases, they referred to the Disability Services for a campus navigation tour or a copy of an electronic access map. In other cases, when some students were worried about financial issues, the students relied on their Disability Adviser to help them with their disability/student allowance application. Although the students commented they were settled in at university and transition issues were manageable, they also emphasised that disability support was still necessary.

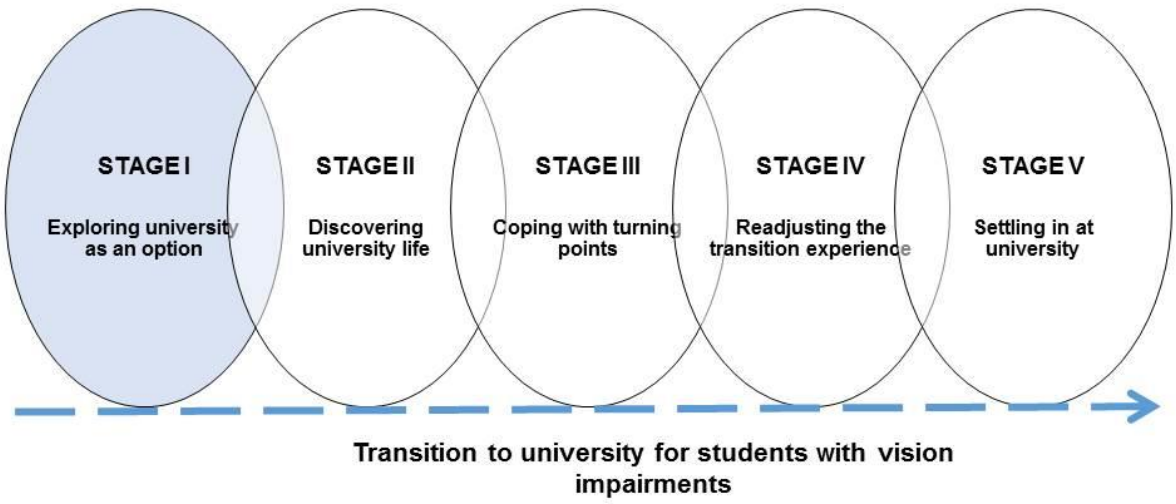
4.5 Chapter Summary

This chapter has introduced the concept of Transition 2.0 which represents a shift from the traditional view of transition to university. Transition 2.0 is characterised by an emerging socio-psychological context among the students who seek to proactively manage their transition in their own terms. In Transition 2.0, ICTs play an enabling role not only in relation to coping with academic matters but also in regard to other university challenges. In this chapter, Transition 2.0 was compared with Transition 1.0, the conventional view of transition to university adopted by scholars and practitioners. The different overlapping stages of Transition 2.0 have similarly been presented and summarised in this chapter. Then, I continued with a description of the ten transition issues or factors that the participants faced during Transition 2.0. The following chapter will report on the research findings. Specifically, it will expand on the findings regarding the first stage of Transition 2.0: exploring university as an option.

Chapter 5: Stage I – Exploring University as an Option

5.1 Chapter Overview

In this chapter I introduce the first of the five overlapping stages of the transition to university for students with vision impairments. The "exploring university as an option" is a pre-entry stage. Generally, the students go through it when they are still in high school. It is a period of reflection about the implications and challenges of university life. It involves searching for relevant information about university life and arranging support to cope with potential transition issues the students anticipate will impact on them. This chapter also describes the role of ICTs in this stage of the transition to university.



5.2 Exploring

The exploring stage of the transition process begins before students with vision impairments enrol at university. It involves the early intentions of the students to make sense of the tertiary experience. They start wondering about what university life would be like, what challenges they may face once there, how their vision impairment may impact their tertiary experience and also what kind of support is available for them. To a large extent the exploring stage is a pre-entry stage and the participants experience it as early as their final years of high school. Interestingly, this stage of the transition process can also arise along subsequent transition stages, when new situations (mainly, but not limited to university) emerge and challenge the participants.

The exploring stage is not necessarily an isolating experience for the participants. Besides undertaking a reflective and internal exercise about the implications of university studies, they also become action takers to different extents. They start to seek information and advice in order to clarify their concerns and doubts about university. In doing so, the students seek the support of others. Although going to university was a personal decision, they also feel encouraged and/or influenced by family members, friends, school and disability support services staff. Therefore, in passing through the exploring stage, they refer to their connections and other means for advice and information as well as arranging support.

Additionally, during this stage of the transition process, the participants were already users of some ICTs, especially assistive and mobile technologies. These tools, already embedded in their everyday activities, supported them in terms of exploring the future demands of the university experience. At the same time, during the exploring stage, students with vision impairments also become aware of other ICTs that they need to become familiar with once at university in order to achieve their university-related goals.

5.3 The Elements of the Exploring Stage

In the following sub-sections I describe the three elements of the exploring stage: thinking and deciding, seeking information and advice, and arranging support. In each of these parts I identify what particular transition issues were significant for the participants. I also describe how and what ICTs were used in order to address those issues.

5.3.1 Thinking and deciding

During the thinking and deciding component the participants had not only considered the possibility of attending university but, more importantly, they made a decision and started working on the process

in their own terms. Rather than an option, studying at university was seen by the participants as a natural post-high school step and, therefore, the pathway to achieve their personal development and independence as young adults with vision impairments. Going to university was not an all-of-a-sudden decision; on the contrary it started to take shape when the students were at high school. As some participants remembered, there was a strong motivation and desire behind their decision:

> *"I always wanted higher education. Also during high school I always thought about what I wanted to do and I always thought I wanted to go to university. So I tried hard and I got into university" (VIS-MO).*

The following sub-sections describe the prevalent transition issues identified in the thinking and deciding component of the exploring stage. ICTs were not found to play a role.

5.3.1.1 Family involvement

Although pursuing university studies was basically a personal choice, the majority of participants mentioned that their parents and close relatives influenced them in their decision for tertiary studies. For some students family members provided extra encouragement that strengthened their desire for a university experience:

> *"My parents always wanted me to go to university but I want to be a teacher as well. So that is the main aim" (VIS-GR).*

Family involvement helped the students to ponder the pros and cons of pursuing a university degree:

> *"It was a bit of both [my decision and my parents] because I used to go to boarding school and I kind of wanted to be at home. In that respect I definitively chose not to go anywhere else because I can be at home…They [my parents] wanted me to go like straight to university instead of having a year off or something. They wanted me to go [to Victoria University] because it was close to home instead of going to Otago [University] and having like extra student loans. They preferred I save as much as I could" (VIS-CO).*

However, while family support was beneficial for most participants, a couple of students did not have the same experience. One of them mentioned that going to university was her decision and that she did not count on her parents for advice. Although she told them her intention of enrolling at university they did not pay attention. She believed that her family background was the reason for the indifference of her parents. She remembered that nobody in her family had attended university before. For the

second participant family exerted too much pressure on him. At some point he felt "instigated" to study at university when he did not feel ready for it yet:

> *"I suppose it was my decision even when I decided not to go to university until now. I said: "I should go to university"… and [my] house sort of instigated me to go to university. It was in my mind. I sort of called it off initially because I didn't have the qualifications…and now I am here (laughing)" (VIS-BL).*

Participants put in a lot of thought before deciding to go to university. As one participant recalled, although her decision was made long ago, she kept thinking about it and waited for *the right moment* to start at university:

> *"I always wanted to go to university but I never wanted to go until I thought I am old enough to attend and dedicate myself to studying and not letting anything else get me away from that" (VIS-CA).*

5.3.1.2 Vision impairment

As noted above, thinking and deciding was based on participants' personal goals and motivations. However, it also involved early consideration of potential issues that may affect their studies. All the participants were aware that their vision impairment was one of these issues. For them vision impairment was a hindrance:

> *"It [my vision impairment] is definitively a barrier. The simple fact that I can't pick up a text and read it does have a huge impact on me. I have always had vision impairment, so I always said it is difficult for me to necessarily compare. I don't have any point of reference. I can't compare it with other people's experiences, who don't have vision impairment…I have always done things to compensate" (VIS-GE).*

As noted by another student, vision impairment not only restricts the way he performs a task but also how he interacts with others:

> *"It [my vision impairment] is a hindrance because obviously if you have the issue you often have to remind people that this is happening...It slopes me down…I wish everyone will dress in different customs or something because I can't tell one person from the next until they get closer. I make efforts. I do tell people to say hello because I won't see them" (VIS-BL).*

The students also highlighted that having vision impairment brought some extra considerations when thinking about university studies:

> *"Because of the disability I have, it does mean you need to think a little bit more beforehand. So, I would say probably even in Year 12, I was thinking about it and certainly Year 13, in high school, the final year, I was really planning and looking at what I am going to do once I am in Victoria, where I am going to live and obviously how my disability will impact on all these things" (VIS-GE).*

Despite the general awareness of the potential challenges imposed by their vision impairments, there were few students that did not think as carefully as others about this matter. These students thought that, to some extent, they could handle their impairment at university and perform as well as their peers without disabilities. They also believed that university life was not too different from high school, where, according to them, things where "pretty easy". However, once at university, these students realised that their impairment was making it difficult to meet their academic duties, particularly with reading course material.

5.3.1.3 Financial issues

The participants also reflected on the financial demands of undertaking tertiary studies. They started thinking about tuition fees and costs related to accommodation and transportation. Similarly, some of the participants also reflected on the prospects of gaining an academic degree. As one participant noted, it may be the *passport* to an independent life:

> *"There are not really a lot of jobs for people with visual disabilities who are transitioning from post-high school straight to the work force. There are very limited jobs here. So, you have to get your skills at university and pretty much you are almost guaranteed a job if you have qualifications" (VIS-JO).*

Based on participants' responses, ICT-based tools appeared not to play a relevant role in this phase. At this point of the exploring stage the thinking and deciding phase was still a reflective and internal exercise. The role of ICT-based tools in relation to transition issues was more manifest in the subsequent components of the exploring stage.

5.3.2 Seeking information and advice

Seeking information and advice was, to a large extent, a more active approach taken by the participants compared with the thinking and deciding phase. The participants did not stop thinking

about the implications of their decision to study at university. More significantly, in this phase, the participants decided to go to *the field of action*. This meant that they became information seekers. Thus, they referred to different and available sources for informed advice in order to clarify their doubts and concerns and be prepared for the university journey. The following transition issues were found to be significant in this phase. The role of ICTs is also described in regards to seeking information and advice.

5.3.2.1 Social connections

One of the main concerns of the participants was to find out what university was like. On the one hand they were searching for information regarding universities' entry requirements as well as the process of gaining admission and applying to enrol. On the other hand, they wanted to know how different university life was from the high school experience (for instance, class size, lectures and assignments) and the demands of their chosen degree and courses. It was common among the participants to seek information and advice from those people who held some level of expertise or had first-hand university experience such as high school staff:

> *"[I got] the support from people back home like the teachers at school. They all just supported me and helped me to decide where and when I want to go and how do I go about it" (VIS-MO).*

Similarly, friends and acquaintances were valuable sources of information:

> *"I have a friend who studies here and I asked her few things [about Victoria University of Wellington] (VIS-CA).*

One participant, who finished high school a few years ago and was already working full-time and living independently, remembered that his main source of information and advice was a staff member of a specialised recruitment service for job seekers with disabilities. He commented the following:

> *"In terms of transition I had a transition worker from Elevator [the recruitment service], if you have heard about that, who was particularly good. She gave me numbers to call and other great stuff" (VIS-JO).*

5.3.2.2 Disability support system

Once the students reflected on the implications of having vision impairment for their transition to university, they wanted to find out what kind of support was available at university in order to manage their particular needs. Among other things, the participants valued the academic prestige of tertiary

institutions and the type of degree and majors offered. However, more importantly, they put emphasis on the specialised support and resources offered to students with disabilities. Still as prospective students, some participants commented that they contacted and/or visited different universities before deciding on Victoria University of Wellington. The majority of participants commented that their decision about where to study was influenced by their needs to find a supportive environment to study:

> *"I was told by my specialist that Victoria University is one of the best universities for people with disabilities and that they have good facilities" (VIS-CO).*

Seeking information and guidance was a relatively easy step for some participants. As information and advice were available through different means, the participants were able to move from obtaining general university information to identifying specific services and support units for their needs. Having the support of friends and staff from high school helped these students to have an idea of the kind of support they could receive and make early contact with diverse units at university, in particular the Disability Services unit:

> *"I was actually advised at my school where there were several people who have disabilities and who go to Victoria. They obviously knew about Disability Services through the contact these students had had with it and I was also advised by course coordinators and careers advisers at school. They all knew that these things existed as well. Even, I think, when you are applying to university, when you get all the information about Victoria support for students and Disability Services is high in the list. So, for me, I would had to have my head in the sand to not to notice" (VIS-GE).*

ICTs played a role at this phase of the exploring stage. ICTs complemented and/or supplemented the information needs of the students in regard to available disability support. The majority of students mentioned that they referred to Victoria University's official website for accessing both general information and contact details of specialised staff. One participant remembered that via the Internet she become aware of the support offered to students with disabilities:

> *"I looked out in the website and I got in touch with the Admission Office, I think, and I discussed with them the fact that I was vision impaired and I wanted to find out what support is available for people with disabilities at Victoria University before I definitively came here. I think the next person I spoke to was a Disability*

Adviser, who, even on the phone was very helpful in getting things set up, even with the [Blind] Foundation" (VIS-CA).

5.3.2.3 Academic system

Once the students had decided where to study, some participants adopted a more pro-active information seeker role. For example, in relation to the academic demands of the university, some of them did not want only to receive university-related information: they also were interested in finding out about university *in situ*. They visited by themselves the university campus well in advance or close to the starting date of the academic trimester. In doing so these students reported that they were stimulated by the experience:

"When I visited here at the start of last year I saw the Pipitea Campus and I really liked it and I also heard great things about the University" (VIS-CA).

Adopting this kind of approach was also beneficial for the students, especially in terms of managing the trepidations of the first days of classes at university:

"Once I knew when my lectures and tutorials, actually, I went to find the locations the week beforehand and that made such a difference. You know, first thing Monday morning trying to find out lecture, theatres. With my vision [if I could see properly], it would not be an issue" (VIS-GE).

ICTs also supported the students in regard to finding out more about the academic system of the university before classes started. As with the disability support system, the official website of Victoria University of Wellington was an important source of academic information for all the participants during this phase. It complemented the information they had received through other means.

Similarly, the website named "Goingtouni", set up for this research via the learning management system Moodle, also offered some help, in particular for those participants who had worked on their transition to university in advance. As the system included a user report feature, I was able to gather information about the participants' activities in the website. One of the participants, for example, logged in three weeks before Trimester 1, 2013 started. She was particularly interested in the Getting Ahead section, which included information about managing course workload and other academic duties. She also retrieved the topics related to transition planning and what to do the first week at Victoria.

Another participant visited the Goingtouni website several times before starting his university journey in Trimester 1, 2013. He seemed also interested in the information posted on the Getting Ahead section. In particular, he visited the topic related to degree and course planning and watched the various YouTube videos posted on the section about transition to university:

> *"All the information that you posted there was all relevant, was all to do with university and transitioning and everything disability-related, not mattering if it is an intellectual, visual and any other disability" (VIS-JO).*

The participants, who joined this research when the academic trimester had already started or when they already went through their transition experience, also accessed the information in the Goingtouni website. They commented on the usefulness of the content for students with vision impairments:

> *"This is stuff that I have been looking for at the end of last year before coming to university… Definitively, first year students in general would find it really helpful. All the information, I think…has everything you need because usually we have to look at different websites or get booklets, different booklets, or find out all that stuff but it pretty much has a lot of stuff I was looking for last year on the website so I was like "this is cool"'(VIS-GR).*

5.3.2.4 Financial issues

The students also considered the financial implication of undertaking tertiary education. This issue affected the students in different ways. For instance, choosing the type accommodation where to live during the university academic trimesters was influenced by financial matters. Some decided to stay in their parents' homes because flatting "costs so much" and complained that living in a university accommodation was "getting expensive". Those students who came from outside of Wellington were concerned about how expensive it was to pay for rent in the city. A couple of participants were also worried about the cost of new assistive technology for university and looked at service providers such as the Blind Foundation for information and funding options.

Under these circumstances the majority of students commented that they looked for information about scholarships and how to apply for benefits. The cost of daily expenses was an issue, so the participants also wanted to know about student and disability allowances. Only few students commented to be "quite fortunate" in gaining a scholarship and/or grant to pay university fees and/or assistive technology. The majority of participants were worried about borrowing money for university fees and

having to pay it back once they finish their studies. One student reflected on this point in the following way:

> *"I have seen my cousins. They all went to university. They all lived in a town where the closest university was two hours away and so…They have a huge financial debt. They are in their thirties and they are still paying it [Student Loan] all. I don't want to be in the same situation. I prefer stay at home" (VIS-CO).*

While not all the students had applied for financial support, those who did so used the Internet to support their search for information about benefit eligibility and to download applications forms. Some students also visited the Getting Funded section of the Goingtouni website regularly. They clicked on the links to scholarships databases and disability allowance information.

5.3.3 Arranging support

In this phase of the exploring stage the participants started arranging specialised support from service providers and government agencies, but especially from the university. They still were interested in finding out about what university would be like. However, in the majority of cases, the attention was focused on preparing and having in place adequate support as they were becoming more aware of the potential transition issues or started experiencing them.

Arranging support was mainly, but not only, a pre-entry approach within the exploring stage. In some cases, support arrangements were initiated and set up well in advance when the students still were prospective students before the beginning of the academic trimester and even when enrolment was confirmed. However, as arranging support also demanded some lengthy administrative procedures, some participants were unable to receive the requested resources on time. They had to wait some weeks after their lectures and tutorials had formally started or when they were in the middle of their first assignments.

In other cases, the arranging support phase was initiated late by some participants, some weeks after classes started. This situation occurred due to the varying importance and/or awareness of certain transition issues. For example, it was common among some participants to focus on finding appropriate accommodation or a scholarship and/or grant to finance their studies. Nevertheless, they did not realise that they also needed to arrange additional assistive technology and learn how to use it. It was not unusual to see, for example, some participants approaching the Disability Services within the first month of the academic trimester to ask for support when some transition issues were worrying

them. The most significant transition issues and the role of ICTs identified in this phase are the following.

5.3.3.1 Disability support system

The students started arranging support outside and within the university. Outside the university they sought help from service providers such as the Blind Foundation (formerly Royal New Zealand Foundation of the Blind) and/or government agencies such as Studylink. Within the university the majority of participants referred to the different student services and support units. In particular they mentioned the Disability Services unit which became the liaison with the university's various departments and units and key source for transition advice and support. All the participants highlighted the support received from the unit at this phase of the exploring stage:

> *"In a word: fantastic. It has been absolutely brilliant. Since I first contacted [Disability Services] last year, any issue you have and are uncomfortable with it's been resolved. For me, once I have things in place for lectures and such, a large amount of follow up has to do with exam preparation, provision for exams, extra time, computers and all that has been handled incredibly efficiently and incredibly effectively. I never felt lost. If I have an issue they helped me and resolved it. Looking back at it, the fact that you have such strong services available for those with disabilities it really does transition a lot. It gives you such degree of confidence that when you come here things will be a lot easier" (VIS-GE).*

The participants, no matter the level of their own transition awareness, met their Disability Adviser to discuss diverse transition issues and arrange support to deal with them. For example, they discussed the different challenges of the academic system such as course workload and electronic access to course readings. In some cases the students were helped with accommodation matters, and disability or student allowance applications. They also received advice about using assistive technology, including online learning tools provided by the university, and information to manage the physical environment of the campus. One student, for example, remembered the first meeting with her Disability Adviser and the support she was offered:

> *"We organised my [weekly] tests and talked about getting around university, note takers and Workbridge [a professional employment service for people with disabilities]…I am happy with the service. It's quite helpful." (VIS-GR).*

Depending on the type of vision impairment, each participant and their Disability Adviser agreed to contact course coordinators to tell them about their personal needs (for instance, extra time for tests and appropriate delivery of course material). The Disability Adviser also made sure that each participant had an understanding of important course documents such as course outlines. However, considering their vision impairment, the participants were advised to take part-time studies to reduce the workload in their first-trimester and facilitate their adaptation.

In arranging support the participants used ICTs as a communication tool. Along with phones, their personal email accounts, for example, were used to register with the unit, to request an appointment with a Disability Adviser and to let the unit know about any new issue bothering them. As previously mentioned, the official website of the university was a source of information used by the students to find out the contact details of the Disability Services unit. While the students sought to arrange the support of the unit they also received further information about transition to university through Discover Your Future, a DVD with pertinent audio-visual information.

5.3.3.2 Academic system

The need for support arrangement among the participants was not only linked to the impact of their vision impairment on their studies but also the demands of the academic system of the university. At this point of the exploring stage one of the aspects that worried the participants was the lecture experience. When they met their Disability Adviser the majority of the participants wanted to know how "visual" lectures, tutorials and other teaching settings were. They were advised to receive support from a note taker in lectures. The participants were told that retrieving information on a whiteboard or from a data projector and listening to lecturers while taking their own notes would be challenging for them considering their vision impairment. Most participants agreed to receive the support of a note taker.

Another important piece of advice for the participants was to reduce the number of papers they either were enrolled in or the number they intended to enrol in. Most of them considered this option but decided not to go part-time.

During the unobtrusive observations conducted for this project, some participants let the Disability Adviser know that they were afraid of not being eligible for student or disability allowance as a part-time student. Depending on their personal circumstance, the Disability Adviser told them about the possibility of still receiving support holding a limited full-time status. Others, who were less concerned with financial matters, said that they could handle the workload of full-time studies as well

as any other student. However, through the subsequent transition stages, these students reconsidered their decision (see Chapter 8).

ICTs were also an important transition issue identified during this phase of the exploring stage. When arranging support the participants also needed to understand the different means of accessing course materials and university-related information. The participants were aware that their reading pace was slower. They also were told that the amount of reading at university differed from high school. As all of them used laptops the Disability Adviser suggested that they become familiar with electronic copies of their course readings. In this respect they were offered access to e-books or a copy of their course readings in CD format. This kind of arrangement was common among the participants.

The participants were also encouraged to familiarise themselves with Blackboard, the university's learning and course management system. During their first meeting with their Disability Adviser the participants received basic training related to using the platform. Rather than focusing on the technicalities of it the Disability Adviser made sure that each participant understood that Blackboard was the main source of course-related information and updates as well as course material. At this point of the exploring stage few participants had some idea about Blackboard but most of them did not explore yet its features.

5.3.3.3 Physical environment

Another issue of concern was the university's physical environment. The participants wanted to know how accessible it was and how to cope with it. At the time of conducting this research the Kelburn campus, where most first-year students were located, was undergoing re-development work. The participants and their parents (if they were accompanied by them) were shown accessible routes to make it easier to navigate through the different buildings of the campus. For those participants who did not visit the university in advance there was fear of not being able to walk around university:

> *"I was too busy to come to the orientation week [and] I was so freaked out about getting lost before I started at university. I was like I will never find out any of my classes" (VIS-GR).*

To ameliorate the impact of this issue some students received an updated paper-based and electronic copy in PDF format of the campus accessible map and were offered a campus tour with the Accessibility Officer, if required. Dealing with the physical environment issue also included other spaces such as lecture theatres, classrooms, the library and labs, including their furniture and

equipment. The participants were also asked about any issues with lighting and whiteboards, for instance, so they could be accommodated if possible.

5.3.3.4 Family involvement

For some participants family involvement played a relevant role in terms of support arrangement. In some cases their parents not only helped these participants to find information via the Internet and other means but they also contacted the Disability Services unit on behalf of the student and arranged the first appointment with a Disability Adviser. The majority of family members, particularly parents, who were involved in the transition planning of these participants also attended the first appointment. All the participants whose relatives actively participated in their transition met with their Disability Adviser well in advance before the academic trimester started and managed to have support arranged on time. Family involvement was also important for the students coming from the regions as their relatives helped them to find appropriate accommodation, enrol in university and apply for a student benefit.

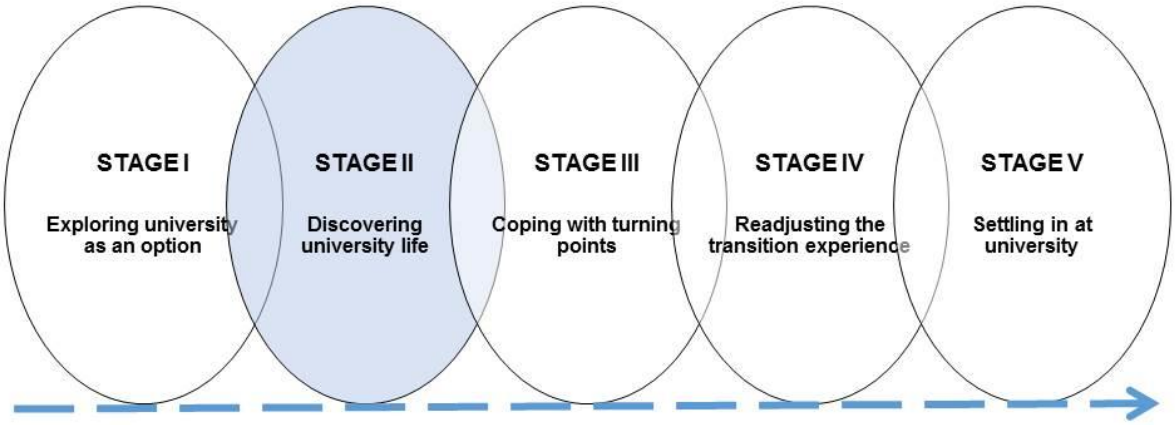
5.4 Chapter Summary

This chapter has described that transition to university starts well before students with vision impairments formally become part of the university. The exploring university as an option is a stage in which the students seek to face, on their own terms, the potential issues that may affect their university experience. They reflect about these issues, look for university related information and also specialised support to manage the potential impact of their impairment. In other words, they try actively to understand how university life functions. In doing so family, friends and other connections are also important means to make early sense of transition to university. The following chapter will describe the second transition stage and how students with vision impairments experience the first weeks of their university experience.

Chapter 6: Stage II – Discovering University Life

6.1 Chapter Overview

In this chapter I describe the "discovering university life" stage of the transition to university. In this stage students with vision impairments are formally university students and start facing different transition issues in a real university context. Along with coping with the academic challenges of the university, the students face other issues such as the physical environment of the tertiary setting and transportation. The responses to these issues are individual but also require the support from others. At the same time the students experience pressure and anxiety, among other feelings, as part of being a new student. This chapter also includes the main role played by ICTs that will help the students to make sense of their transition journey.



Transition 2.0 for students with vision impairments

6.2 Discovering

The discovering stage of the transition process refers to students with vision impairments' first formal encounter with the tertiary setting as university students. It begins from day one of the academic trimester and lasts, more or less, through the first weeks of classes. In contrast with the exploring stage, in which the students try to "figure out" how university works, the discovering stage is epitomised by the first-hand experience of university life. In the discovering stage, rather than identifying and anticipating potential transition issues, the participants start experiencing them.

In this stage students with vision impairments start to feel the change from one educational experience to another, from the high school to the university setting. This change is particularly related to habituating themselves to the conventions and responsibilities set by the tertiary setting. In high school the participants rely on the support of dedicated staff, specialised on disability matters and who take responsibility for their education and learning. However, at university the participants deal with their study responsibilities on their own. What is more, they abruptly find themselves in charge of their own learning.

Discovering is a transition stage in which the students experience several emotions in a relative short time. They feel a sense of being loss and loneliness when arriving in a new and unknown environment. They also feel overwhelmed by the nature of the university setting and start feeling the stress of dealing with their study duties. There are also confusion, frustration and anxiety. However, as the students seek to respond effectively to the arising transition issues during the start of the academic trimester, they also start experiencing positive feelings.

The discovering stage shows that some transition issues can be more prevalent than others. Some of them can be also more challenging and even longer lasting than other issues depending of the perception of each participant. Similarly the discovering stage shows that transition issues are interconnected and that, similar to the exploring stage, these issues can be enablers and/or barriers of the transition to university.

The use of ICTs for the transition to university is also manifested in the discovering stage. In this stage technological tools are used by the students to access relevant information and to support communication. ICTs are also used by the students to enhance their learning experience, compensate for the effects of their vision impairments and to arrange disability support. In general, the students use ICTs in different ways according to their personal needs caused by their vision impairments.

6.3 The Elements of the Discovering Stage

In this section I describe the two elements of the discovering stage: encountering university and piecing together the puzzle. In each of these two parts I report the main findings about transition issues related to these elements. The role of ICT is also described in the context of piecing the puzzle component.

6.3.1 Encountering university

Encountering university started at the beginning of the academic trimester. It involved the formal inception of the participants to university life as such and the experience for the first time of a number of situations and events as university students. During encountering university the main experiences of the participants were related to the following transition issues.

6.3.1.1 Physical environment

When classes started the participants had to face one of their first transition issues: the physical environment of the university. The issue affected all new students without distinction, however it was particularly challenging for students with vision impairments. Lighting, signage and building elements of the university's physical environment (in connection with their vision impairment) added some difficulties to the campus navigation and building access experiences of the participants. One student remembered, for example, that "by VUWSA [Victoria University of Wellington Student Association] there are glass doors, which I've walked into three times". Regardless of their prior awareness about this transition issue, being in an unfamiliar physical environment generated on the students a feeling of lost and uncertainty during the first weeks of the trimester. Another student, who had previously visited the university to have a better idea of its physical environment, mentioned that, despite her precaution, she got lost:

> *"I thought I was going to get lost. I have been lost on campus many times. I found myself walking around the same part many times [laughing]…In Murphy building is where I got lost because it is quite strange…[Although]all the buildings are interconnected I still find easier actually to walk out of the building and down the street to find where I need to be going" (VIS-CA).*

The physical environment issue was not solely restricted to accessing buildings and finding out a secure campus route. It also conditioned the learning experience of the students at the beginning of their first trimester at university. Precisely, the students commented that they were usually distracted and lost concentration because of the physical environment of the lecture theatres, its infrastructure

and facilities. Independent of the kind of vision impairment, all the participants reported some issues with the lighting level in the lecture theatres and tutorial rooms. Similarly, the white background of boards caused contrast problems for them:

> *"Mainly the whiteboards were quite problematic; like some of them in the older rooms...if a whiteboard is quite old it's got that kind of black smudges already on it that doesn't come off. That is a pain because I can't separate that and what they [lecturers and tutors] are writing on the board" (VIS-CA).*

The limiting features of the university's physical environment also included the use of certain non-permanent colour pens which made it difficult for the students to distinguish and read drawings and notations on boards:

> *"I sit in the front row. So, sometimes I can see the whiteboard. It just depends on how big the lecturer writes and with what colour pen. I can see best with black pen on whiteboard but I can't read orange or green" (VIS-GR).*

6.3.1.2 Academic system

The academic system was another important issue experienced by the participants during the encountering component of the discovering stage. Facing it was for the students an abrupt clash and also a significant change in the way they were used to learn and being taught. The first encounter of the students with the academic system occurred when they attended lectures for the first time. To a certain extent the participants had some awareness about the academic system due to the information received and/or the support arranged during the exploring stage. However, in the discovering stage the situation was different. They had to deal with practical matters in a real university context such as preparing themselves for lectures, rushing to get there on time and, if possible, grab a seat close to the front so they could compensate their limited vision, among others.

As a consequence of the "first lecture" episode, the participants started comparing their previous high school experience with the one in the university setting. At first they were impressed by the "large" number of students and the "distant" atmosphere and varied size of lectures (some with thirty or forty students and others with over two hundred as noted by the participants). They contrasted university with the "comfort" and "familiarity" of the high school setting where they "know everybody". Then another situation started to bother them. The participants needed to deal with the "overwhelming" volume of information being delivered in their lectures. Reflecting on this point, one of the participants

highlighted that information processing was one the first skills she needed to learn quickly. This is what she commented when still distressed in the first weeks of the trimester:

> *"It [university] is so much different from high school. In high school they [teachers] teach you how to take in the information as well. Whereas here, they (lecturers] just blast it at you and then you go to the tutorial and they [tutors] kinda blast you with more stuff and then you are reading a book. I wish I would not finish high school because I don't know how to process information a little bit" (VIS-CA).*

In the first weeks of the trimester the participants also found university workload especially demanding. The majority of them were enrolled in three or four courses so they had to deal with the workload of full-time studies. The range of subjects they enrolled included the fields of Law, Social Sciences and Humanities. Besides attending lectures and tutorials, the academic demands of the university included writing assignments, reading course materials and doings tests and labs. Overall, the participants found that the academic system of the university kept them especially "busy":

> *"Because I was doing two English papers and one Classics paper, there were a lot of books to read and it just got overwhelming because it was so much stuff to do. Like I had to read maybe fifteen books in the trimester" (VIS-GR).*

The difference between high school and university cited above also referred to a different level of involvement of lecturers in relation to teaching the participants. The participants reflected on this point and understood that building the same kind of closeness and interpersonal relationship, as the one they had with teachers in high school, was going to be difficult. During one of the first group meetings one participant felt upset about this situation and called to mind that in high school "you always can talk to the teacher". Conversely, other participants perceived the new situation as an incentive to learn some skills such as being accountable for their own study-related work:

> *"It is very different in the way the lecturers and tutors are involved. Teachers, they are like if your homework is due on Friday and you don't have it on Friday so they say: bring it on Monday or something. With lecturers and tutors, either, it is: bring it in or it is your fault and you deal with that. I think that is good to make people responsible" (VIS-GR).*

6.3.1.3 Disability support system

In facing the academic challenges of the university the students also become aware that at university the disability support system operated differently than in high school. Although some participants had arranged some support through the Disability Services unit or/and the Blind Foundation, they considered they were still "on their own". For these students it was no longer the case in which they had at their disposal the support of dedicated high school staff that looked after their study-related matters and learning. By contrast, after the first lectures, the participants found that at university they were in charge of their learning, that they needed to become independent learners and that they were in disadvantage compared with students without disabilities. One participant summarised this point in the following way:

> *"At high school everything was changed to suit me, kind of thing. If I had trouble doing something at high school, they [high school teaching staff] were either making it simple enough for me to do it or I just wouldn't set that part. Whereas is at university they are not going to change it to suit me. I still have to do the same work as the other students" (VIS-CA).*

6.3.1.4 Vision impairment

In the discovering stage the participants also faced the impact of another interrelated transition issue: their vision impairment itself. As discussed in the previous chapter, when still in the exploring stage the participants had foreseen the potential effects of their vision impairment on their university experience. Although most of them had arranged in advance some support to ameliorate and/or compensate its impact, their vision impairment remained a significant transition factor when the trimester started. Along with the difficulties in lectures to see what was on boards or PowerPoint slides, all the participants mentioned that their vision impairment made it physically challenging to read course materials:

> *"It is really hard to read. I get really tired when I read and it takes a lot longer. [In Law] you actually have to read. You just can't listen to it and comprehend it in your own fashion" (VIS-JO).*

Along with the tiredness caused by the "heavy" course workload, the participants reflected on other collateral effects of their vision impairments. Another participant also emphasised how demanding and time consuming it can be reading course material:

"In Politics you get quite a few readings quite frequently. The problem is not necessarily that I can't access them but the amount of reading and speed. The amount of time I lose just to try to get some more reading is terrible, just terrible. Even if I am scanning first, it can take an hour, probably, at least twice as long as most people get through something" (VIS-GE).

6.3.1.5 Transportation

Transportation from and to the university challenged the students at the beginning of the trimester. This issue affected all students, including those coming from Wellington. Although the students, in general, outlined the options and quality of the transport system in the city, they commented that taking a bus was sometimes a "daunting", if not an "annoying" experience. They remembered some incidents such as being unable to read the "really tiny print" of the timetables on the bus stops. All the students also commented that distinguishing the route number of the buses "gets bad, sometimes":

"With buses, when I am waiting for a bus to come, I can't read what number they are before I jump on. Sometimes I am like "Is that my bus? I can't tell!". I need the bus to be right there before I can read the number on it or read what it is and that is annoying. A couple of times, I actually missed it because my eyes are adjusted too slowly to get on the bus" (VIS-MO).

Yet once inside the bus or train a couple of students commented that traveling can be a difficult experience as well. Because of their vision impairment these participants considered that they "don't have good balance" and therefore it was hard to stand still when the bus pulled over:

"I hate taking the bus sometimes because you have to make sure you are there plenty early enough and you are basically waiting five minutes before the bus comes so you can sit down because with my vision impairment standing up on the bus, when it is moving, is not easy" (VIS-CA).

A few students took taxis to be on time for their first lectures, and also when they were "running late" or when the day looked "busy or wet". However, they quickly realised that taxis were an expensive option and decided on buses or trains as their main alternative. On the other hand, similar to available literature (see Chapter 2), driving was not an option for the students and cycling was not considered either. Participants' vision impairments made it hard to ride a bicycle.

6.3.2 Piecing together the puzzle

Piecing together the puzzle refers to students with vision impairment trying to cope with the first transition issues they started to experience at the beginning of the academic trimester. While these responses were the result of personal decisions, the students also relied on their social connections and other resources to manage and understand the first weeks of the "the puzzle", namely their transition to university. In coping with transition issues the students also used a range of ICT tools from assistive technologies to Internet applications.

6.3.2.1 Physical environment

Eventually, after the first weeks of the academic trimester, the participants managed to find their way round the university's physical environment. A common strategy to cope with campus navigation was setting a route and finding out short cuts.

> *"To start with it was a bit difficult to find my way round. But now that I have been here for a few weeks now it's a little bit easier and I have found some short cuts and I really love elevators" (VIS-MO).*

Meeting other students with vision impairments was also useful to manage the challenges of the physical environment. In the first two support group meetings the participants were interested in discussing campus navigation with their peers and advised each other about using set routes and not deviating from them. The precautionary measure was effective and helped them to gain confidence and become familiar with the campus:

> *"Thus far, I have found Victoria to be highly amenable to the facilitation of my needs. Despite initial trepidation regarding campus navigation, familiarity has bred confidence. Perhaps the only issue of note has been the topography of Kelburn; specifically the regular 'commute' from Te Puni [University Hall] to my lectures. To resolve this, I have attempted to locate the least obstructed and physically taxing routes. Often, I have found it beneficial to enter the habit of locating and utilising a single path between regularly frequented destinations" (VIS-GE).*

Responses to the physical environment issue also included the participants discussing their campus navigation difficulties with their Disability Adviser in their follow-up appointments. In one of the first support group meetings one of the participants mentioned that at the beginning of the trimester she

arranged a campus tour via Disability Services. She received guidance from the Accessibility Officer who "has shown me around the accessible route, which has made it [campus navigation] easier".

In relation to lecture theatres and tutorial rooms, a common response of the students was to identify suitable spots in the classrooms where visibility was, more or less, appropriate to them:

> *"I found a part of the lecture theatre, in the front, just in the left, where it is more agreeable for me to sit and see material more clearly" (VIS-GE).*

The use of ICTs also supported the students in this stage of their transition to university. Having access to an online copy in PDF format of the university's campus access map helped the participants in terms of getting to know how to move around the campus and accessing its buildings. The campus access map was accessed by the students via different ICT tools. It was emailed to the participants by the Disability Services unit. Some students commented that they downloaded a copy of the map from the university website or the Goingtouni website.

6.3.2.2 Academic system

Some students sought to piece together the puzzle of the academic system by adopting a straightforward and pro-active attitude. These participants shared their approach with other research participants and commented that they personally approached their lecturers and let them know about their needs in the classroom:

> *"At the beginning of the trimester I went and spoke to my lecturers: this is me, this is what I have, these are the things that help to alleviate these issues and I am happy to contact you if anything else comes out" (VIS-GE).*

One student, who also attended the group support meetings, felt encouraged to follow the same approach as "this has given me the idea that I need to ask my lecturer to make the PowerPoint slides just a little bit bigger so I can see them". Similarly, another participant found that "speaking out" at the beginning of the trimester paid off. She learned from the lessons of their peers, "summoned up the courage" and did the same at the start of the following trimester:

> *"This trimester in Film I talked to my lecturer a lot. He is really nice. He prints off the slides for me before the lecture starts; so I get the slides right in front of me; so I can write notes when he is talking without having to look up all the time. It is right there and it is easy to focus on" (VIS-MO).*

As described previously (see Chapter Four), in the exploring stage the participants already employed some ICT tools for their everyday activities such as video and online gaming and shopping. In high school some participants already used screen magnifier software to enlarge texts. A few others did not employ any ICT tools for their school-related work as they considered that their vision was still "fine" to read "enlarged handouts in A3 paper format" provided by their teachers.

However, once at university, all the participants realised that having vision impairment and facing at the same time a "busy" academic environment required the use of some other specialised and appropriate ICT tools. For instance, one participant found that her smartphone's text enlargement feature complemented her vision needs when reading course content. As mentioned, the students also found it useful accessing course material in advance but especially in digital format:

> *"In the first trimester, I did ECON 130 and the lecturer kind of talked and referred back to the slides and graphs quite often, and of course I couldn't read them. It took a couple of weeks for me to get them; a full version of them emailed to me by the lecturer" (VIS-CA).*

Other uses of ICTs to manage the academic system are also interconnected with other transition issues, which are described in the subsequent sub-sections.

6.3.2.3 Disability support system

Available disability support played a significant role during the first weeks of the discovering stage. The students concurred that without it they "probably would have struggled a bit more" at the beginning of the first trimester. The students not only related the impact of the disability support system on managing their vision impairment but also other interconnected transition issues such as the transportation, physical environment and academic system. One student, for instance, commented that she received advice and help from the Blind Foundation to apply for the Total Mobility Scheme, which provided her with vouchers to pay for subsidised taxi services. This made travelling from or to university easier, safer and faster. In doing this she also benefited from reducing the cost of transportation.

The support received from different university's units and departments was also highly regarded by the students. At this point of their transition the students were still getting used to the idea that the support system operated differently at university. However, they were also aware that without assistance coping with the challenges of and the anxiety caused by the academic system would have been more difficult. In that sense they outlined the role of the Disability Services unit, in particular,

after the first week when academic demands and duties increased. The majority of participants received the support of a note taker in lectures and others mentioned the utility of the Access Suite where students with disabilities had available a range of facilities including assistive technologies. All the students highlighted the Disability Services liaising with lecturers and course coordinators to sort out some difficulties during the first assessments:

> *"With the tests and stuff, they accommodate you. You go to a separate room by yourself and do the test and, for me, they give ten minutes extra and it is on a paper, sixteen font and A3 paper. They accommodate in a way that I don't have to stress myself. I am able to concentrate" (VIS-MO).*

Getting to know how to move around the university campus was one of the early concerns of the students. Some participants asked their old high school friends who also were studying at university for help. A few students, who mentioned they did not know anybody, sought assistance from the Disability Services staff and its volunteers:

> *"At first I was overwhelmed by the amount of students and how large the campuses are and how, as a vision impaired student, who isn't from Wellington, I couldn't find anything on campus, which was frustrating; but having a note taker in the classes was very handy because I can meet them outside of the lecture theatre and ask where is the right one" (VIS-CA).*

The students also highlighted the role of ICTs during this stage of their transition to university. Some participants commented on the usefulness of the assistive technology provided by the university. According to the students these tools supported their learning experience while ameliorating the impact of their vision impairments:

> *"Now that I have disability support I have the support that I need I am able to manage with it. Like in the Access Suite, there is CCTV which can make the words big...The support from the university actually helps me to manage my reading stuff. With my tests they [Disability Services] accommodate me to have it in big font so I don't have to concentrate as hard." (VIS-MO).*

A number of students also commented on the utility of other ICT tools used by the Disability Services unit. For these participants the use of email made it easier to communicate with their Disability Adviser. Also, receiving email newsletters periodically complemented the way they accessed

university-related information. The participants who had the support of a note taker also pointed out how their learning experience was improved by receiving an email with notes of the lectures:

> *"They email me notes weekly from the classes because it is hard to me write note for myself sometimes and having someone else in the class doing it for me really helps. I am like: "oh, that it's what they mean by that"" (VIS-MO).*

6.3.2.4 Vision impairment

Despite being aware of the impact of their vision impairment, most participants were still relying on their remaining vision as the main means to assimilate course content. During their follow-up appointments with their Disability Adviser and the first social meetings, for example, the participants were encouraged to use other senses such hearing instead of depending only on their remaining vision. At the beginning some of them were reluctant about the idea because "I am not feeling as I'm getting as much". However, as lectures continued and more course work needed to be done, these participants started reconsidering their view. This is what one participant said after her first couple of weeks at university:

> *"I really need to stop relying on seeing something to understand it and start visualizing what I hear because I can't see any of them [lectures and course readings]. My textbooks, I have them for a while now and I remember saying "I can read some of these" but then it is like "wow!" the writing is really small. I can't read any of them" (VIS-CA).*

Eventually those participants who decided not to force anymore their limited vision but to use their hearing sense, found in some adaptive technologies the medium to minimise the impact of their impairment on their transition. For some students digital voice recorders were a useful tool. They employed these devices to record lectures and tutorials and then uploaded the audios on their laptops or smartphones for an additional listening and comprehension. In terms of coping with the demands of course readings, a couple of students were open to try adaptive technologies they did not know about before coming to university. They tried a text-to-speech software that allowed them to listen to content on the computer screen as well as on printed documents and other graphic-based text:

> *"I have OpenBook [a scanning and reading software], ZoomText [a magnification software] and I've also got a recorder to take to lectures as well…OpenBook and the recorder do help. I like OpenBook because I can look*

at the stuff that is there anyway and even if I am not reading it following it is enough" (VIS-CA).

6.3.2.5 Transportation

As reported, the students commented that their vision impairment made it hard to take buses and trains. They analysed and took different measures to manage the transportation issue. Eventually the students coped in the subsequent weeks of their first trimester at university. One participant mentioned that, rather than travelling alone, she decided for family company to return home:

> *"Usually I catch the train with my dad because I finish the same time he does so we usually get the same train"* (VIS-GR).

A few students decided that walking from or to university, including other facilities such as a supermarket, was a convenient option as long as they did not have to commute long distances. The majority of students decided to restrict the use of taxis only to occasional situations. The students also had their own strategies when waiting in the bus top such as making "sure you are there plenty early enough and you are basically waiting five minutes before the bus comes". One participant commented how she managed not to take the wrong bus:

> *"Normally, I follow other students to know if it is a university bus and see the number on the side but I also make sure that I am standing in a position where I am going to be able to read the numbers and I am lucky because in the Railway Station there is only a certain amount of buses in that one stop"* (VIS-CA).

Some students also learned that ICTs can be of utility to manage the transportation issues. A few students used their laptops, tablets and smartphones to access bus timetable information via the Internet:

> *"I learned to look for it [bus timetable] at home. I got my computer set to really large fonts so I can read it. So, I learned to do it at home before I take the bus. I can make my internet screen bigger so it makes it easier to read".*

6.4 Chapter Summary

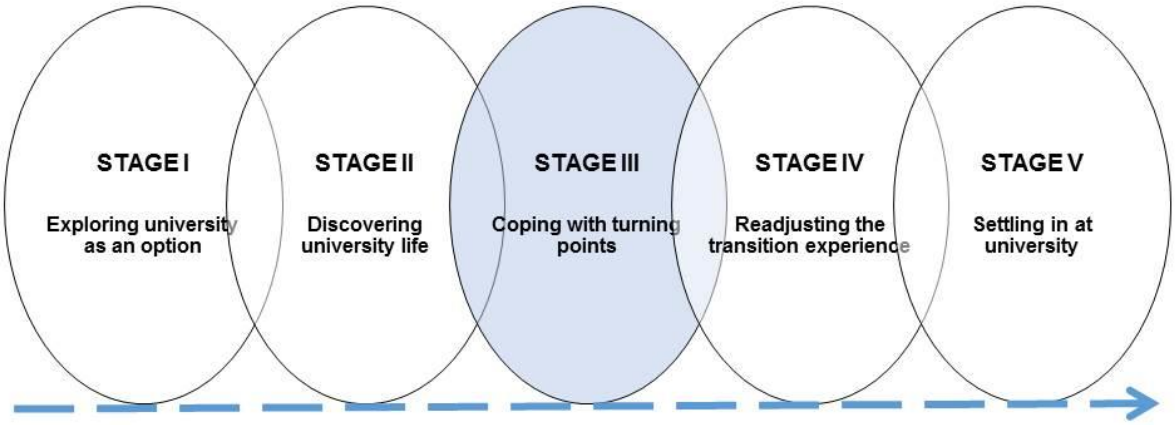
This chapter has described the discovering university life stage which involves both encountering university for the first time and early attempts for piecing together the puzzle of the transition to university. As describe above, ICTs are used by the students to support their responses to transition issues and make sense of their university experience. Independently of the kind of preparation and

transition planning the students try to respond actively to the different transition issues. The discovering stage provides some indications that transition to university not only is a personal journey for students with vision impairments but also a collective experience. This point is more evident in the next overlapping transition stage for students with vision impairments (see Chapter 7).

Chapter 7: Stage III – Coping with turning points

7.1 Chapter overview

The previous two chapters have described the first two transition stages for students with vision impairments. The first is a pre-entry stage in which students decide to study at university and then seek information and support. The second stage describes the students discovering university life for the first time as formal students. This chapter introduces the third transition stage: "coping with turning points". This stage involves pivotal events or situations that impact on the way the students construct their transition experience. The chapter also presents the different responses of the students to manage turning points and describes the way the students used ICTs in order to support their responses.



Transition 2.0 for students with vision impairments

7.2 Coping with turning points

Turning points are situational life events and/or personal, subjective experiences and realisations (King et al., 2003). They represent a significant shift regarding the self, identity and the meaning and/or direction of a person's life (King et al., 2003; Wethington, 2003). Turning points can be perceived as positive or negative, as life events and/or experiences may involve opportunities or risks to the person (King et al., 2003). They also can arise as cumulative episodes or an abrupt, single event. They can emerge either as gradual comprehensions or sudden understandings (King et al., 2003, p. 186). In some cases, turning points imply life events and/or experiences in which the person may undergo a significant change (McLean & Pratt, 2006; Tavernier & Willoughby, 2012). In other cases, turning points do not require the person to take a different direction to feel that a turning point has happened. However, the person "must have a feeling that new meaning has been acquired" (Clausen, 1995, p. 371).

Turning points can arise at any moment, however, as research outlines, those turning points that occur within a transition process are particularly salient, although the person may not recognise them as turning points when they occur at first (Clausen, 1995; Graber & Brooks-Gunn, 1996). It is argued that turning points that occur within transition processes may be more likely to result in behavioural change or in larger or more long-lasting changes, than turning points that do not occur in the context of a transition process (Graber & Brooks-Gunn, 1996, p. 769). Turning points that emerge within transition processes also provide opportunities to examine the emergence, the discontinuation, the alteration or the re-patterning of behaviours all in response to the contextual demands brought by the transition experience (Graber & Brooks-Gunn, 1996, p. 769).

In the context of this study and based on the individual experience and perception of each participant, I use the term turning points to describe those critical life events and/or experiences that had an impact on the transition to university of students with vision impairments, to the extent that they experienced changes and/or acquire new meanings. Turning points involve the way the participants managed those significant life events and/or situations as well as the resources and tools they use to support their responses. The findings of this research show, for instance, that turning points can be caused by the events around course workload. This experience may be regarded as demanding to the point that the participant feels stressed. The turning point for the participant may come with the realisation that, at university level, she or he needs to develop specific study skills and also adapt to the culture of the university environment and its demands in order to reach her or his academic goals. While this happens, the participant may also seek support and advice from family members, friends, and staff

from different university support units; and also use ICT-based tools to search and retrieve information about managing the course workload-related turning point.

Similarly, from the perceptions of the participants, turning points during the transition to university are related to different transition issues such as the demands of the academic system, the need of suitable accommodation and/or the difficulties of making new social connections. While the participants are more likely to feel the impact of university-related turning points, they also outline that turning points based on non-university situations also affect them. As previously described, turning points may begin from perceived negative or positive situations. Failing the first test, being unable to make new friends or feeling homesick can be perceived as negative life events and/or experiences on their own. However, turning points may also emerge from positive experiences such as doing well in an essay or being able to make new friends at university. In the case of the participants of this research their turning points had, at the end, positive implications as they were a catalyst for personal growth and understanding of the transition experience.

ICT-based tools do not seem to play a relevant part when the participants initially identify and experience turning points for their transition to university life. However, the role of ICTs grew in relevance when the participants took actions to understand and manage turning points. During the coping with turning points stage ICTs were complementary means that supported the participants' responses to turning points caused by transition issues such as the university system and social connections.

7.3 The Elements of the Coping with Turning Points Stage

In the following sub-sections I describe the two elements of the coping with turning points stage of the transition process: experiencing and managing. In reporting about the findings related to these two components I describe what transition issues were the cause of turning points among the participants. I also describe what kind of resources the participants used to manage turning points and how ICT-based tools supported this purpose.

7.3.1 Experiencing

Experiencing relates to students with vision impairments perceiving and going through turning points. The students experienced turning points at any moment, and even over the course of the academic trimester. While, in some cases, the participants faced similar events (e.g. writing an essay for the same course), it did not mean that such events would become turning points for all of them. Thus the students were more likely to perceive turning points differently. At this specific moment, ICT-based

tools did not play a significant role as the experiencing component centred on the critical events undergone by the students.

7.3.1.1 Academic system

Students with vision impairments perceived that turning points were mostly caused by the academic system, in particular, when course workload and other academic responsibilities increased. One participant stressed that in her case a turning point appeared during the two weeks of the mid-trimester break. The "overwhelming" amount of readings due for three of her four courses was stressful and too much to handle. Considering her slow reading pace caused by her vision impairment she started thinking that she "chose the wrong papers". This participant was, thus, worried and distressed.

The turning point for her was to realise that she was not prepared for study duties on a full-time basis. Despite her transition awareness, she was still learning how to manage university responsibilities as a student with vision impairment. Her eye condition, which was diagnosed in Year 12 at high school, was progressively deteriorating. Thus, she also needed to understand the changing nature of her vision impairment needs.

For some participants the events around writing and submitting essays and/or assignments represented a "completely new experience". One participant, who was enrolled as a full-time student, mentioned that he was distressed with writing assignments and essays as well as course workload in general. He remembered these experiences as being frustrating:

> *"You want to quit university every day. I am being honest. It [the university experience] has its ups and downs. When you have a lot of work to do, you just don't want to do anything. It is something you get over it and then complain about the next assignment [laughing]. You have to do them [the assignments]. It is something that you just have to do" (VIS-JO).*

In the case of this participant the cumulative experience of having to write assignments periodically was the basis of the turning point: the understanding of the nature of university culture and the clarification of his obligations as a university student. As he mentioned above he understood that study responsibilities and duties were something that he had to meet and be able to handle.

Another participant also found that writing an assignment did not necessarily have a bad connotation. On the contrary she found the new experience of researching for her assignment topic encouraging. For her it was an exciting move from *ordinary* writing to *serious* writing. In the end the writing assignment experience was a turning point that made her feel empowered and capable of dealing with

her university duties and challenges. This experience helped her to ease her transition journey and increase her confidence:

> *"In the middle of trimester one, we were given a research project to do. We had to research a topic of our own choosing and I think that really opened my eyes about the experience of university because they [lecturer and tutor] gave us all the tools in the class to know how to go for and research something and we actually researched it ourselves. Everything that was on that piece of paper that I submitted was everything that I had written myself and I was really proud of myself and I guess amazed that from a blank sheet of paper I can write a thousand words of decent quality stuff [smiling] …and I got a good grade" (VIS-CA).*

7.3.1.2 Perceived academic performance

Academic performance was for some students the cause of turning points. While some participants were affected by failing marks for their assessments, others considered that final grades were the main academic outcome of the trimester. For instance, one participant remembered the first month of the trimester at university: Just a year ago she was at high school where everything was "pretty easy" and where she used to obtain "good" marks. However, once at university things turned upside down, particularly when she received her second assignment marked:

> *"I think in English, when I got my second assignment and I failed it again, I was like 'I hate this right now'. I was just so upset and I really wanted to cry especially because I put so much effort on that one assignment and still I ended up failing it and I did not understand why [I failed it]" (VIS-MO).*

For this participant the frustration of failing the assignment despite the effort she had put in to it generated a negative and also defensive attitude. She remembered she sought excuses to avoid her study duties such as "this question is too hard. I don't want to do it. I want to finish" or "the lecture is too long and boring. I don't want to go". At some point the situation was difficult to handle and she started contemplating dropping out of university. She explained that her turning point came with the reassertion that, for her, university was the way to fulfil her life goals:

> *"There were a couple of moments I considered it [to leave the University] but then I thought about it and said 'I have tried hard since last year to get here and there is no point to going back now. If I go home the only job available would be*

with muddy chickens and chicks'. That is a really big downgrade compared with trying for my dream which is drama teacher" (VIS-MO).

On the other hand, some participants perceived that the university system also triggered positive turning points. They mentioned that some experiences with specific aspects of the university system, such as lecturers' teaching style and getting good grades, were important causes of tuning points. One participant remembered in particular his elective Science course. As he was consistently doing well he started enjoying the paper and also feeling confident with the university environment. More importantly for him, the turning point came a few weeks before to the end of the trimester when he was told that he obtained one of the top marks for that paper. This participant also mentioned that he enjoyed the paper not only because he was committed to his study duties but also because the lecturer made classes understandable and easy to follow. The positive event boosted his confidence to the extent that he experienced a sense of self-efficacy. Despite his vision impairment, he realised that he was able to complete university-related tasks and reach his study goals for the trimester.

"The lecturer said to me when he contacted me that I was able to obtain the top result that has ever happened in twenty something years. For me it [the Science course] was the right thing to do. It was off the top because I enjoyed the subject" (VIS-GE).

7.3.1.3 Social connections

Finding new friends in an unfamiliar university environment was a challenging experience and a significant cause of turning points for some participants. Those who attached importance to the social connection issue saw their peers as potential new friends and sources for study-related support. However building a network of new friends was not an easy task and, in some cases, the effort took most part of the trimester with unproductive results. Reflecting on this situation, one participant described her experience in this way:

"I wouldn't say I made many friends but I would say I made acquaintances…" (VIS-GR).

Another participant highlighted that the lack or scarcity of new social connections at university was a significant turning point for her. For most of the trimester she was struggling to meet new people. Although she tried, she barely managed to talk with a few of her classmates and have a discussion about course-related work. The lack of new friends from lectures who share university-related

experiences made her feel isolated. She was reminiscent about her past boarding school experience and the friends she left there.

> *"Yes, [I felt] a bit [isolated]. All my friends from school have moved on and I can't see them which is kind of annoying" (VIS-CO).*

Rejection can be also the origin of turning points. Another participant described her first attempt to make new friends as "horrible". A turning point for her occurred when another student made her feel unwanted. As a new student coming from one of the New Zealand regions, she thought that "getting on" quickly with her University Hall's roommate was a good idea in order to not to feel lonely. Her effort was frustrated when a couple of days after she arrived to the flat her roommate decided to leave apparently because of her. She reflected on the impact of this situation in the following way:

> *"The roommate thing I think it did [affect me]. Like, in the first week when she moved out I was very upset and I wanted to go home and quit. I was upset that I just moved to a new place and already someone judged me and didn't like me. I didn't even want to start at university. That affected me as a whole" (VIS-MO).*

In the case of this participant the turning point came with the realisation that, from now on, she was on her own and, therefore, she had to adapt to the new situation and the new environment. For her making new friends at university was related to her need for social interaction. However, trying to replace old social connections with new ones was a clash for her. It was the first time she was living independently and far from home. She tried to make herself feel at home in an unknown environment by meeting new friends but her attempts were fruitless.

It was interesting to find that those participants who highlighted social connections-related turning points did not mention their lack of interpersonal and social skills as one of the causes for their shortage of new friends. On the contrary, the majority of these participants put the responsibility on the university itself. A couple of participants considered that the nature of university life prevented them from meeting new people as they were busy with their course workload and study duties. In other words, they related the lack of social connections to the demands of the academic system:

> *"You go to a lecture and it is like an hour or two hours, or whatever it is, and you sit there. It is like you can but you really don't have the time to get to know other people in your class because the lecturer is lecturing and you are busy" (VIS-CO).*

Vision impairment can be another reason for the lack or shortage of social connections. One participant, who mentioned to have "trouble meeting people", did not think that his interpersonal skills made it difficult for him to make new friends at university. He thought that it was his impairment, which was progressively deteriorating, that was the main cause:

> *"The eyes seem to be a great communication tool because I don't see people. I wish everyone will dress in different costumes or something because I can't tell one person from the next until they get closer. I make efforts. I do tell people to say hello because I won't see them…I look like I can see properly so people, I don't know, people assume [I can see] but when you wear your dark glasses then they think you have a disability. So it is like that..." (VIS-BL).*

7.3.1.4 Financial issues

For some participants financial constraints also represented, at some point of the trimester, turning points that not only concerned them but also affected their study-related work. Before starting at university financial matters were one of the main issues the participants wanted to have sorted (see Chapter 4). Although some of them were recipients of scholarships and grants they still faced the issue of financial constraints. Even those participants who received support from their parents and were *better off* had to consider the effects of the financial issue before they took any decision such as choosing accommodation. In some cases as they were unable to work because of their vision impairment, they had to rely on either a weekly student/disability benefit or family support.

For one participant financial constraints were one of the main causes of distressing turning points. He finished high school four years prior to start at university and had lived independently since then. Because he had an income from a part-time job he did not qualify for any government benefit. He was economically supporting himself and although he was granted a university scholarship to pay for his study fees, he still struggled with living costs. Not having enough money to pay the rent was a situation that bothered him permanently through the trimester. Thinking about his living standard during his first trimester at university, he described it as "poor":

> *"I am already behind my rent. I have to work extra just to catch up. Sometimes it can be a pain when you skip rent because you have to pay something else. That has affected my studies a bit" (VIS-JO).*

Unpaid accommodation was not the only situation this participant faced as a consequence of financial shortage. In the first weeks at university he noticed that the assistive technology he already had was

not suitable enough for his university-related work. He needed additional ICT tools to compensate his vision impairment and support his studies. As he did not have sufficient financial resources to buy the required technology, he had to turn to the Blind Foundation for support. As one of its members he managed to obtain special equipment such as a personalised monitor and a laptop. He emphasised that "that stuff isn't cheap. Even if it is subsidised, it isn't cheap". However, processing his IT request took some time. He received the adaptive technology after the first month of the trimester when some crucial study work was already due and he was struggling with essays and assignments. In his case financial issues clearly had an impact on his university experience:

> *"When assignments and essays started to come in, it [assistive technology] really became necessary and it was arduous to have to go to university every day to type the weekly assignment" (VIS-JO).*

7.3.1.5 Accommodation

Ensuring a suitable place to live was one of the initial concerns of the participants before starting at university. Once the trimester began the issue was still of high importance for them to the point that in some cases it was the cause of turning points.

For one participant his place of residence was distracting and affected his tertiary experience. Before starting at university he had been living with his brother in a place relatively far from the city and the main university campus. Then, as he gained entrance to the university, he decided to move and looked for an accommodation with convenient "location, shops, space, food, sleep and independence". He found a boarding house close to the university and rented a room there. However, as the weeks passed, he realised that the place did not offer a proper environment for studying:

> *"I am still dealing with it because I can't really study. I find that my concentration is broken there…They are professionals with a 12-year old son. It is a different environment. Your day ends when the son comes back from school…I can't necessarily concentrate in doing an essay there. At the moment I don't find that" (VIS-BL).*

From the experience of another participant, living in a suitable accommodation brought other side effects for her university experience. This participant, who had studied in a boarding school, decided to live in her parents' house in part because she wanted to have "time at home instead of going back to the hostel situation". She said that at home she had an adequate studying environment with "my own room, my desk and if I want I can study in a tiny room". Although she was pleased living with

her parents, she believed that spending more time studying at home also made it difficult for her to create a network of new social connections at university. She compared her situation with her peers who lived in a university accommodation:

> *"Living in a university hall has definitively an advantage; like everybody is close and you have time to get to know other people" (VIS-CO).*

7.3.2 Managing

Managing involves the responses of the students to cope with turning points. These responses not only were intended to overcome the *negative* outcomes of turning points but also to capitalize on turning points when they were perceived to have *positive* effects. Responses were participant-led initiatives. However, rather than being carried out in isolation, such actions still required the participants to seek support and advice from different sources such as their families, social connections and university support units and teaching staff. ICT-based tools were also useful sources used to manage turning points. The following sub-sections describe what transition factors helped the participants in managing turning points.

7.3.2.1 Disability support system

The participants of this research pointed out that access to disability support helped them to cope with turning points. One participant commented how the support system set up through the Disability Services unit helped her with a situation that was impacting on her course assessment in the first weeks of the trimester. She was concerned with the weekly online tests for one of her papers. As her vision impairment made it difficult to see properly the questions on the computer screen she decided to seek support. She first talked with her Disability Adviser, who then liaised with the course coordinator. The synergy between university staff resulted in a satisfactory outcome that helped this participant to manage the turning point:

> *"I met with my Disability Adviser every week to discuss things because I had problems with my Economics paper which had an online test to be done every week. Because they were on Blackboard we couldn't get them large enough and they were on the time limit. So, because of the time that it would take to read through the information and understand the graph that was provided, I would run out of time before I managed to answer all the questions. We spent ages trying to work out a good way to get around that and my Disability Adviser was on top of that as well...In the end, because it was on Blackboard, they couldn't change*

the font or take away the time number for me. So instead I was offered that my mark only would be taken from eighteen questions instead of twenty" (VIS-CA).

Disability support not only helped the participants to manage challenging academic-related turning points but also turning points originating from other transitions issues. One student, who was struggling to afford assistive technology for his studies, sought the support of the Blind Foundation. Assistive technology became "really necessary" for him when essays and assignment were due. The Blind Foundation awarded him a grant and after the first month of the academic trimester he received the equipment, a customised desktop screen which allowed him to read his own writing. Another participant also commented on the role of the disability support system. Since week one of the trimester she was a regular user of the Sutherland Room, a space for students with disabilities located at the Kelburn campus and equipped with adaptive devices and software. In her case the resources, facilities and physical environment provided by the university supported her academic needs but, interestingly, also helped her to relieve the lack or scarcity of social connections she complained about at the beginning of the trimester:

"Having access to the disability suite in the library is so convenient, so quiet. There is always room for you going there…There is a printer in there so you don't have to wait on the line. There are always spare computers. It is a nice environment where you get to know other people with disabilities. It is really lovely" (VIS-MO).

7.3.2.2 Academic system

Although the participants experienced turning points caused by the academic system, they also considered that the university itself offered the means to overcome and/or capitalize on the impact of those turning points. One participant, who struggled with the pressure of assignments, remembered how her lecturer and tutor's supportive teaching strategy helped her to deal with writing research essays. She already found the process of researching on her own demanding but more interestingly encouraging. She highlighted that the resources and guidance provided by her lecturer helped to make the process of writing an essay a satisfying experience at the end:

"In the middle of trimester one we were given a research project to do. We had to research a topic of our own choosing and I think that really opened my eyes about the experience of university because they [lecturer and tutor] gave us all the tools in the class to know how to go for and research something and we

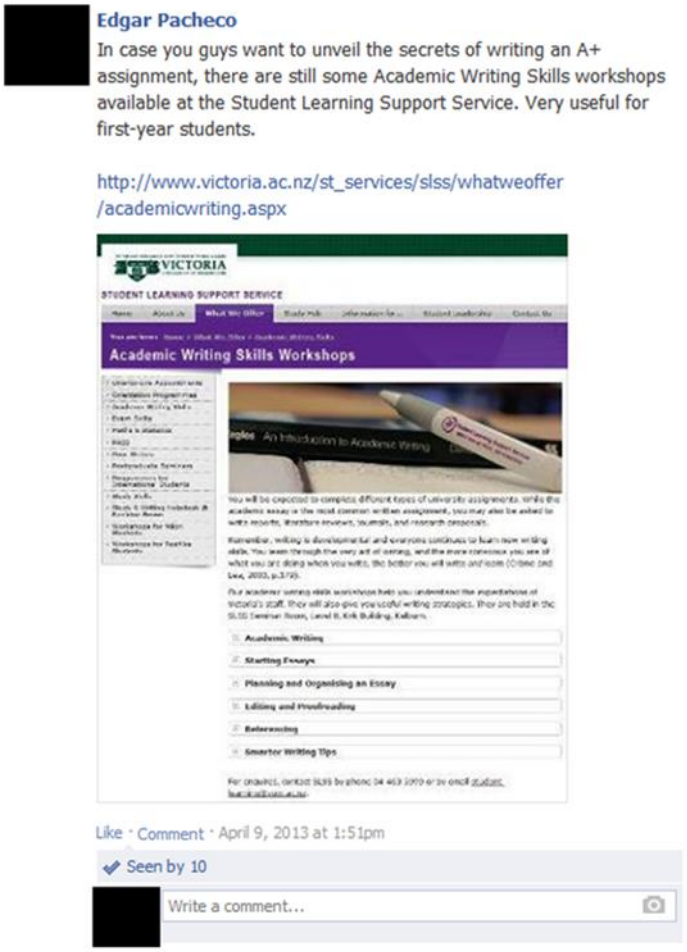
actually researched it ourselves. Everything that was on that piece of paper that I submitted was everything that I had written myself and I was really proud of myself and I guess amazed that from a blank sheet of paper I can write a thousand words of decent quality stuff [smiling]…and I got a good grade" (VIS-CA).

ICT-based tools also played a supporting part for the participants in their attempts to manage academic-system turning points. The majority of participants mentioned Blackboard, the university's course management system, as one of the tools that they used to deal with academic-related turning points. Although some of them struggled with the platform at the beginning, once they were used to it Blackboard became the primary source of academic information and resources and to some extent study-related online interaction. One participant, who was in trouble after failing in two of her assignments for the same course, commented that she used the forum feature of the platform to post questions and receive feedback from her classmates about writing assignments. She also highlighted that submitting the assignment online rather than "printing out this stuff and run somewhere to drop it off" was also a new experience. As a student with vision impairment it was difficult for her to mobilize from her place to the university, however "just being able to go to my own room and hand in the assignment [online] was really good".

A similar experience was described by another participant. She was pleased about the way some university teaching staff used social networking platforms to encourage collaboration among students. She mentioned that closed groups were set up on Facebook by her lecturer or, in other cases, by the class representative. Being able to "talk with other students" via social media was a positive experience that supported her on managing difficult academic situations such as writing assignments or doing a research project.

The online group set up for this project via Facebook was also an additional tool used by the participants during the coping with turning points stage. Information and links posted on the Facebook group sought to foresee potential transition issues (see Figure 6). They were selected considering the concerns mentioned by the participants in the group meetings, the conversations with Disability Services staff and what the literature says about transition to university. As described previously (see Chapter 5), the participants showed interest in the information and accessed the posts promptly, particularly the ones about sorting out academic system concerns.

Figure 6. A Facebook Group Post about Writing Assignments Skills



The Facebook group was a complementary source of information used by the participants to cope with academic system-related turning points. It was another way to access university resources and facilities. All the participants found the posts "quite useful". One student, for example, mentioned in particular the handouts in PDF format which she considered accessible and helped her about writing essays. She also had the same positive impression with the links to service units such as the Student Learning Support Service which she contacted for advice about developing study skills. Similarly, a couple of students highlighted how relevant were the posts about using library services. They mentioned that it was "handy" to know how to renew a book online just when they were facing the busy and challenging weeks of doing a research project and writing an essay.

Although comments of the participants about the posts were scarce, they accessed the information quickly via their laptops and/or smartphones which they carried and used daily at university. Once information was posted on the Facebook group (often in the mornings), it was accessed regularly by the participants:

"Rather than having to go to a separate website and scroll through it extensively to find things, you just open up Facebook and read the small paragraph, get informed and carry on with your day" (VIS-GE).

Through the "seen by" feature of Facebook, it was possible to have an idea of the interest of the participants in the information posted. Some participants commented that although they already knew or heard about the information they did not know how to access it. One participant commented on this:

"I looked at all your posts and I was like 'oh yeah, this is helpful'. I always used everything you posted. I always knew when you posted something because I got notifications saying 'Edgar has just posted on Goingtouni' and then 'oh, OK, what's up this time' and I just had a look. I heard about most stuff you posted but I didn't know where to look for it. It was very useful to have the page" (VIS-MO).

7.3.2.3 Social connections

Existing and new social connections also played an important role in the transition experience of the participants. As described above, for some students making new friends in an unknown university environment was an issue which impacted negatively on their university experience. However, social connections also supported them when they need to confront tuning points originating from different transition issues.

When turning points related to the academic system distressed some participants, they referred to existing social connections for emotional support and advice. One participant, who was thinking of leaving university because of a turning point caused by the assignment writing experience, sought the help of trusted people from high school. She talked with one of her former teachers who had previously supported her in deciding and choosing university studies. She highlighted that the support she received was crucial to managing her turning point:

"So I worked hard and I contacted my last-year drama teacher in high school who supported me completely. She gave tips and advice about how to stay focus. She really helped me last trimester. If she hadn't been there for me, I don't think I had finished last trimester. I had quitted [university]" (VIS-MO).

At the beginning of the trimester this participant also found it difficult to make new social connections from her lectures. She even felt rejected when her roommate decided to leave a couple of days after they met. Despite the negative experience she managed to meet "a bunch of new people" from her

university accommodation with whom she started socialising and studying together. A couple of participants, who also were living in one of the university's accommodations, regarded as important the fact of meeting new friends there. They coincided that sharing a common area with other students allowed them to find support and collaborate with each other about study-related matters.

For two other participants who were living with their parents, it was difficult to meet classmates from their lectures and/or tutorials. When a feeling of isolation started concerning them, these participants referred to their circle of close friends from high school for socialising, sharing university experiences and doing study-related work:

> *"All of my immediate friends [from high school] came to Victoria or Massey University in Wellington... Five of us used to meet; three of them have dropped out as university wasn't for them, but I still have one really good friend. We have the same breaks and hang out and study together" (VIS-GR).*

The group support meetings organised for this research also helped to alleviate the social connections deficit of some participants. Two of them, for example, did not know that they were in the same lecture until they attended the first social meeting. After that experience, as one of them said, they started "hanging out" sometimes before and/or after classes to talk about academic matters and "other stuff". All the participants who took part on the social meetings also stressed that the meetings were a "really good" opportunity to meet other students with vision impairments who have similar kind of needs. They added that the meetings allowed them to "learn from one another and share knowledge" about their personal university experience. One participant summarised her impressions about the social meetings in this way:

> *"Actually I think these social meetings have been very helpful. I always found it nice to get together with a group of people that have disabilities; especially with people with eye conditions or disabilities and just to sit around and understand where everybody else is coming from because you don't always get that in classes" (VIS-CA).*

The use of social media also helped to relieve the social connections deficit among some of the participants. Specifically, in an online exercise undertaken during one of the social meetings, the participants suggested using the Facebook group page instead of the forum feature of the Moodle website. The participants were all social media users and accessed the application through their laptops and smartphones. The social media exercise not only was an ice breaking activity but also it

warmed up the interaction among the participants (see Figure 7). The participants reported that they enjoyed the social media exercise.

Figure 7. Participant's Online Interaction via the Facebook Group

Interestingly, as a consequence of the social media exercise, the participants became Facebook friends and, more importantly, most of them used their personal Facebook accounts for online interaction between each other. After the social meeting they continued socialising online and sharing experiences and opinions about the information posted on Facebook. They did these via private messages rather than posting comments on the Facebook group page. One participant described her experience in the following way:

> *"I actually made friends with a lot of them [participants] on Facebook and we actually talk quite often now. I talk with X a lot. He likes me on Facebook all the time. I talk with a lot of them. I had never met them outside of the group. I made new friends through the group and it was very helpful just asking people in the group about stuff" (VIS-MO).*

Other kind of ICT-based tools also supported the need for communication and interaction of the participants with their social connections during the coping with turning points' challenging events and situations. The participants also had installed Skype in their laptops and used it for video and audio calling. Most of the participants were smartphone users too.

7.3.2.4 Family involvement

Family involvement and support was also an important factor that helped some participants in managing turning points. In some cases family support was expressed financially. One participant, for example, was distressed because it was the third week of the trimester and she was still waiting

for her student allowance application to be approved. She was facing money problems to pay for her expenses. She said that her parents' financial support during those difficult weeks made her to desist in her idea of applying for a student loan which needed to be paid back.

Another participant, who was facing a turning point caused by a course workload situation, also highlighted the importance of family involvement during the difficult moments of her transition experience. She sought the advice and the emotional support of her parents. She told them that her vision impairment, which was diagnosed in the last years of high school, made her reading speed slow and, consequently, it was difficult to keep pace with her study duties. She mentioned that her parents were supportive and understanding to the extent that they agreed with and encouraged her to follow her study plans for the next trimester.

While another participant said that the relationship with his parents "wasn't the best", he appreciated the support of other relatives that allowed him to cope with academic-related turning points. He had complained about his accommodation: a boarding house where studying and concentrating were difficult for him. He said that when he needed to write an essay he spent time in the flat of his brother. In other cases the involvement of parents in participants' turning points was straight and strict but necessary. One participant reflected that this kind of family support was also helpful; in particular when she was considering quitting university because of a social connection-related turning point – an upsetting mismatch with her roommate:

> *"My mum told me "grow up and get over it!" and I was like "OK, mum"" (VIS-MO).*

Although face-to-face interaction was the main and preferred form of seeking and receiving support, the participants also regarded as relevant the use of ICT-based tools in this respect. The participants complemented their face-to-face interaction through other devices and applications such as smartphones for calls and TXT messages, laptops and social media such as Facebook and Skype. The utility of ICT-based tools was especially significant for those participants who came from some of the New Zealand regions and/or were living independently as these technologies made easier communication from long distance.

7.3.2.5 Accommodation

Interestingly, the participants who were living in a university accommodation reported that their place helped them to nurture new social connections and/or accommodate their vision impairment needs. A couple of participants commented that the way the university hall was arranged made it easier to

meet other students who were taking the same papers, ask them about study-related work and/or studying together. One student, who experienced a turning point because of a *roommate situation* when she arrived at her university accommodation, concluded that, at the end, the friendly environment of her place helped her to meet other people and make new friends.

One participant, who also has an additional medical issue, highlighted that the staff from his accommodation, the facilities put in place in there and the proximity of his accommodation to the university main campus helped him to cope with the needs imposed by his physical impairments.

> *"[My accommodation] is right next to the campus. So close. As well as my vision I have an issue with my hips; it is only functional in one lung. For me walking from long distances up the hills would be extremely strenuous. So, being in Te Puni [university accommodation] for the proximity thing has been fantastic. Also the whole accommodation itself has been so accommodating. The support they have in place is brilliant anyway but from day one they told me "if you have any issue come to see us"" (VIS-GE).*

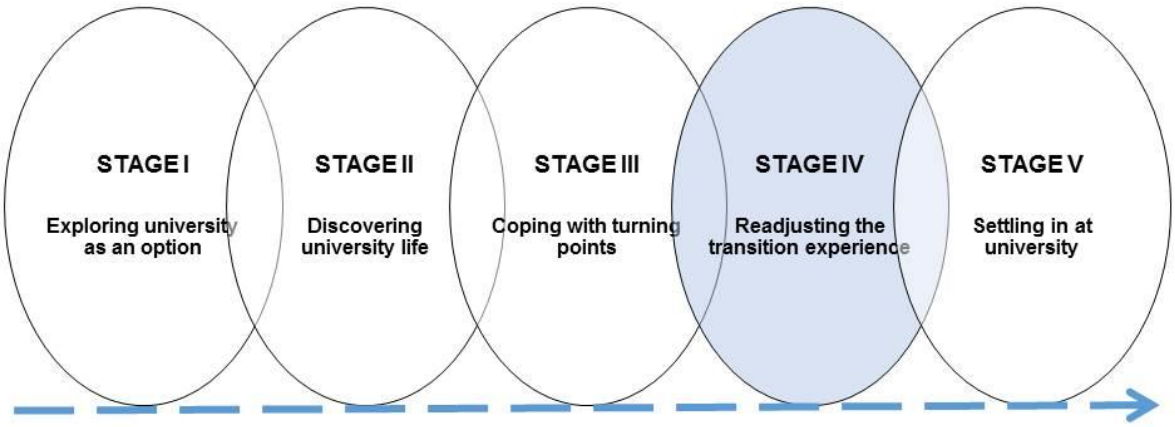
7.4 Chapter summary

This chapter has described students with vision impairments facing turning points. These turning points are critical events and situations that affect the way the students make sense of transition to university. While turning points are personal experiences the students seek to manage them with the support of others. They also use and adapt a range of ICT tools to support their responses. The following chapter will describe the decisions and new directions adopted by students with vision impairments as a consequence of turning points.

Chapter 8: Stage IV – Readjusting the transition experience

8.1 Chapter Overview

In this chapter I describe the fourth transition stage for students with vision impairments: "readjusting the transition experience". This stage refers to the decisions and new directions adopted by the students in regard to their transition experience. Identifying a readjusting stage as a part of the transition process is useful to comprehend students with vision impairments' evolving understanding of their transition experience. In such respect readjusting seems to confirm the action taking approach of the students, which has been also described in previous transition stages. The readjusting stage brings to light that students' new decisions reflect their concerns about their university experience in the long term. In this chapter I similarly outline that most of these new directions are related to the university system. In this stage, some ICT-based tools also play a part. I describe that such a role is mainly as a source of information and for managing their programme of study.



Transition 2.0 for students with vision impairments

8.2 Readjusting the Transition Experience

Based on the perceptions of the participants of this research, the fourth transition stage, readjusting the transition experience, is understood as the actions of the participants when they readjust the transition experience. Readjusting occurs on the basis of new information, elements and contexts resulting, principally, but not only, from coping with turning points.

The readjusting stage is about taking decisions. While in the preceding transition stages the participants have been, little by little, refining their understanding of the transition to university, in the readjusting stage they obtain a more straightforward and enriched picture of it. The impact of both *positive* and *negative* turning points triggers such understanding. As a result the participants start considering and adopting new directions, even reaffirming previous ones. This does not mean that decisions are only adopted in the readjusting stage. As described in previous chapters, making decisions and taking actions has been a recurrent practice among the participants even before their formal inception to university, but with a focus on their immediate transition challenges and needs.

Thus, in the readjusting stage, new directions are taken by the students in order to improve their future situation regarding their transition for the rest of the academic year and/or the university journey as a whole. The participants seem to ask themselves the following question: "What do I do next to improve my university experience in the long term?" As they already gained a further understanding of their transition (see Chapter 6) their new directions seek to anticipate future challenges.

Such new decisions are strongly related to the academic system issue in connection with the challenges of their vision impairments. As described by the participants the academic system has been an ubiquitous factor through their transition experience. Negative turning points caused by the university's academic demands (e.g., having to write a research essay) have been exacerbated by the impact of their limited vision on their study activities (e.g., slow reading speed). While new directions can also be undertaken on the basis of other transitions factors in this study participants' decisions centred on the academic system.

In the context of this research, the participants evaluated and adopted new directions depending on their own transition experience. Dropping one paper to reduce course workload for the rest of the first trimester was one such decision. Another was changing their enrolment status from full-time to part-time in the next academic trimester. Interestingly, while dropping out of university was considered in some cases as an immediate response to turning points (see Chapter 6), none of the participants decided to leave university as a consequence of academic-related challenges. Despite the "mismatches of expectations" (James, Krause, & Jennings, 2010, p. 60) during trimester one, new

decisions adopted during the readjusting stage reflect the individual commitments of the participants in relation to university-related long-term goals and personal development.

During the readjusting stage some ICT-based tools supported the actions undertaken by the participants. ICTs were used to search for information and to follow formal administrative steps regarding managing their programme of study.

8.3 The Element of the Readjusting Stage

Readjusting the transition experience is itself the only component of this transition stage. The findings of this research show that its main implications for the transition of students with vision impairments are related to the academic system issue. The role played by ICT-based tools is also described.

8.3.1 Readjusting the transition experience

Readjusting comprises the new decisions embraced by the participants after coping with turning points. Participants' new directions and steps were underpinned by their commitment to stay at university and pursue their personal goals. The first trimester at university was a crucial period for the participants in terms of reframing and taking directions. In particular it was the last month of trimester one when most of the decisions were made. However, the participants waited until trimester two to put them into practice as they first sought to get through the challenges of trimester one.

8.3.1.1 Academic system

New directions regarding the transition experience can take different forms. For some participants reframing their transition to university resulted in a change of academic degree and/or major, especially after coping with negative turning points. It was the case of one student who was initially pursuing a Bachelor of Laws. Before starting at university he explored different university options and found that studying Law at Victoria University of Wellington was the best choice. When he met his Disability Adviser, one month before classes started, he was advised to enrol as a part-time student to help him to reduce course workload but he disagreed. He was also counselled to postpone any Law papers until his second year at the university because of the significant academic reading demands they involved. He listened but did not take this advice either. Once he had started trimester one, he faced different academic challenges. One of those challenges was to write regular assignments which developed into a negative turning point (see Chapter 6).

After coping with the turning point, almost at the end of trimester one, he decided to change his degree to a Bachelor in Music in the next academic trimester. Initially his choice for a Law degree was driven by the need to secure a future employment in a job market in which "there are not really a lot of jobs

for people with visual disabilities". Despite the pressure and the course workload demands he managed to pass his papers. However, he also arrived at the conclusion that a legal career was not for him. Instead, he decided to follow his vocation and polish his skills for what he is "good at", so he made the move to study for a degree in music:

> *"It [music] is what I love, I guess. People always say pick up something you are passionate and I guess it is music and I am good at it…I always wanted to do music but I never really got on the edge until now" (VIS-JO).*

Similarly, in readjusting their transition experience two other participants also resolved what they finally wanted to study. They found out that it was better to make changes in their programme of study based on their personal interests and passions. At the beginning of the trimester, for example, one of them started at university pursuing a degree in psychology. However, she discovered that she "did not like it". Although this student commented she enjoyed her papers and coped with the course workload challenges in trimester one, she decided to change to a degree with majors in education and criminology.

Another participant also decided to take a new direction in his studies in trimester two and changed to a major in theatre, film and classics. At the start he was undertaking courses in history and philosophy. He decided on tertiary education because he felt "instigated" by his family to do so and also because he thought it was the time "I should go to university". He did not have a formal transition planning before starting at university and his choice of history and philosophy papers was driven by his habit of "trying things". When he finally approached the Disability Services unit for support he was struggling with the course workload for his history and philosophy papers. His vision impairment and another health condition also made things more challenging in trimester one. Although at the end he enjoyed the courses, the challenges experienced during his first trimester at university helped him to clarify his goals and reframe his programme of study on the basis of his personal interest in the arts.

Positive university experiences, on the other hand, can encourage the reaffirmation of previous decisions and subsequent academic steps. One participant, who went through a turning point related to the academic system, remarked that the experience made him feel more confident about his transition. He concluded that he had made the right decision regarding his chosen programme of study. Initially he had wanted to enrol for a double degree in Political Science and Law. After pondering the advice from his Disability Adviser he only enrolled for the former, a degree in Political Science. He based his decision on the premise that he could not force his transition and it was better to wait until he became familiar with the university environment.

Although his vision impairment was "clearly a barrier" he managed to complete his papers successfully, including an A+ grade for an elective course. In readjusting his transition experience, this participant commented that he knew that "the academic side would not necessarily be an issue". More importantly, the positive academic outcomes made him reaffirm his early decision of taking Political Science papers in his first year at university. As his confidence with the university environment grew, he also resolved to start his Law degree at the beginning of year two:

> *"I am certainly doing it [Law degree]. I'm just putting it off for next year. So when most people do Law papers in the first three years and do the BA papers for last year, for a four-year degree, I am doing the other way round"(VIS-GE).*

Readjusting the transition experience also included decisions on reducing course workload. For one participant enrolled in limited full-time study, her courses represented an "overwhelming" experience. She had to cope with the turning point caused by the pressure of taking three papers for her degree in Classics. As she commented, "there was so much stuff to do" especially reading "fifteen books" during the academic trimester. It was a problematic situation for her considering her vision impairment. She concluded that she "chose the wrong papers" (see Chapter 6).

Then, in readjusting her transition experience, she came out with the decision to change her enrolment status to part-time study. For her taking fewer papers meant a more manageable course workload. It was almost the end of trimester one when the worst seemed to be over and she decided it was time for a new direction in her university experience in trimester two. A change of degree had not been contemplated as she was sure that her goal was to be a teacher. Reflecting on her decision she commented the following:

> *"I'm doing two papers this trimester which is probably what I should have done in trimester one just to ease myself into university" (VIS-GR).*

On the other hand a decision to increase course workload can also be the result of readjusting the transition experience. At the beginning of trimester one, for instance, one participant decided to enrol in two papers following the advice from staff of the Disability Services unit. She was aware that university life would demand a lot of her time. Enrolling as a part-time student was for her a logical preventive measure and also a way of allowing herself some time before getting used to the tertiary environment. However, university was still a demanding experience and she could not avoid the difficulties of managing course workload, particularly in the first weeks at university:

> *"I am really glad I only need to do two papers this trimester because the Economics paper is taking so much of my time to work out all the problems. I just got time to spend for the rest of my other [paper]" (VIS-CA).*

Despite the challenges this student experienced a positive turning point in the middle of the trimester that made her readjust her transition and rethink her university journey as well. Being able to manage and pass a research assignment gave her a new understanding of her transition to university. It was an eye-opening experience and she was proud of her achievement. As her confidence grew, she decided to take a further step in trimester two. She resolved to increase her course workload by undertaking three courses. She was also determined to start a conjoint degree in Commercial Law the following year.

During the readjusting stage ICT-based tools also supported the participants in reframing and taking new directions. Some ICTs tools were useful sources of information. Some participants commented that, for example, they accessed Victoria University website and looked for information about other study options as well as administrative procedures to change their degree and/or courses. They used the website to find out more about the requirements of the courses they planned to enrol.

Through the university website the students were also able to access downloadable forms and contact information of pertinent university staff, if needed. A few participants highlighted the usefulness of the university website as information source for study-related matters.

> *"I mainly go to the normal university site and I just use that when I want to find something. I type on the tab search and it comes out straight away. It is convenient and very helpful" (VIS-JO).*

ICT-based tools were also another medium through which the participants were able to make administrative changes related to their programme of study. Changes of degree, major or enrolment status were also possible online via myVictoria, the university's web portal. The participants did not report any issue with the university portal.

Social media tools were another medium that supported students' search for information during the readjusting stage. It was the case of the Facebook group set up for this research. In the last weeks of the academic trimester I re-posted links and information from the university's official website and Facebook page to remind the participants about some deadlines such as course change applications (see Figure 8). Some students commented that the re-posts were useful and helped them to realise that the university also had an official page on the social media platform which they started following too.

Figure 8. A Facebook Group Post with Information Regarding Change of Courses

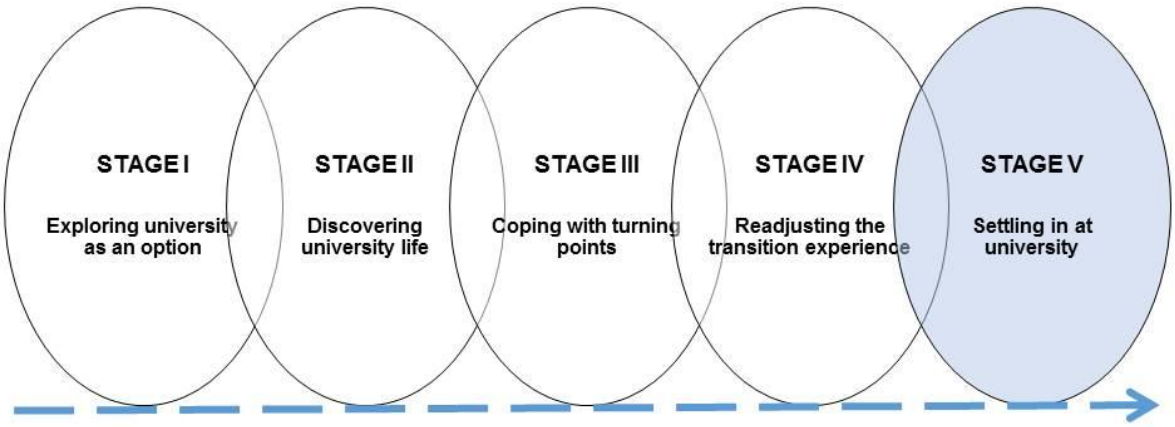
8.4 Chapter Summary

As described in this chapter the readjusting the transition experience stage refers to students with vision impairments' new directions in regard to their transition to university. These decisions are the result of obtaining a better understanding of how university life functions, particularly after coping with turning points. New directions, or the reaffirmation of previous ones, are largely related to dealing with future academic challenges of the university. In this stage students with vision impairments' new directions are intended to improve their university experience in the future. The next chapter will describe the fifth and last transition stage in which students with vision impairments perceived that, to different extent, they are settled in at university.

Chapter 9: Stage V – Settling in at University

9.1 Chapter Overview

The previous chapter has described the stage in which students with vision impairments readjust and take decisions in regard to the future of their transition and university experience. In this chapter, I discuss the "settling in at university" stage. This transition stage refers to students with vision impairments familiarising, getting involved and feeling more confident with their transition, the university setting and as young individuals. I describe two main features of this stage. First, I explain that the students develop a sense of belonging to the university setting. Second, as their confidence and expertise grew, they are also keen on sharing experiences and giving advice to their peers. This chapter is mainly elaborated on data collected in the middle of the participants' second trimester at university. To conclude, the importance of reporting about the settling in stage is that, in general, the participants have finally gone through the transition process.



Transition 2.0 for students with vision impairments

9.2 Settling In at University

Settling in at university is the last stage of the transition to university process for students with vision impairments. In this stage the participants find themselves reaching, in their own terms, familiarisation with the university setting. They feel more in control of their university experience and its demands. Settling in is a stage of relative stability. It contrasts with previous transition stages in which anxiety, insecurity, and/or loneliness are common feelings; in the settling-in stage the participants manage to 'turn the page'. In general, they are more confident and secure about their transition experience, including the prospects of their university journey.

The settling-in stage does not mean that the challenges arising from different transition issues are finally over. These transition issues (e.g. the university system and accommodation matters) remain but, on average, they are perceived as manageable. The participants are aware that transition issues will still be challenging for them throughout their entire university journey. They understand, for instance, that assignments and essays still have to be written but in contrast with the first weeks of trimester one, they now know how to approach them. Similarly, although some parts of the university campus may remain unexplored, the participants know how to navigate and access lectures and services and where to sit down in lecture theatres to compensate for the impact of their vision impairment. In other words, transition issues do not disappear; they are better handled.

While there is a perception of being better prepared for university life, the participants are also conscious that they still need support. The different university units and the resources they provide continue to play a key role in helping the participants to manage academic duties in the context of their vision impairment. For instance, while the students are more confident with lectures and tutorials, they still need the support of a note-taker. During final exams, they similarly require their Disability Adviser to liaise with the lecturer or course coordinator for some extra time or a special room. The support of family members and friends during the settling-in stage is equally important.

The first trimester at university appears to be both a crucial period for settling in and the beginning of the end of the transition experience as a whole. It is in the first trimester that the participants experience the most meaningful situations of their transition to university and tertiary journey as well. Attending lectures for the first time, trying to make new friends or getting to know the physical environment can be some of those first-time experiences. Things seem to have improved for the participants in the last weeks of the first trimester although they still have to deal with final exams, for example. However, the perception of being 'settled in' comes at the beginning of trimester two in most cases. The participants find that the second trimester also involves similar or even more challenges and

responsibilities causing, equally, some stress and anxiety. The difference with the first trimester is that the participants are now used to the university environment, feel better prepared and more confident to handle the challenges.

Consequently, settling in at university suggests the development of a sense of belonging among the participants. Sense of belonging has been studied in fields such as psychology and education. It has been regarded as a positive factor in the experiences of students in both school and the tertiary settings (Freeman, Anderman, & Jensen, 2007) and contributing to explain student's retention (Hoffman, Richmond, Morrow, & Salomone, 2002). In the field of psychology the term sense of belonging is generally defined as "the experience of personal involvement in a system or environment so that persons feel themselves to be an integral part of that system or environment" (Hagerty, Lynch-Sauer, Patusky, Bouwsema, & Collier, 1992, p. 173). More recently, research in tertiary education has summed it up as "the subjective sense of affiliation and identification with the university community" (Hoffman et al., 2002, p. 228).

Specifically, in the context of this research, the participant's sense of belonging is expressed through their involvement with the university setting. Sense of belonging comprises a gradual trajectory and also different levels of involvement. In this regard, university is no longer perceived as an odd place. On the contrary, the participants finally perceive, to a lesser or greater extent, that university is the place they are part of. Further description of sense of belonging in relation to the finding of this study is provided in the following sub-sections.

So far the transition to university has been an ongoing and reflective learning experience. Once some degree of familiarisation and confidence is achieved in the settling-in stage, the participants start feeling encouraged to share their transition experiences and act as *insiders*. Although they may not know all about university life and will still be learning about it through their whole university journey, the participants have learned and accumulated enough expertise to help other future students with vision impairments. This point is further explained in sub-section 8.3.2.

The role of ICTs during the settling-in stage is also highlighted by the participants. The students with vision impairments reflect on the use of ICTs and how these tools supported them in becoming familiarised and more secure at university. Overall, ICTs are perceived to impact the transition process positively. ICTs principally helped the participants to compensate the impact of their vision impairment on their studies and learn about how the university works. These tools also supported the need of the participants for communication with new and old social connections. Finally, the students

who took part in this research highlighted the importance of having in place the "right" ICTs tools before starting at university.

9.3 The Elements of the Settling In Stage

Two components comprise the settling-in stage of the transition process: developing a sense of belonging and giving advice. In the following subsections, I describe these elements in relation to transition issues. I also report the findings regarding the role of ICTs in relation to these two components.

9.3.1 Developing a sense of belonging

Developing a sense of belonging is about the participants' perception of becoming part of the university and getting involved with the tertiary environment. Different transition factors help to understand the sense of belonging among students with vision impairments. Interestingly the academic system and social connections appear to be key issues for developing a sense of belonging among the participants.

9.3.1.1 University system

This research has found that the development of sense of belonging was related to a renewed view of the university setting. At the beginning of their transition experience the participants highlighted how "overwhelmed", "scared" and/or "shocked" they were with the tertiary environment, the amount of information about the university they had to digest and the different responsibilities and workload they had to fulfil. There was anxiety among the participants who also saw themselves as *outsiders* in the new environment. However, that perception started changing at the end of the first trimester and was confirmed in trimester two when the majority of participants mentioned they felt "adjusted", "pretty cool" and "know my way round". Getting to understand how the university setting functions was a key aspect for the participants to finally perceive themselves as a part of it. One participant summarised this point in the following way:

> *"I think I know how the system works. Regarding the academic stuff, I think I have definitively been able to understand the rules of university, how things work, how things function and to make the most of the opportunities here. I think I am definitively part of the system in that respect" (VIS-GE).*

For some participants, being able to solve the puzzle of the university system in trimester one was a signal that they were finally accomplishing the end of their transition to university. One of the participants highlighted this point mentioning that she no longer saw herself as a first-year student:

> *"It is just a better feeling now in second trimester. It doesn't feel like I'm still doing first year. It feels like I am in second year. There is much more work that it was last trimester… but I feel better now. I am in second trimester and my grades have jumped a lot. I wouldn't say they are pretty easy. I just get used to the way the lectures and assignment work. When I first came I was like 'wow, what's happening?', 'I did not catch that, what do I do?' but now I am more than adjusted; I know how to do [things] properly" (VIS-MO).*

Developing a sense of belonging was also represented by a more positive attitude regarding the university setting. At the beginning, going to university was a "cultural shock" for most participants. Although their personal goals brought them to university, the majority of participants felt at first uneasy with the academic aspect of the university environment. They found challenging and different from high school the fact that they had to prepare themselves and attend "large" lectures, do weekly tests and submit assignments and essays while dealing with the impact of their vision impairment. In other words, university was an intimidating place to be. It was the case of one of the participants, who failed her first assignments in trimester one, and felt "a lot better" when she learned how to deal with the university system. She was no longer thinking about leaving university or seeking excuses to not attend classes. Because she learned "how to write assignments", her confidence grew and her initial state of mood changed. She started to see university as a comforting and friendly environment:

> *"I am happier now. I am adjusted to university life and it is a lot easier to understand things more than at the start and I am a lot happier to be here now. It is better now" (VIS-MO).*

Another aspect regarding sense of belonging was the growing interest of some participants in getting involved with non-academic activities at university. Some studies have already looked at this by measuring and comparing the number of hours students spend on campus (see James, Krause, & Jennings, 2010). Although this research did not focus on quantifying this particular point, some participants mentioned that after their first months at university some places such as cafés and the Library become habitual spots for catching up with friends and spending some more time socialising on campus. More interestingly, some of them mentioned that they have joined or were planning to join some of the different clubs and societies at university as they were more in control of their university duties. While joining activities outside of lectures and tutorials can be seen as a way to increase social connections, it can also be the result of the increased confidence of some participants with the university system.

Developing a sense of belonging was a personal experience. In general, the testimonies of the participants suggested that as long as they understood the university's academic system their perception of being part of it improved. As previously mentioned, all the participants reported being more familiarised and in control of their university experience. Those who seemed to develop a strong sense of belonging not only perceived themselves to have completed their transition to university but had also adopted a positive outlook on life and the future:

> *"My plan before coming here was to do undergraduate and then go for postgraduate studies. I know now unequivocally that that is what I am going to do. I feel so much part of this. I know this is the place I want to be. Unreservedly, I love it. This is the sort of place where I see myself in for a very long time...Just fantastic" (VIS-GE).*

However, not all the participants shared the same perspective. For one student things were still uncertain despite the improvements in trimester two. He mentioned he did not plan ahead his transition before starting at university. He sought specialised support almost at the middle of trimester one only because one of his lecturers insisted that he "should have a note-taker if you can't see". He did not take part in the social meetings for this research in which other participants shared their transition experiences and supported each other. Despite his progress in Trimester Two, it seemed that this participant was still figuring his transition out. This is what he mentioned in this respect:

> *"[I have had] ups and downs. I am still finding my feet a little bit. Let's see how it goes" (VIS-BL).*

At this stage of the transition process, the participant reflected on the role of ICTs in helping them to achieve familiarisation with the university system. Independently of the level of understanding of and involvement with the tertiary setting, all the participants shared the opinion about the positive role played by ICTs. From their experience as students with vision impairments, ICTs brought them more advantages than disadvantages. As previously described, the participants mentioned that they already used ICTs for "typical stuff" such as shopping and gaming. In the context of their transition experience, being able to retrieve information about university matters and arrange adequate support via ICT tools also contributed to settling in at university:

> *"Technology, I think, is one of the biggest helps out there for anyone with a disability. It makes it easier for you to access things. It makes it a lot easier for you to communicate with people, who you need to communicate with, Disability*

Adviser, Course Coordinator or something like that. It is just easier than going on foot to meet everyone" (VIS-JO).

For some participants, a transition scenario without ICT tools was unimaginable. One student was categorical in this respect when she highlighted that she "will be lost without it [technology], especially my laptop". Just as for other participants, it was also important for her to have access to course material electronically during her studies. She remembered a situation for one of her courses in which she had to read a paper-based book. ICTs were so strongly embedded in her transition that turning back to a non-digital book format was not an option:

"For one of my courses we used a workbook and the lecturer originally offered to copy it from the size it was to size A3. So, that would mean 'oh, yeah, I will be carrying around a massive A3 book' and trying to do my work on that, which is crazy for anybody…I will never go back [to paper-based books]. I managed to get the entire workbook emailed to me so I could work on it on my laptop" (VIS-CA).

Other participants also concur that having course material in digital format was a "life saver" as they were able to use and manipulate them via their personal devices such as laptops and smartphones.

9.3.1.2 Social connections

Social connections were also an important factor for settling in at university. The comments of some participants revealed that the growth of their network of friends at university had an impact on developing their sense of belonging. Those who managed to meet new people at university (about half of the participants) were more optimistic about their transition experience. For some students making new friends was also a critical aspect to help them feel part of the university. It was the case of one participant who originally came from one of the New Zealand regions. She did not know anyone when she arrived in Wellington. After struggling with the social connections issue (see Chapter 6), she finally managed to meet new people at the end of trimester one. Looking back on that experience, she said that after completing her first trimester at university, she could not wait for the start of trimester two to catch up on her new university friends:

"I got heaps of new friends now and they are so much fun to hang with. Some of them are doing the same papers as me. So, they help me to understand what some stuff mean and help me with assignments and stuff…Having friends like that is always good" (VIS-MO).

Besides study support and socialising, some participants highlighted the open-mindedness of their peers regarding vision impairments. The positive attitude of new friends in this matter also contributed to the development of sense of belonging among these participants:

> *"I didn't find hard making friends here [at university]. People are more accepting in university than they would be at high school...They are more accepting. Even in the city, I have found that, compared to Auckland" (VIS-JO).*

However, despite the general receptiveness, some participants also pointed out that there was still limited understanding from their new friends about what vision impairment is. One student commented that she has explained her friends about her impairment "a couple of times" but added that they still seemed not to "understand how I am disabled". Another participant remarked that some of her peers thought that vision impairment was about using glasses, so "you are not visually impaired anymore". She concluded that "only other people with disabilities understand that that is not the case". A third participant, who also did not find it "hard" to make new friends, outlined that as long as he had "the respect of my peers", he was not bothered about the issue.

Social connections were a significant factor for developing a sense of belonging, independently of their size or how fast they grew. At this stage of the transition process, some participants regarded it as important to have met "a whole bunch of new people" at university. For others, on the contrary, it was more significant to maintain "a small group of close friends". Even those participants who struggled making friends during trimester one, did not hesitate to call friends those peers who they initially referred to as "just acquaintances" a few months ago.

ICTs had also played a role in regard to maintaining the *good health* of the participants' growing network of university friends. For them, face-to-face interactions remained a critical way to stay in contact with friends and get to know new people. The use of ICTs did not have the purpose of replacing physical social interaction. On the contrary, for the students the role of ICTs was to complement and/or supplement interaction with their social connections. In doing so, ICTs helped the students to strengthen links with old and new friends while overcoming some communication barriers such as space and time. The experience of one participant exemplifies how ICTs were used to support face-to-face interaction and, as a result, sense of belonging with the university setting:

> *"When I am in my room I open my Facebook and sometimes I find my friends saying: 'oh, come to the study lounge tonight. We miss you. Come to hang out'. So I pick up my stuff. I go down there and study with them all night as well as*

socialising. More socialising goes on when studying but I still get a heap of work done" (VIS-MO).

The participants were familiarised with a range of ICTs, in particular more sophisticated tools, which supported their need for maintaining their university social connections. While smartphones, instant messaging and social media applications were of common use, the students also used them in combination during the settling in stage. Some students expressed that social media tools were "legit" and "easy" to use. They mentioned that tools such as Facebook were "good on the phone" and that it was "easier to follow the posts" via their smartphones. Interestingly, the participants did not report any accessibility issue when using these tools in their laptops/desktop or smartphones. One participant commented that:

"The layout and 'user-friendly' nature of Facebook makes it a more agreeable medium by which communicate" (SVI-GE).

9.3.1.3 Vision impairment

The students also reflected about the impact of their vision impairment during the settling-in stage. While the participants were learning how to manage their impairment in the context of university life, they were also developing confidence and independence. Comparing with the personalised support in high school and the comfort and security of home, at university the students were by themselves and, at the beginning of their transition, they had to cope with the challenges imposed by their impairments in an unknown educational environment. The realisation of independence came precisely in the settling-in stage when the students learned to manage the challenges of their impairment and became, thus, familiarised and confident. While their vision impairment did not *go away*, along with other transition issues, it was the sense of learning how to cope with it that enhanced their sense of belonging:

"I think I have gained that notion of independence; it is the concept, you know, 'oh, I need to go to the shops I just walk out the door and go over'. It is not 'I wait for mum to get the car, swift and go'. It is that notion that I am now in charge, I am the master of my destiny…I would say, probably, it is just the simple acknowledgment that I know how to do things. I think that in that respect I have become a little bit more assertive in getting things organised" (VIS-GE).

The participants also concurred in the view that the use of ICTs allowed them to compensate the impact of their vision impairment when dealing with the university challenges. For example one

student remembered that using adaptive technology at university made it easier to read course material and save time. More important for her, she learned how to have things done "with the exception of not having help from my specialist teacher and other carers or staff". In addition, using assistive technology to manage vision impairment also stimulated a sense of self-efficacy:

> *"Usually it takes half an hour to read a page. By using the technology that the university provides me, it takes me ten minutes to read it because it is really quick and fast and I am not tired afterwards which is really good because usually after reading something I have to go for a 20-minutes break to recharge and feel better again. With CCTV it is like 'ah, I am not tired; let's read something else'" (VIS-MO).*

9.3.1.4 Perceived academic performance

Additional to dealing with the university system and social connections, perceived academic performance also triggered participants' sense of belonging with the tertiary setting. Academic performance was perceived in different ways. For one participant, obtaining high grades, as he expected, for his two papers was an indication that he had learnt "how the system works". For another participant, who undertook four papers while working part-time, managing to pass his courses satisfactorily was enough to rank his transition experience "eight out of ten". Others not only considered final grades in their first trimester but analysed their academic performance in a more retrospective way by comparing some assignment results between Trimester One and Two. It was the case of one student who mentioned that "it was good to pass everything" although she "did fail a few aspects of the papers" in trimester one. However, obtaining better assignment marks at the beginning of Trimester Two made a difference for her. She felt even more encouraged and motivated about her university studies:

> *"I had my first assignment back this week and I got a B+, which is like my highest grade. I was so happy and I am working really hard in my assignments now" (VIS-MO).*

9.3.1.5 Disability support system

Perceiving themselves as being part of and getting involved with the tertiary setting did not mean that the participants no longer needed the support and resources provided by the university. Certainly, they were more confident and familiarised with the university but they still needed to face academic tasks and ameliorate the impact of their vision impairment on their study-related duties:

> *"In terms of things that need to be done, the only thing that really concerns me know is just getting the right note-taker and the right exams and tests conditions, otherwise everything is pretty cool" (VIS-JO).*

Another participant was emphatic about this point. At the beginning of trimester one she struggled to manage study-related challenges and she considered leaving university. She approached Disability Services, received advice and started using its resources for students with disabilities. Although her "grades have jumped a lot" in Trimester Two, she stated that specialised support was still helping her to cope with the impact of her vision impairment on her study duties:

> *"I wouldn't say I need them less. I think it is because I am adjusted to using the service [Disability Services], I don't think I can go without them now. Like the disability suite; it is amazing just going in there. It is quiet and I like quietness when I study. I don't think I will be able to do without Disability Services. They even email me notes weekly from the classes because it is hard for me to write notes. Having someone else in the lecture doing it for me is another kind of support. When I read them it's like 'oh, that's what they mean by that'. So, it is another form of support and I get to understand the lecture more" (VIS-MO).*

9.3.2 Giving advice

In the settling-in stage the participants also display a predisposition to share their transition experiences with prospective and new students with vision impairments. This attitude describes the second component of the settling-in stage: giving advice. Giving advice is the result of becoming familiarised and more confident with university life. It is based on the lessons the participants have learnt from their transition and university experience. This attitude for sharing one's own experiences is more pronounced among those participants who expressed a stronger feeling of familiarisation. In contrast to the perception of being an *outsider*, which was experienced in the first weeks of the academic trimester, the participants are keen to act as *transition insiders* as they have managed to understand what is needed about university life and have the desire to share the acquired knowledge.

In giving advice, the participants emphasise the proactive role that they have to play for their own transition. For them, acting with forethought starts well before the beginning of their studies and continues across the first trimester. Additionally, the participants not only share the lessons they learned from positive experiences. In fact, they are more interested in telling their peers about their negative experiences and what they did do wrong, what they did not do and/or what they could have

done better for their own transition to university. Likewise, the participants centre their advice on managing the academic system, getting disability support and making social connections.

9.3.2.1 University system

Planning in advance was the main advice given by the participants. It referred to different transition factors but it was focused on dealing with the challenges of the academic system in particular. One participant was very explicit in this respect. He highlighted that "in university life you have to be the proactive one" and suggested new students with vision impairments to talk with their lecturers and course coordinators in advance and let they know about their needs. The transition planning of this student started in high school when he was in year 12 as he was aware that his vision impairment may affect his university studies. Once at university, his transition was not free of challenges and turning points. However, having arranged support with anticipation, eventually helped him to manage the university system issue and feel adjusted to university. The main insight he shared from his perceived positive transition experience was that planning in advance made university life less distressing:

> *"I knew at least at some extent what to expect. I knew what the state of affairs was. I knew what was expected and how I can do it…Once everything was in place; I knew I can really settle in to studying. So for me, it was just getting things done and maintaining in contact [with university teaching staff and the Disability Services unit]" (VIS-GE).*

A couple of students shared the same view. What is more, for them planning beforehand was not only about seeking information about university life and available services. They also recommended prospective and new students to visit the university in advance to have some idea about the new environment. This is what one of them commented:

> *"I suggest getting everything sorted before you come. For people who are not from Wellington, I would say make a couple of visits down here first; decide why you are coming here and come here early, I would say a week early to get all your things sorted so you are not waiting in line, you are not rushing around trying to get your last-minute things sorted. You've got everything you need and you just can go straight into [university]" (VIS-JO).*

The first weeks at university were intimidating and the students were lost. Based on her experience, another student highlighted that one of the most stressful parts of the first trimester was "trying to sort out where everything is, where you are meant to be going and how to access everything". Her best

advice to manage this kind of situation was to "stay calm" and learn as soon as possible some key aspects of the academic system, including the university's technological resources used for teaching and learning:

> *"Don't feel panic about not being able to find anything because eventually you will get there. What else? For example, I will give them clear advice about things such as tutorial signups, how to use Blackboard and how to find the Campus Coaches" (VIS-CA).*

9.3.2.2 Disability support system

While the students recommended to "plan ahead and plan early" transition to university, they also emphasise the need to seek and arrange support from relevant service providers and units in and out of the university. One participant, for example, advised to "make contact with Disability Services as soon as you can just to start getting the ball rolling" and "if you need accommodation get in contact early" as well.

The importance of the disability support system issue not only included information and a range of resources provided by specialised service providers. Some participants highlighted that appropriate knowledge and expertise about disability and the particular needs of the students also counts. It was the case of one student who was living independently and working full-time in one of the biggest New Zealand cities before moving to Wellington. He mentioned he received appropriate information about transition from staff of a service provider for people with disabilities, but it was not enough. He needed someone who could understand him:

> *"The people that help you with the transition, they have to be really spot on what you want. They have to be kind of the middleman. If you force to do it [transition] your way is fine but you have at least to have someone on board who has some sort of knowledge. Someone that can support you with your move because best advice I can give to someone with a disability who is moving [to university] is make sure you get people on board who can understand where you are going or where you want to go and just and then you just do it. It can save you a lot of time rather than just mucking around…" (VIS-JO).*

From the experience of this student having someone knowledgeable "on board" can make a difference in terms of managing different transition challenges. For him, it was specially about not being stressed because of the assistive technology he needed and did not receive on time:

"I did not get my IT until four weeks of trimester one and you can have it already if you have the right people on board…It is a really long process [to get the adequate IT] and you really have to crack down on it. For people in high school, I would say, start working on it, maybe, half way through the year, so you get everything sorted it in the fourth term [at high school] so you don't have to worry about it as I did. I had to worry about I was in the final year of studies" (VIS-JO).

9.3.2.3 Social connections

The participants were also interested in advising new students about how to cope with the social connections issue. Whether or not they prefer a "small group of close friends" or "don't find it hard making friends", the participants suggested that "just free talking with people in the lectures and tutorials" can help to manage this transition issue. The majority of participants also outlined that "the eyes are a great communication tool" and that having vision impairment can make it difficult to meet new people at university. They recommended being open about their impairment with their peers:

"When you have a disability you can't be too antisocial about it. You can't sort of flirt it off and then don't worry. You've got to let people know otherwise some comments may come out and you may get a bit upset. They are more accepting here [about disability] than in Auckland, I don't know why" (VIS-JO).

As mentioned above, according to some participants disclosing disability can help to meet new people, who may not know much about what vision impairment is but who seem to be "much more accepting…than high school". To a large extent, the participants considered that coping with the social connections issues depended on the students with vision impairments themselves:

"If you are a first-year student and you are here on your first day, my advice probably would be not to be shy about the fact you have a disability. Be open about it to your lecturers, your tutors, to whoever you think is relevant to. And just be cool to people. You don't have to explain them what is wrong. You just say: 'oh, I can't see that' you will find it much more accommodating…It is all about being proactive and open about the disability you have and how issues can be resolved. If you are open about things and you are willing proactively to get things changed there is always somebody to help you to do that" (VIS-GE).

9.4 Chapter Summary

This chapter examined the last stage of the transition process for student with vision impairments: the setting in at university. This stage is characterised by the development of a sense of belonging to the university among the students as their confidence and familiarity with the tertiary environment grew. Another feature of this stage is that the students become insiders and they are predisposed to advice and share their transition experiences and the lessons learned with prospective and new students with vision impairments. The findings show that in the settling in stage the students still have to face transition issues; however they perceive that they are better prepared to handle them. The following last chapter discusses the implications and relevance of these findings and present the main conclusions of the study.

Chapter 10: Discussion and Conclusions

10.1 Chapter Overview

This study has sought to understand what the issues or factors are that influence students with vision impairments' transition to university and how ICTs are used to manage the transition experience. In this final chapter I discuss the implications of the research findings and present the conclusions of the study. The chapter starts with a discussion about self-determination and the importance of ICTs to support students with vision impairments in becoming self-determined young individuals. Then, considering the impact of new technologies in the everyday life of the participants, I present the conceptual framework for *Transition 2.0* as a new way to describe and understand the present context in which the students use and adapt ICTs in order to construct the meaning of their transition. In doing so, I also discuss the seven roles of ICTs that have an impact on students with vision impairments' self-determination and transition to the university experience. This chapter continues with a discussion about the significance of adopting an action research (AR) approach for this study. I also comment on some research challenges I faced during this research. Finally, I outline the implications of the study, its limitations and suggest future directions for further research.

10.2 Transition and ICT-Enabled Self-Determination

One of the most interesting findings of this research is that students with vision impairments can develop self-determination with the support of technological tools. In doing so, they not only learn how to cope with the challenges of their transition to university but also how to gain the competences and skills to be independent young adults. As mentioned by the participants, ICTs have been critical for their transition experience as these tools "fill all the gaps" such as communication, information, collaboration and vision compensation, among others. These different uses of ICTs helped the participants to gain confidence, learn skills and acquire the knowledge needed to feel more in control of their transition and also independence at university. As reported in the findings chapters, the majority of participants employed ICTs to manage turning points, readjust goals and settle in at university.

More interestingly, self-determination enhanced via ICTs also had implications for the personal growth of the participants as young adults. Those students who mentioned being "independent" and/or "the master of my destiny" after their first trimester at university were all active users of different types of ICTs, particularly Web 2.0 and portable devices. By using ICTs they showed that, to some degree, they have developed the elements that characterised self-determined behaviour: autonomous, self-regulated, psychologically empowered and self-realised (Wehmeyer & Schwartz, 1997). Even those few participants who were still 'finding their feet' at university had already acquired some of these elements of self-determination. For them developing decision-making and/or problem-solving, for example, was a sign of personal growth and increasing confidence to manage other transition issues such as accommodation matters or transportation, which were similarly relevant for their perception of feeling in control and living independently.

10.2.1 Enhancing self-determination behavior via ICTs

This study revealed that, through the use and adaption of ICTs, the participants were able to develop the four elements of self-determination behaviour: autonomy, self-regulation, psychological empowerment and self-realisation (Wehmeyer & Schwartz, 1997) – for further explanation about self-determination see sub-section 2.6 of the literature review chapter. In the subsequent paragraphs I will explain in more detail how these four elements were identified during the data collection and analysis process of the second AR cycle.

At the beginning of cycle two, my observations of participants' meetings with their disability advisers focused on identifying transition issues. In doing so, I was able to find out that, for example, family involvement and disability support system were among the most important transition issues for the

participants when they were exploring tertiary education as a post-secondary option. The observations also provided me with valuable data about participants' autonomy or the level to which they managed independently early transition-related activities and challenges (Wehmeyer, 1999). For instance prior to the start of the academic trimester a few participants depended on their families to find information, to decide what to study or to contact university services. The observation data also revealed that the participants were not still self-realised – in other words they did not yet have a comprehensive and reasonably accurate knowledge of themselves and their strengths and limitations (Wehmeyer & Schwartz, 1997, p. 246). For example, while their Disability Advisers recommended to reduce course workload by enrolling in a small number of courses, the majority of participants refused that advice and decided for full-time studies instead. They initially overlooked the impact of their vision impairment on their transition. Then, these participants later had to drop some courses when they found that their vision impairment was making it hard to manage university-related responsibilities. I reflected on these events and wrote my thoughts in my researcher diary. To sum up, observation data showed me that at the beginning of the transition experience, students with vision impairments had not yet developed self-determined behaviour.

The three focus groups conducted during the first weeks of the academic trimester also expanded the preliminary insights from the observations about the way self-determination started being developed among the participants with the use of ICTs. The focus group data revealed that the participants were learning how to be autonomous students. For example, some participants commented that their mobile phone use of a PDF version of the accessible routes helped them to manage the challenges of navigating around the university's physical environment. As a result they reported feeling more independent and secure. The focus group data also provided insights about the development of self-regulation – the examination of one's environment and the repertoire of responses for coping with the challenges of such environment (Wehmeyer, 1999, p. 57). During the focus groups a few participants commented that they emailed their lecturers to meet and let them know about their needs such as electronic copies of the lectures to be sent in advance or special arrangements for tutorials and examinations. In doing so the participants sought to manage some challenges related to the issue of the academic system. These attitudes of the participants showed some level of decision-making, self-management and goal setting which are inherent to self-regulation (Wehmeyer, 1999).

The findings originated from data from online tools also expanded my understanding of the transition experience of the participants and the development of ICT-enabled self-determination. These kind of data allowed me to find out that the students were supporting each other and, in consequence, feeling psychologically empowered. Psychological empowerment refers to one's positive perceptions of

control (Wehmeyer, 1999). In this respect, participants' use of the Facebook group helped them to interact and feel more in control of some transition issues. Through the Facebook group, the participants shared tips, for example, tips and gave each other advice about how to spend money wisely. While they were learning how to manage financial challenges, they were also building trust and friendship, and complemented this by becoming Facebook friends. As a result, their use of social media helped them to deal with the social connection issue which was one of the main causes of turning points among several participants. These findings about the participants feeling more in control of their transition were later corroborated in the individual interviews. Again, I used my researcher diary to reflect about these ICT-enabled self-determination events and refine the elaboration of the interview questions.

Finally, data from the individual interviews also provided useful findings about ICT-enabled self-determination. To some extent, the four elements of self-determined behaviour were identified in the interviews when the participants reflected on their first academic trimester at university. Comments about becoming autonomous through the support of ICTs were common among them. For instance, some participants revealed that using their laptops or mobile phones to plan their bus journey made them feel more independent. There was consensus in their responses that ICTs made transition easier. They also gained the sense of being independent learners when they became familiar with Blackboard and used YouTube to manage course workload and support their learning. The interview data also showed some levels of self-regulation. In this respect, the participants became self-regulated students when they commented, for instance, on being able to make their own decisions and readjust their university journey by changing their major or their enrolment status to part-time. They did so with the support of ICTs tools which were used to access relevant information and establish adequate support. The interviews also showed that the participants saw themselves as psychologically empowered. Their sense of control was expressed not only in the belief now that they had become the masters of their destiny but also in the idea that, despite being still a difficult journey, the challenges of transition were manageable. For them, ICTs helped to make transition challenges tractable. Self-realisation was also identified in the interview data. For instance, the majority of participants recognised that they underestimated not only the constraints imposed by their vision impairments but also by the university setting itself which they had thought would be like high school. This realisation implied a better understanding of their own weaknesses. In this sense, the participants commented how assistive technology and the accessibility features of their portable devices helped them to compensate for the limitations imposed by their impairment in the university context. The realisation of their strengths was also mentioned in the interviews. By using ICTs to communicate and collaborate with their peers

and manage academic responsibilities, the participants commented that they were able to settle in at university and re-affirm or readjust their personal and academic goals. For example, some participants decide to change their majors because they had a better understanding of their personal skills and interests.

Therefore, there is a new scenario triggered by the use of ICTs that challenges the way self-determination is encouraged in students with disabilities who make the transition to university. Nowadays, students with vision impairments are using interactive and collaborative technological tools to learn their own self-determination skills. For example, by using social media, the participants in this study were able to search for information and work collaboratively with their peers while developing problem-solving skills. This scenario contrasts with the approach that predominates among scholars and practitioners which focuses on teaching self-determination skills to students with disabilities so they can plan their transition, manage academic issues and remain at university (Getzel & Thoma, 2008). In this respect, the priority has been on recommending best practices and evaluating the effectiveness of self-determination programmes (Wehmeyer & Abery, 2013).

While teaching self-determination skills is helpful, the insights of this study show that we also need to look at the dynamic of the strong interaction between ICTs and students with vision impairments to understand additional ways of developing self-determination. The data yielded by this study provides evidence that ICTs are embedded in the everyday activities of this group of students. Similar to other young age groups, I have found that students with vision impairments use ICTs not only for leisure and play but also for activities such as searching for information, communicating and interacting with friends. While all the participants used some sort of technological tools for their transition, the majority of them were also fond of trying and embracing other ICTs that responded to their personal transition-related needs. ICT adoption was observed, for example, when some participants learned about special software for text magnification and reading or when they found tablets, closed-circuit television (CCTV) and digital voice recorders to be useful for their study-related duties. In many occasions I noticed the use of smartphones among the participants and how skilful and accustomed to texting they were. Therefore, students with vision impairments are far from being passive adopters of ICTs. One student summarised this point when she mentioned that if a piece of technology does not work for her, she just "ignores it".

Moreover, the active adoption of Web 2.0 among the participants was particularly revealing in this study. All the participants use Web 2.0 applications from social networking sites, such as Facebook, to voice and video calling software, such as Skype. Interestingly, all of them were active social media

users (some more than others). As the participants of this study mentioned, their active social media presence dates back to the days when they were in high school. Some of the reasons for using these tools were that they were "user friendly", "quicker" and that "everybody uses them". Because these students have been exposed from an early age to different kinds of ICTs, from assistive technologies to social media applications and portable devices, they have acquired a level of technological awareness, with a few of them (particularly male participants) calling themselves "IT savvy". It is in this context of embedded ICT that students with vision impairments are able to work on the competences required to be a self-determined young person.

Another contribution of this research to understanding ICT-enabled self-determination is that students with vision impairments are actively adapting technological tools according to their transition and vision-related needs. An interesting example is the use of smartphones. These primary means of communication were adapted into additional study-related tools once the participants found that, by changing their accessibility features, they could enlarge and download course material, or access their Blackboard accounts to get updates about course-related matters. In some cases, when using assistive technologies, the students only needed to make some minimal adjustments to these tools (e.g. font size, screen brightness) to access course material and information. In other cases, they combined a range of assistive technologies. I found for example that all the participants used text enlargement in their laptops. However the way this accessibility feature was adapted differed from one student to another. While some participants relied heavily on it, others only used it in conjunction with or to complement the use of text-to-speech software, for instance. In the case of social media applications, video-streaming platforms were incorporated by some students to find out information about university life before formally deciding on tertiary study or as a learning tool to search for additional information about course content discussed in class.

The active adoption and adaptation of ICTs by students with vision impairments should not be a surprise. In fact, there is a large body of research that outlines young people actively embracing new technologies. With students with vision impairments, in particular, there is no difference. After all, they are part of the age group that some call "digital natives" (Palfrey & Gasser, 2008) or "gen.com" (Delli Carpini, 2000), i.e., they were born in an era of rapid and strong ICT development and presence, and they are technologically savvy. What is new here, and thus one of the contributions of this research, is that the pervasiveness of ICTs in the daily lives of students with vision impairments should be considered when studying transition to university. ICTs not only have been absent from the scholarly research on the topic, but also the interactive and collaborative features of some tools (Web 2.0) and their mobile capability (portable devices) are offering additional opportunities for

understanding the transition to university. While academia has yet to further realise this potential, students with vision impairments, as the evidence from my research suggests, are already embracing the benefits of ICTs.

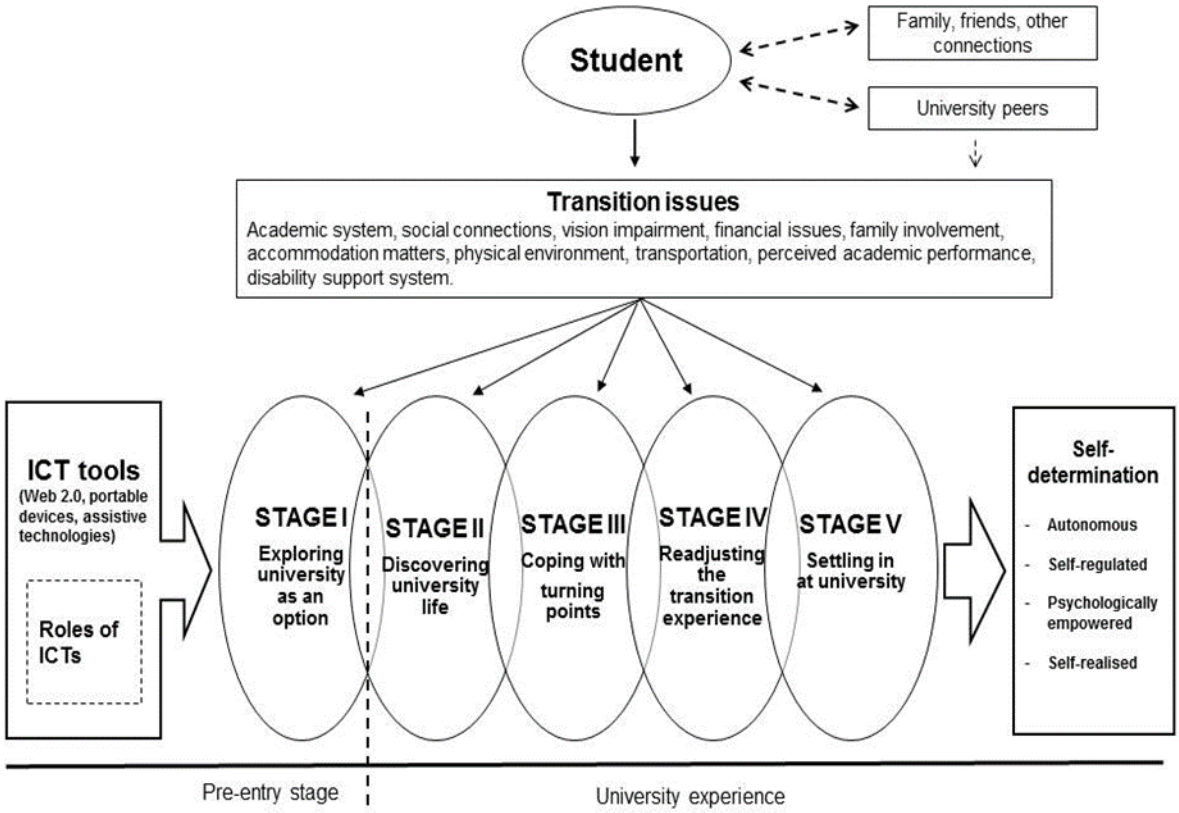
To sum up, the findings of this research suggest that the use of ICTs by students with vision impairments to manage their transition to university is also helping them to develop self-determined behaviour and skills. This argument is justified by the current context of ICT pervasiveness and students with vision impairments' active adaptation of these tools. The following sub-section expands on the roles of ICTs for the transition to university and their implications for helping the students in developing senses of control, confidence and independence.

10.3 A Conceptual Framework for Transition 2.0

Figure 9 displays a conceptual framework to understand transition to university for students with vision impairments. The key idea in this framework is that the use and adaptation of ICTs by students with vision impairments is helping them to manage their transition to university, and, what is more, to develop self-determination. The incorporation of the ICT and self-determination components not only represents the main contribution of this framework but also establishes a significant difference from the little prior research conducted in regard to this research topic.

Specifically, available research regarding transition to university and disability in general (see Belch, 2004; Duquette, 2000; Hodges & Keller, 1999; Wessel, Jones, Markle, & Westfall, 2009) has used Tinto's (1993) theory of student departure. According to Tinto (1993), students' backgrounds, as well as the level of academic and social integration with the university, determine their decision to stay or leave the tertiary setting (see Chapter 2 for full discussion). However, Tinto's contribution does not consider the experience of students with disabilities, especially those with vision impairments, nor the particular transition challenges they cope with. What is more, the focus of Tinto's theory is on the adjustment of the students to the tertiary setting and their retention. It does not cover the role that ICTs play in managing the transition experience and helping the students become self-determined young adults.

Figure 9. Transition 2.0 for Students with Vision Impairments



The conceptual framework for Transition 2.0 is based on the data collected from students with vision impairments, aged between 18 and 24, in the weeks prior, during and after their first academic trimester at Victoria University of Wellington. The data involved unobtrusive observations, note-taking and a researcher diary, as well as focus group meetings, semi-structured interviews and online data from social media and a repository website. Contextual information was provided by other sources of secondary data, which included organisational documentation and interviews with staff from the Disability Services unit. While it differs from Tinto's theory, the conceptual framework uses it as a starting point and conceptual lens.

To start with, the framework includes the five stages the student with vision impairment goes through in Transition 2.0: exploring, discovering, coping with, readjusting and settling in (see Chapter 4 for an overview and Chapters 5, 6, 7, 8 and 9 for a full discussion). The overlapping ellipses in the framework illustrate that the stages are not independent and separate but ongoing and interconnected. While the research findings show that the first trimester at university is a crucial period for the student,

they also show that Transition 2.0 begins well before the student officially starts at university. The framework mirrors these findings and depicts a pre-entry stage: "exploring university as an option".

Similarly, in going through Transition 2.0, the student has to deal with different issues (see Chapter 4). These issues affect each student differently. At first glance, the student faces them on her or his own terms, individually. However, she or he also needs their university peers, existing friends and other networks or relationships to make sense of Transition 2.0. Thus, the framework includes the idea of Transition 2.0 as a collective journey as well. Unlike Tinto, the framework represents a holistic understanding of transition to university. In the framework, Transition 2.0 is not circumscribed by the specific issues that occur within the tertiary setting (e.g. the academic and social systems of the university suggested in Tinto's). On the contrary, additional issues, such as those related to family and financial constraints, including the impact of "external" social connections are interrelated and also have an effect on the way the student experiences Transition 2.0.

From the beginning of Transition 2.0 and along its different stages, the student uses and adapts a range of ICTs (Web 2.0, portable devices and assistive technologies) in order to make sense of her or his transition. ICTs play different enabling roles during the stages of Transition 2.0, from accessing information to increasing collaboration (see section 10.4 for a full discussion). ICTs are used and adapted according to the particular needs and context of the student. As the findings show, apart from being a communication tool, smartphones were used in some cases to take pictures of the whiteboard during lectures in order to support learning and vision compensation. In other cases, these tools were employed for accessing information regarding bus or train timetables. The framework includes these roles of ICTs and relates them to the transition issues experienced by the student at different stages of Transition 2.0.

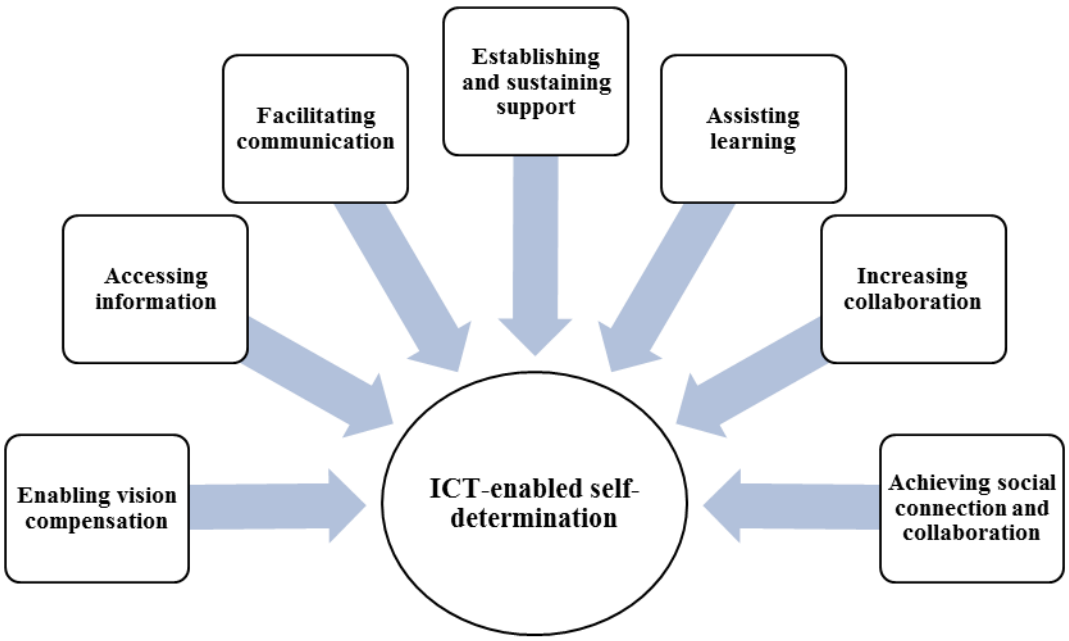
As a corollary of actively using and adapting ICTs for managing transition issues during the different stages of Transition 2.0, the student develops self-determination. In the framework, a self-determined student with vision impairment has the following characteristics: autonomy/independence, self-regulation, psychological empowerment and self-realisation. These four indicators are based on the work of Wehmeyer and Schwartz (1997) who have extensively researched about self-determination in special education (see sub-section 2.6 of the literature review chapter for further explanation). The framework represents a major shift from previous studies. It does not restrict itself to the retention of the student at university and even less her or his adjustment and normalisation to fit into the tertiary setting. In contrast and based on the research findings, the framework suggests that, with the support of ICTs, the student is able to develop the skills and behaviour to be independent and feel in control

of her or his transition and, more importantly, to encourage her or his personal development – as a young adult. Thus, the framework challenges conventional scholarly views that tend to consider "successful" transition in terms of the student's grade performance, for example. As the research findings show, Transition 2.0 is an overarching experience in which the student does not only manage academic matters. In going through this critical life experience the student seems also to be learning and strengthening transferable abilities, skills and knowledge that would be crucial for their everyday life experience.

10.4 The Role of ICTs

The previous sections have discussed ICT-enabled self-determination among students with vision impairments and the conceptual framework for Transition 2.0. This section discusses the roles of technological tools that allow the students to manage different transition issues and to acquire self-determined attitudes, knowledge and skills such as sense of control, independence and confidence. I have identified seven interconnected roles of ICTs for the transition to university of students with vision impairments. These roles, which expand the literature related to disability, transition and self-determination, are: enabling vision compensation, accessing information, facilitating communication, establishing and sustaining support, assisting learning, increasing collaboration, and achieving social connection and participation (see Figure 10):

Figure 10. The Seven Roles of ICTs in Self-determination



10.4.1 Enabling vision compensation

The findings of my research support the idea of ICTs helping students to compensate for their vision impairment. This argument is mainly related to assistive or adaptive technologies. As described in the findings chapters, students with vision impairments unanimously outline the importance of these ICT tools for ameliorating the impact of their impairment. These findings are in line with previous research based on the medical model of disability (see Chapter 2) which has broadly highlighted the compensatory role of these tools in regard to the learning and studying experience of young people with disabilities.

The role of assistive technologies in vision compensation has a direct impact on the way students with vision impairments make sense of their transition experience. This can be observed when students have to manage some academic system-related tasks such as reading course material. As previously described, the students highlighted that their vision impairments are a "hindrance" for their transition experience. Having to read a large amount of printed course material through the academic trimester and being unable to see it properly quite often brought other effects such as feeling easily tired and losing concentration. They perceived that their reading pace was slower compared with students without disabilities. In other words, their vision impairments were clearly a disadvantage for their transition to university.

However, access to and use of different assistive tools offered students with vision impairments the opportunity to counteract these side effects and manage the impact of their impairment. From closed circuit television systems (CCTVs) to text enlargement software, the students were able to manipulate text according to their particular needs. A minor adjustment in the brightness and contrast of their monitors or laptop screens also made a difference and improved the readability of text. Other ICT applications such as eBooks and PDF files offered similar opportunities to compensate for their vision impairment.

The findings in this study also show that vision compensation is enabled by Web 2.0 applications and portable devices as well. These kind of ICTs, used alone or in conjunction with assistive technologies, expand the abilities of these students to manage their impairments in the context of their transition. For example, during the exploring and discovering stages, many participants preferred to use YouTube for accessing university-related information. For them, being able to listen to videos, instead of reading printed brochures and handbooks, was not only appealing but also useful in terms of avoiding tiredness and blurred vision caused by their impairment. Portable devices with Internet access, such as tablets and smartphones, have a similar impact. The data from this research show that

participants took advantage of the built-in text enlargement and touchscreen features in their personal devices to compensate for their vision impairment. These findings appear encouraging; however none of the participants in my research was totally blind. More research is needed as blind people may not be benefiting from the opportunities offered by Web 2.0 applications and portable devices (Kane, Bigham, & Wobbrock, 2011)

10.4.2 Accessing information

The use of ICTs makes it easier to access information for students with vision impairments. From the participants' perspective, access to information is one of the most significant roles of ICTs in relation to their transition to university. On the one hand, ICTs enable them to obtain information in a broader range of formats than just print. Information not only can be accessed digitally, for example, via eBooks and PowerPoint presentations; if printed, it can be also adjusted through assistive technologies, such as CCTVs. Moreover, students with vision impairments highly appreciated the fact that via ICTs they can search, retrieve and access a larger amount of information and from different sources.

Similarly, Web 2.0 and portable devices appear to offer additional opportunities for accessing information in a dynamic and timely fashion. Participants in this research used Web 2.0 and portable devices to access information. One of the participants highlighted the "convenience factor" of these tools. The research participants stressed that it was useful and appropriate to receive notifications straight to their mobile phones when information was posted on Facebook, the social media site of their choice. They all were familiar with that social networking site which they used, among other purposes, for receiving a variety of updates. Similarly, the Facebook group page set up for this research was quickly adopted as an additional source of information as updates went promptly to the participants' smartphones and were accessed anywhere at their convenience. In the same way, the university's official Facebook page and the course pages set up by some lecturers during the academic trimester were also regarded as useful sources of information for their transition to university.

Moreover, Web 2.0 and portable devices are becoming primary ways to access information that allow students with vision impairments to manage different transition issues other than just the challenges related to the academic system. Along with conventional websites, social media were employed for accommodation matters. For instance, participants who lived in university halls of residence subscribed to the Facebook page of their accommodation in order to receive the latest updates directly to their personal profiles. They used these tools for transportation management as well. Some

participants used their laptops regularly to look for bus timetables or, when at the bus stop, to find out the time the next bus would arrive.

The findings show that students with vision impairments are using portable devices with Internet access to improve the way they search for information. For example, instead of using a printed bus timetable which was hard to read, many participants preferred to use their laptops or smartphones to plan their trip to university and other places. Through their devices, they were able to find information about bus and train services in real time. In the same way, getting to know how to move around the university campus was made easier for some participants when they accessed the Accessible Routes Maps via PDF files or Google Maps, a mobile web mapping service application set up by Disability Services. For other participants, online tools also made searching for information regarding products and services easier and eventually enabled them to do some online shopping and/or contact advocacy organisations such as the Blind Foundation. In summary, the use of a range of new technologies to access information helped the participants in coping with different transition challenges and becoming familiarised and more in control of their university life.

10.4.3 Facilitating communication

ICTs were an important communication medium for students with vision impairments. The participants indicated that ICTs make it "a lot easier to communicate with people" because these tools offered them an array of channels that complement and/or supplement traditional forms of oral and writing communication. In practice, ICTs supported participants' face-to-face communication with their close friends and relatives when there were barriers of time and distance. This role of ICTs for improving ways of communication has been reported in previous studies regarding disability in general (Bradley & Poppen, 2003; Seymour & Lupton, 2004). However, the findings of this research uncover its implications in the particular context of the transition experience of students with vision impairments.

For the participants in this research portable devices and social media applications were the preferred means of communication. All the participants had mobile phones with Wi-Fi connection and they used their devices for texting and instant messaging with friends from high school and family members on a regular basis. Similarly, they used Facebook as a communication channel because the social networking site was "user-friendly" and made communication "quicker" and "better". Another reason why the participants used this platform was that all their friends were Facebook users. One participant revealed that she hardly ever uses the landline telephone at home to call her close contacts. She preferred Skype because she can see them on her laptop or smartphone. The attitude of this

participant suggests that portable devices are diminishing the preference of students with vision impairments for "old" technology. Emailing was also used by the participants but to a lesser extent and for more "formal" communication such as contacting disability service providers or university staff. In summary, communication via portable devices and Web 2.0 tools allowed the participants to overcome issues of distance and time and also had implications for other ICT roles such as support and collaboration, for instance (see sub-sections 10.4.4 and 10.4.6 respectively).

10.4.4 Establishing and sustaining support

For students with vision impairments, ICTs also play a role in establishing and sustaining support arrangements. Arranging adequate support was one of the primary concerns of the participants, especially during the few weeks before and after the start of the academic trimester. The majority of students were aware that they had moved away from the dedicated and specialised help received in high school. Therefore, they were concerned about having special course arrangements, assistive technology and other kinds of support in place at university. In general, ICTs were an easier way to search for disability support information but also a convenient medium for contacting university service units, especially Disability Services and other service providers such as the Blind Foundation and to start arranging the required personal support and advice. For some participants, a phone call or an email was a preferable way to find out and ask for transition assistance without disclosing too much about themselves and their disability. Once support was arranged, ICTs enable the participants to follow up with their Disability Advisers and promptly let them know if any other issue had arisen.

10.4.5 Assisting learning

The findings of this study show that students with vision impairments used a combination of ICTs to enhance their learning experience, in particular the way they acquire knowledge and skills related to their chosen degrees. The majority of participants carried their laptops and smartphones, and in some cases tablets, to the lecture theatres. They downloaded and/or accessed via Blackboard the PowerPoint file of the lecture slides. Occasionally, they used the computer labs provided by the university when they needed to do some printing. Then, depending on their personal vision needs, they enlarged the content of the PowerPoint on their devices while following the presentation of the lecturer. Some participants, in addition, brought in their digital voice recorders and stored the recordings as MP3 files or other similar sound formats on their laptops so they could listen to them later. Alternatively, during lectures, a few participants used their smartphones to take pictures of the content on the whiteboard. These strategies of the participants to support their learning experience are similar to a growing tendency among university students in general who are using their personally

owned portable devices to engage inside lectures (Gurung & Rutledge, 2014). There are, however, some concerns that this trend, also known as Bring You Own Device (BYOD), may not have a positive impact on academic performance and, on the contrary, may cause student distraction as well as technical and teaching challenges for universities (Kobus, Rietveld, & van Ommeren, 2013; Traxler, 2013). Despite these worries, from the perspective of the participants in this research, bringing in their own portable devices with which they are familiar is clearly benefiting their transition experience at university.

Moreover, while formal learning takes place mainly in the physical settings of the university (lecture theatres, the library, study rooms, labs), students with vision impairment are also using Web 2.0 and portable devices as a complementary environment for more informal and individualised learning. For instance, YouTube was used by some participants to support "big study". That is, independently of the quality of the information retrieved, these students used the video-streaming platform to search for further information and complement what was taught by the lecturer in class and/or obtain a better understanding of the essay topic they had to write about. In both cases, students with vision impairments adapted social media to respond to their personal learning needs.

These findings support recent scholarly discussion about the potential of social media for "learning on demand" (Punie, Cabrera, Bogdanowicz, Zinnbauer, & Navajas, 2005). In particular, the findings contribute to the growing interest in personal learning environments (Dabbagh & Kitsantas, 2012; Johnson, Adams, & Haywood, 2011; McLoughlin & Lee, 2007), which are seen as student-designed learning approaches that encompass different types of content – such as videos, apps, games and social media tools – chosen by a student to match his or her personal learning style and pace (Johnson et al., 2011, p. 8). In this respect, students with vision impairments do not limit themselves to textbooks and lectures in order to learn but also take advantage of alternative ways of learning via Web 2.0 and Internet-enabled portable devices. This complementarity between formal and informal learning offers valuable insights for understanding how this group of students manage transition challenges related to the academic system.

10.4.6 Increasing collaboration

The evidence in this research shows that ICTs facilitate task collaboration. The majority of participants used Web 2.0 and other interactive online applications set up on their portable devices to support online knowledge sharing. As reported in Chapters 5, 6 and 7, these applications provided the participants with an additional way to work together with their peers, especially in regard to academic tasks. This use of ICTs did not replace but complemented conventional face-to-face forms of group

work and study. Via these ICT tools, the participants produced and/or shared diverse forms of content from comments to information. For example, some participants reported that they used Facebook to privately ask their peers for help and share ideas and information about academic matters. These tools allowed the participants to collaborate with each other outside of the university campus.

In addition to one-on-one collaboration, ICT tools also supported online team work. The course pages set up by lecturers and other teaching staff on Facebook also enhanced cooperation and knowledge sharing with their lecture peers. Online collaborative work via the social networking site was especially useful for those participants who reported to they had faced turning points related to the academic system. As these participants reported, Web 2.0 allowed them to post questions, start group discussions and get feedback from other students who were also concerned and/or had some knowledge about particular academic tasks. Other Web-based tools set up by the university also supported cooperation and knowledge sharing. The participants mentioned that Blackboard, the university's course management system, became not only a relevant source of information but also a tool for facilitating collaboration during different stages of their transition to university. Being able to collaborate and share knowledge regarding academic matters via ICTs helped the participants in gaining confidence about their transition experience.

10.4.7 Achieving social connection and participation

The participants used social media to maintain existing relationships and to build new ones. As described in Chapter 7, meeting new people at university was a difficult task for most participants, who felt isolated, especially at the beginning of the academic trimester. For them, making new friends was perceived as the way to fulfil their need for socialisation and to receive support and information regarding academic matters. One way to deal with the issue, while working on making new friends, was to turn to their "strong ties" (Putnam, 2000), in other words family and close friends. Meeting them face-to-face remained for the participants the preferred type of social interaction, but the busy university life made meetings occasional if not difficult, especially for those who moved to Wellington to study. To counteract the barriers of distance and time, these students used social media to supplement online their limited physical social interactions with their strong ties. Applications such as Skype and Facebook, along with texting and emailing, were reported to be used regularly to cope with the lack of social connections, which in some cases became turning points for some participants (see Chapter 7).

Social media sites can also be used to support relationship building (Ellison, Steinfield, & Lampe, 2007) with "weak ties" (Putnam, 2000). The findings of this research confirm this claim in the context

of the transition experience of students with vision impairments. Online interaction and participation via Facebook course pages set up by university teaching staff offered the participants the opportunity to share and receive valuable information from their peers, who were considered distant acquaintances rather than friends. The forum feature used in Blackboard also supported participants' social interaction with weak ties from their lectures. While this study did not show that social media and other interactive tools favoured the creation of online-only social connections, it supports the idea that these tools complemented and/or invigorated existing offline weak ties. When a repository website, called Goingtouni, was set up for this research, the participants were invited to participate in diverse online discussions. However, the students, who had not met each other previously, scarcely contributed to the discussion. In contrast, a second group of participants who took part in a number of group support meetings used their personal Facebook accounts to "catch up" with other members of the group. These meetings were the glue for the creation of new social connections among the participants and the use of social media complemented their need for social interaction and networking. In a few cases, these loose social connections showed signs of becoming friendships.

In summary, the findings of this study suggest that social media and other interactive and portable tools helped students with vision impairments in managing the social connection issue. While face-to-face encounters were the preferred form of social interaction, the participants also used these tools to keep in touch with their existing connections and to build relationships with their emerging weak ties at university. In doing so, the participants coped with the feelings of isolation that concerned them from the beginning of their transition to university.

10.5 The Action Research Approach

This section discusses the contribution of conducting action research (AR) for this study. AR was the methodological approach used to answer the two research questions of this study: what are the factors that influence visually impaired students' experiences of the transition process to university education in New Zealand?, and how could ICTs be used to support this process? While AR is a useful methodological tool for guiding research, it also presents practical challenges, some of which are also inherent in qualitative research.

Overall, the outcomes of this study are in line with the key purposes of action research: to solve a real-life problem(s) or situation(s) and, at the same time, to generate in-context knowledge (Baskerville & Myers, 2004). On the one hand, the iterative AR cycles and the different interventions conducted in this study, which included organising support group meetings, setting up a website and a social media page, supported the participants to make sense of their transition to university while enhancing self-

determination. On the other hand, the collaboration and insights provided by the participants were useful for generating knowledge that includes the roles of ICTs for enhancing self-determination, the identification of different issues that students face at university, the transition stages they go through and the nature of Transition 2.0.

10.5.1 Action research and self-determination

One of the practical implications of using an AR approach is that its intrinsic collaborative nature can result in the development of self-determination of stakeholders. As the research participants highlighted, the different interventions conducted during this study such as the support group meetings and the Facebook group page, were "useful". While they helped the students to make sense of their transition experience, these interventions also supported them to develop independence on their own terms and feel in control of their new life at university. AR interventions supported the students in facing some transition issues. For instance, the support group meetings helped some students to meet other participants and, thus, cope with the social connections issue. Also, the AR approach in this research complemented some actions undertaken by the participants to manage transition challenges. For example, the Facebook group page I set up for transition-related posts was an additional means adopted by the students, who were already using other online tools, to access and share information about academic matters.

As discussed above, this research shows a relationship between AR and self-determination. Some AR scholars (see Elden & Chisholm, 1993) believe that achieving a stakeholder's self-determination is the primary goal of the action researcher. However, this study also shows that self-determination is not necessarily a predetermined AR objective but it can be its unexpected outcome. The primary objective of this research was to understand transition issues and how students with vision impairments use ICTs to deal with these issues. In addition to generating knowledge about the transition to university, I sought to support the participants to construct or make sense of the transition. In this study, students' pro-active attitudes about their university journey matched the problem-solving purpose of AR as the research interventions allowed them to collaborate, interact with each other and rethink their transition experience collectively. While all these helped the participants acquire the needed knowledge to manage their transition, they also perceived they were more in control of their personal life and the challenges imposed by their impairments. At the end of the study the participants saw themselves, to a greater or lesser extent, as self-determined young adults.

10.5.2 Choosing a paradigm for AR

The outcomes of this study regarding the development of self-determination among students with vision impairments may resemble the emancipatory purpose of critical theory – including a link with some forms of AR (see Kemmis, 2006). Despite this similarity and the potential contribution of research based on the critical perspective for the IS field (Myers & Klein, 2011; Richardson & Robinson, 2007), the world view that guided my action as a researcher was deliberately a different one (see Chapter 3). From the beginning, I have believed that "human beings are symbolizing beings. They find meaning in and give meaning to their world, through symbolizing their experience in a variety of constructs and actions" (Heron, 1981, p. 23). What is also important is that meaning is not discovered but constructed and continually modified in the light of new experiences (Schwandt, 1998). My purpose as a researcher has been to understand the socially constructed realities or meanings of students with vision impairments in relation to their transition to university. Adopting a constructivist stance matched the methodological approach of AR, as claimed by Lincoln (2001), and was an appropriate decision that resulted in significant contributions for research and practice about the topic of this study.

Indeed, some parallels can be found between the critical and the constructivist (including interpretative) paradigms. For example, both are dialectic (Guba & Lincoln, 1998), both favour qualitative research methods and techniques for data collection, both use hermeneutic analysis – with some differences (Schwandt, 1990) – and both agree that knowledge is not value free. Some authors, such as Ngwenyama (1990), argue that as critical theory lacks its own research methodology, it has to *borrow* from currently available interpretative methodologies. However, apart from my ontological stance, already mentioned above, which differs from the historical realism of the critical perspective, there are some other important issues that prevented me from using critical theory for this study. I will discuss those issues next.

10.5.2.1 The idea of "totality" and the role of ICTs

Critical theory supports the idea of "totality", which means things cannot be treated as isolated elements (Orlikowski & Baroudi, 1991, p. 19). As Orlikowski and Baroudi suggest "[a] particular element exists only in the context of the totality of relationships of which it is a part" (1991, p. 19). Following this view, ICTs are seen as an instrument and/or representation related to the social, historical, economic and cultural forces that maintain oppression and/or reinforce a "false consciousness" about reality (Orlikowski & Baroudi, 1991). In the field of disability, advocates of the social model of disability, which is strongly influenced by the critical perspective, are convinced that

technology causes more harm than good. Technology is believed to have "inherent values built into it" that disable people with impairments (Goggin & Newell, 2003, p. xvi). In the IS field, scholars, for example Adam and Kreps (2006) in their study of web accessibility, share the same view and consider ICTs as "a concrete example of a structural inequality" (Adam & Kreps, 2006, p. 204). However, this assumption about totality in regard to ICTs is contentious and fails to recognise that, while ICTs can be a barrier, they can be an enabler as well. Assuming that ICTs are oppressive is unhelpful and limits the ability to understand the role of ICTs holistically. By being informed by a different paradigm, the findings of this research have managed to uncover a different picture in which ICTs are not oppressive but play to a large extent an enabling role for the transition to university of students with vision impairments. What is more, ICTs can enable the development of self-determination. With its focus on the conjoined construction of meaning about transition to university, this research challenges, thus, previous assumptions about the restrictive nature of ICTs for people with disabilities.

10.5.2.2 The call for emancipation

Critical theory calls for emancipation but its advocates recognise that this idea is unclear (Kvasny & Richardson, 2006; Richardson & Robinson, 2007) and recommend, at least, caution when using it (Kincheloe & McLaren, 2000). In a broad sense, critical theory argues that emancipation is about changing or uncovering the coercive structures of society (Kvasny & Richardson, 2006; Schwandt, 1990). While such an idea of emancipation seems to be "ideologically oriented" (Guba, 1990, p. 23), some have sought a less rigid interpretation. Hirschheim and Klein (1994), for instance, mention that emancipation has a psychological dimension, which "calls for the realization of the full creative and productive potential of individuals". They also refer to an organisational dimension which seeks to overcome, through organisational democracy, existing forms of authoritarianism and social control that perpetuate inequities (Hirschheim & Klein, 1994, p. 257). However, emancipation seems to remain a diffuse concept even for critical theory advocates themselves as "no one is ever completely emancipated from the sociopolitical context that has produced him or her" (Kincheloe & McLaren, 2000, p. 282).

From a critical theory perspective the imperative of social research is to be emancipatory. However this purpose is problematic for my AR project. Kincheloe and McLaren (2000), both critical researchers, warn of "the arrogance that may accompany efforts to emancipate "others"" (p. 282). More importantly, there is a risk of omission of young people with vision impairments' potential and abilities to try and find solutions to their own specific needs. This research has uncovered a new

generation of pro-active students who not only managed their transition to university but also developed self-determination on their own with the support of tools such as ICTs. My role as an AR researcher was neither to emancipate them from oppression nor the distortions of false consciousness but to understand their needs and, then, to encourage, with my AR interventions, their transition-related responses. As previously discussed, the development of self-determination among the participants was an outcome of this research, not a goal. As Lincoln (2001) affirms, "the end-goal of all inquiry projects is new understandings, new constructions, new, share information, which creates opportunities for meaningful, democratic and liberatory action" (Lincoln, 2001, p. 129). In this sense, emancipation or realisation of one's own potential is not exclusive to critical research. It also can be the result of research approaches that look at people's perceptions and the way they construct their world.

Taking for granted the idea of emancipation can be also unnecessary and/or restrictive for AR projects. While AR is based on a problem-solving approach, it may be also possible that meaningful change of any sort does not occur at all. Available research shows evidence of failed AR projects in the IS field (see Meister & Gronski, 2007; Olesen & Myers, 1999) which, nevertheless, were able to develop useful insights for theory and practice. Thus, in AR, it is also possible to learn and contribute from failure. Assuming that emancipation should be a prerequisite for AR projects may set a restrictive standard for what can be considered "successful" AR research.

10.5.3 Combining face-to-face and online AR interventions

From the early stages of this research, I found that students with vision impairments were actively using and adapting ICTs for their transition to university. Thus, it made sense to apply a "hybrid" or "blended" AR approach that complemented face-to-face interventions with online interventions. AR studies by Lau and Hayward (2000) on training health professionals to conduct community health research projects; Hearn, Foth, and Gray (2009) on new media as a corporate communication strategy for organisations; and Thornton and Yoong (2011) on leadership development in New Zealand's early childhood education sector are examples of the use of this combined AR approach. This study adds to the available body of knowledge the experiences of conjoining face-to-face and online interventions in the context of the transition to university of students with vision impairments.

While the inclusion of online interventions was a useful strategy for this research, face-to-face interventions remained important. During the first AR cycle of the study my main intervention was to set up a repository website via the Moodle platform. Although the participants initially accessed the transition-related information posted on it, its impact was limited. There was little interaction and

collaboration among them. The website was basically another source of information used individually by the students. For the second AR cycle, I changed the strategy. I organised group support meetings and obtained encouraging results. The collaborative and friendly environment of these meetings allowed the participants to talk openly, get to know each other and share transition experiences. This intervention was supported by a Facebook group page that the students used to access information and to connect privately with other research participants to continue the conversation. In other words, in the particular context of this research, the inclusion of support group meetings helped to build trust among the participants.

10.5.4 Action research for the study of disability

The above-mentioned experiences and outcomes of this study confirm the usefulness of AR to address real-life problems that affect specific groups such as students with vision impairments. Despite the problem-solving focus of AR and its well-positioned methodological status in fields such as education and organisation development (Baskerville & Myers, 2004), it seems that only recently the AR community has realised the potential of this research method to create actionable knowledge that not only supports people with disabilities but also contributes useful research (Coghlan, 2011). For example, in the last five years, the main AR journal, *Action Research*, has published more papers that look at the understanding and solution of some of the many issues related to disability. Research articles, such as the impact of iPads on people with intellectual disabilities' learning experience (Cumming, Strnadová, & Singh, 2014) or the use of AR for coping with chronic migraine (Seifert, 2012), are some examples of the growing interest in using AR to understand and address disability matters. This research, with its focus on the role of ICTs for transition to university, also contributes to this growing scholarly interest in the social sciences from an information systems (IS) perspective.

10.6 Research Challenges

As with any other research method, AR presents some potential challenges and this study was not exempt from them. In the following sub-sections I describe how I managed nine situations that arose during this research.

10.6.1 Getting access to the host organisation

One of main challenges for AR researchers is getting and maintaining access to an appropriate organisation (Walsham, 2006). For this research, the Disability Services unit was critical for contacting potential research participants. First, I had to negotiate access to the unit by explaining to its manager the potential benefits of the study for the future work of the organisation. After some meetings, in which my supervisors took part, and the presentation of a formal Terms of Reference

document I was granted entrance as a part-time "Research staff" member. I was allocated a desk and shared office space with other staff and spent two days a week in the unit. Negotiating access took almost six months and several discussions and drafts of the Terms of Reference document.

10.6.2 Managing expectations

Once within the Disability Services, another potential challenge was managing the expectations of the unit. Fortunately, the Terms of Reference, regular catch-up meetings and informal conversations helped me to clarify to the unit my role as a researcher. For example, it was made clear that although ICTs were a key component in the research, I was not an IT expert and that the research project was also a learning experience for me as a researcher. Similarly, the unit understood that the project was about working with students with vision impairments in regard to transition to university, and not evaluating the impact of transition services. Elucidating expectations from the beginning helped me to manage this potential challenge and cultivate a mutually collaborative environment with the unit.

10.6.3 Researcher's involvement with the host organisation

Similarly, another challenge as a researcher was to manage the level of my personal involvement with the organisation. While I did some administrative work and collaborated in transition activities and events, I was careful not to become too involved with non-research related work. I tried to maintain a balance in terms of my responsibilities as a researcher and member of the Disability Services team. The appropriate level of communication with and the understanding of the unit about the aims of the project helped me to prevent this potential challenge. Indeed, the Disability Services staff reminded me from time to time that they did not want to disturb me from my research by asking me to do some extra work.

10.6.4 Keeping critical distance

AR makes research relevant to practice as it involves close involvement of the researcher with the stakeholder(s) in real-life situations (Baskerville & Myers, 2004; Walsham, 2006). However, this benefit also brings some potential risks. Close involvement may make the researcher lose critical distance on the value of their own contribution and represent it in an overly positive fashion (Walsham, 2006, p. 322). As a qualitative AR researcher it is difficult to avoid the impact of my own background and subjectivity on the study. However, it is also viable to balance this potential risk. One strategy suggested by Kaplan and Maxwell (2005) is identifying and analysing discrepant data and negative cases. In reporting the findings of this study I have followed this advice and included those views that differed from the perceptions of the majority of participants.

10.6.5 Ensuring participants' research availability and commitment

Another practical challenge for this research was ensuring the availability of the participants in the study. Students with vision impairments are a small group within the disability community at Victoria University of Wellington. Moreover, not all these students were registered with the Disability Services and some contacted the unit when the trimester had already started. This situation reduced the opportunities to obtain an adequate number of research participants and follow their transition to university. Additionally, there were a few cases in which prospective students, who initially allowed me to attend their meetings with a Disability Adviser, decided at the end not to study until next year or chose another post-secondary education option. Also, at the beginning of trimester 2, 2012, when I planned a second AR cycle, there were only three new students registered with the unit who agreed to take part in the research. However, due to study workload, two of them decided to withdraw a few days after the beginning of the academic trimester. During the data collection process I depended on the availability of the participants and I was aware of its implications for the outcomes of the research.

Ensuring the participants' commitment was another potential challenge. While commitment to the research was voluntary, I also tried to encourage it. I provided the participants with detailed verbal and written information about the objectives of the research and made sure that they knew that their privacy was protected. Also, as suggested by my supervisors, organising social meetings as part of the data collection helped to develop trust among participants and in me, the researcher.

10.6.6 AR vs. consulting

AR has been criticised for its similarity to consulting (Baskerville, 1999; Bradbury, 2010) which may put in doubt the scientific relevance of its contribution. However, as Bradbury (2010) affirms, AR is not research for stakeholders but research with stakeholders (p. 95): in this case, students with vision impairments. The collaborative relationship between the participants and myself, which supported the joint construction of knowledge, was critical to differentiate this research project from consulting – where the consultant stays as an unbiased outsider (Baskerville, 1999). Additionally, while both AR and consulting seek solutions to problems, the latter is driven by commercial benefits (Baskerville, 1999). This research did not seek any financial gain for the students with vision impairments. It was motivated by the need to expand knowledge about transition to university and help the participants to make sense of it. Additionally, in order to avoid being described as consulting, Avison, Lau, Myers, and Nielsen (1999) advise AR researchers to be "explicit in following the tenets of action research when working in real-life situations" (p. 96), I was. From the beginning of the study, I was clear about

the objectives, research method, techniques and time involved for this research project and provided the participants with information about the characteristics of the research.

10.6.7 Privacy and confidentiality

Managing confidentiality and the privacy of the participants, especially in terms of disclosing their disability, was a potential issue not only in terms of the AR project but also the qualitative approach adopted. I was extremely careful in managing the participants 'personal information. As suggested by Patton (2002), I followed informed consent protocols (see Appendices A and B) when I first met them personally and I did it again before each support group meeting and individual interview. I made sure the participants were aware of the purpose and use of the information they provided to me. Although the students stated that they were open about disclosing their disability, I still used code names to protect their identities. I also complied with additional university procedures to safeguard participants' privacy by signing a Confidentiality of Information form.

10.6.8 Use of online tools

The use of online platforms can be also challenging in terms of protecting sensitive information about the participants as "the borders between public and private spaces are sometimes blurred" (Eysenbach & Till, 2001, p. 1103). As the study employed online tools as part of the AR interventions, there were potential ethical issues. To prevent any privacy breaches through the Moodle website and the Facebook group page, I readjusted the settings in both platforms so all posted content and messages were private and only accessible to the participants in the research. Because information can be easily shared on Facebook, the participants and I agreed that no online information or comment that included personal information about other participants would be shared or posted outside of the Facebook group. We all complied with this agreement and no privacy breaches occurred.

10.6.9 Harm and deception

A potential risk in applying AR, as in any other qualitative research method, is that in working with participants actively some form of harm or distress may be caused (Miles & Huberman, 1994). Fortunately, the participants did not report any of these. On the contrary, they mentioned that the AR interventions helped them manage some difficult events. For example, a few of them referred to the group support meetings where they were able to meet other students in the "same situation" and deal with some feelings of isolation and stress. Eventually, some participants developed friendships. The Facebook group page was also used as a channel through which the students started connecting online and then sharing transition experiences. I also tried to be sensitive and not to use any "disabling",

labelling or offensive words to describe the participants. Before contacting the participants, I had a conversation with staff from the Disability Services and I was advised to follow the conventions among practitioners. So, I used the term "students with vision impairments" which was also accepted among the participants.

10.7 Research Implications

The present study makes several noteworthy contributions in relation to the understanding of the factors that influence students with vision impairments' experiences of transition to university education in New Zealand and the role of ICTs in supporting their transition. In the following sub-sections I expand on the main contributions for theory, policy and practice.

10.7.1 Implications for theory

The general implication of this research for theory is that it provides an understanding about how students with vision impairments construct their transition to university. By following the tenets of the constructivist paradigm, this study has gained significant insights about the perceptions of the students, and how they individually and collectively made sense of their transition to university before, during and after their first trimester at university. By taking into account the voice of students with vision impairments, the study has unveiled how complex and challenging transition to university is for this group of students. It has also uncovered the evolving views of these students about university life and the way they dealt with their transition. The insights of this study similarly invite the scholarly community interested in disability, transition and tertiary education to consider the significant role of new technologies in the life of people with disabilities, in particular young people with vision impairments.

From this general implication for theory, five other specific contributions can be identified from this study: first, the introduction of the concept of Transition 2.0 and its corresponding conceptual framework; second, the relevance of ICTs for enhancing self-determination among students with vision impairments during their transition to university experience; third, the ten transition factors that impact in the university experience of students with vision impairments; four the different roles played by ICTs for transition to university and self-determination. Finally, a fifth implication of this study is its contribution to the IS field, in particular the research area of information systems education.

10.7.1.1 A framework for Transition 2.0

The concept of Transition 2.0 and the conceptual framework for understanding it is one of the most significant contributions of this research (see Chapter 4 for full discussion). Until now, studies

regarding transition to university and disability were to a large extent based on the work of Tinto (1993) which focused on students without disabilities and did not consider the role of ICTs. This research with its contributions based on the perspective of students with vision impairments is helping to fill the research gap about transition to university and disability. Its findings can be used as a lens or starting point to understand the transition experience of other disability groups. Transition 2.0 depicts the experiences of the student with vision impairments to make sense of her or his transition to university by sharing, learning, interacting and collaborating via ICTs, especially Web 2.0 and Internet-enabled portable devices. In this personal and collective journey, the student starts acquiring and/or developing the skills, attitudes and knowledge for self-determination that allow her or him to manage the challenges of university life and nurture her or his personal development as a young adult. The conceptual framework for Transition 2.0 interconnects the enabling roles of ICTs, the different stages of transition to university and the diverse transition factors experienced by the student during her or his first trimester at university. It describes how self-determination is enhanced among this group of students through the use of different technological tools.

10.7.1.2 The link between ICTs and self-determination

Self-determination, as presented in this study, is an important concept to consider in terms of transition to university. This study has shown that students with vision impairments are actively making sense of their transition and that they use ICTs for this purpose, to manage transition issues during the different transition stages. The research shows that the students are actively using and adapting ICTs not only for university-related matters but also for everyday life activities such as playing, shopping, and communicating. It is clear that access to information, communication, and collaboration and so on via ICTs is helping the students to learn on their own self-determination skills and behaviour that will help them to face real life in the future. In other words, in dealing with their transition to university, students with vision impairments are able to develop self-determination as well.

In this sense, this research is an opportunity for the scholarly community to investigate transition to university considering ICT-enabled self-determination. As previously mentioned, the focus of available research has been largely the adjustment of the student into the tertiary setting. On the contrary, this study suggests a holistic view in which transition is seen as a critical period for the students who are able to develop skills and acquire knowledge that will make them self-determined young adults instead of well-adjusted university students.

10.7.1.3 The identification of transition issues or factors

One of the primary interests of this research was to find out the issues or factors that have an impact on the transition experience of students with vision impairments. The study has uncovered ten significant transition issues in Transition 2.0 (see Chapter 4 for further discussion). While available research has focused on the impact of academic matters on the transition experience of the students, this research has found that there are other factors that also affect the students at different stages of their transition (e.g. physical environment at the beginning of the academic trimester) and that while these issues can be barriers, they also can facilitate the transition experience (e.g. social connections). The findings about transition issues expand and update available research about the transition experience of students with vision impairments and can serve as guidance for future research about transition issues for other disability groups.

10.7.1.4 ICTs in the context of transition

Another implication for theory is the uncovering of the multiple roles played by ICTs for the transition to university of students with vision impairments. Most scholarly research has looked at the impact of assistive technologies for students with vision impairments. The attention has centred on the compensatory or ameliorating role of these tools as well as their facilitation of communication and access to information. However this research has expanded the understanding of the roles of ICTs. By incorporating in the analysis other ICT tools (portable devices, Web 2.0), this research has also found, for example, that ICTs assist learning, increase collaboration and support social connection. This extended picture of the role of ICTs for transition to university represents a valuable contribution of the information systems field to disciplines such education and disability studies, which have not fully investigated the potential of new technologies for the transition experience of people with disabilities.

10.7.1.5 Implications for the IS field

The findings of this research also have implications for the IS field, particularly in the area of IS education. Most research in IS education has centred on, among others, curriculum design, teaching, students' learning experience, developments in educational software/hardware in the context of IS university programs. Recently, this area of research has expanded its scope to look at the impact of ICT-based information systems across university schools and majors. For instance the Journal of Information Systems Education, established in 1991, has published studies regarding cyberbullying and online voting that include participants from non-IS academic programs.

Thus, the contribution of this study for the area of IS education is that it fills the gap of transition to university as a relevant research topic. By revealing the way undergraduate students use and adapt ICTs (especially portable devices and collaborative tools) in the particular context of transition to university, academics in this IS area of research now have theoretical insights that can be used as lens for future research. The findings also provide researchers from IS education with understanding about one particular population group at university that is students with vision impairments. These findings can potentially guide future research about improving ICT-based teaching and enhancing the learning needs for this and other groups of students with impairments not only from IS academic programs but also other educational areas at university.

10.7.2 Implications for policy and practice

This research provides disability and social policy practitioners with a holistic understanding of the transition to university of students with vision impairments and it may help them in future design, planning and implementation of transition support services. For example, the extensive use and adaptation of ICTs among the students may represent an opportunity for practitioners in terms of exploring new ways of encouraging student engagement. Social media and portable devices are pervasive tools and they can be used not only as a communication channel but as a medium to enhance participation, collaboration and support between and among students with disabilities. In this sense practitioners are invited to consider the potential of ICTs by looking at the way students with vision impairments use and incorporate these tools into their transition experience rather than from a top-down and/or technology-centred perspective.

Similarly, this study shows that transition to university is an individual and collective experience. While practitioners have been focussed on supporting the individual transition journey of the students, they may also want to consider interventions and policies that encourage sharing, support and collaboration. It is clear from this study that students with vision impairments also made sense of their transition by interacting with their peers. My AR interventions for this study showed that the students were pleased to meet other participants who were "in the same situation". They were eager to talk with them, to share their experiences and to support each other in regard to transition challenges. In this sense transition programmes and policies may also consider in the future the social part of transition to university.

10.8 Research Limitations

This research has not been free of limitations. The following subsections discuss the two main limitations which are related to transferability, and subjectivity and bias.

10.8.1 Transferability of results

One of the main limitations of this study is its highly contextual nature. Although the findings are based on a rich set of data collected via different techniques and sources such as observations, a researcher diary, social media, focus groups and individual interviews, they have to be taken with caution in regard to transferability. This research was conducted with the participation of students from Victoria University of Wellington. As a constructivist researcher, I am aware that it can be difficult to transfer the findings and conclusions of this inquiry to the context of other universities in New Zealand, or tertiary institutions in other countries.

I should also stress that my study has been primarily concerned with the transition to university of young people with vision impairments aged between 18 and 24 years old. Thus, the results of this research may neither be applicable to older students with vision impairments, nor students from other disability groups. However they may be used as a lens when these particular contexts are researched.

Another aspect of the transferability limitation of this research is that it may not be applicable to students who are totally blind. In the course of this study, it was difficult to find potential participants who were blind and intended to study at Victoria University of Wellington. Future research may consider looking at the transition experience of this specific group of students with vision impairments.

10.8.2 Subjectivity and bias

As a qualitative and constructivist AR researcher, it is difficult not be influenced by my own subjectivity and potential bias. I recognise that this could be a limitation of the study. The motivation for the research topic was based on my personal interest in supporting people with disabilities via actionable research. Although the AR interventions were the result of the collaboration between the participants and myself, many of the actions I took to support the students were based on my interpretations of their transition experience. Because I was in charge of data analysis and reporting, the results not only reflect the students' view but also my perception of transition to university. As mentioned in sub-section 10.5, I adopted some measures to find a balance as a researcher.

10.9 Directions and Recommendations for Further Research

As mentioned in this chapter, all the participants have vision impairment but none of them were totally blind. It would be interesting to know via future research how blind students manage transition to university and how they use ICTs for their university experience. Also, another area of research could compare the transition experience of young and older students with vision impairments. In this study

I collected some evidence from secondary sources of data revealing that older students are not benefiting from the use of ICTs as their younger peers do. However more research is needed as a large percentage of the New Zealand population with disabilities belong to the older age group.

Another avenue for further study would be research that includes other groups of students with disabilities. Although most research about transition has focused on students with learning disabilities, there is still a research gap regarding the impact of ICTs on the transition experience of other groups of students with disabilities.

Future research may also include the experience of students in other types of tertiary education settings. While this study looked at one particular university setting, researchers may find it interesting to include polytechnics, institutes of technology, wānanga, industry training organisations, private training establishments and/or rural education activity programme providers.

I also think that possible areas for future research may include a longitudinal study that goes further than the transition experience of students with vision impairments and looks at later years of their undergraduate study. This may give a better idea about ICT-enabled self-determination among students with vision impairments and their persistence and/or withdrawal from university.

10.10 Chapter Summary

In this final chapter I have discussed the implications of the research findings and presented the conclusions of the study. It showed that I have answered the two research questions that guided this study: the factors/issues that have an impact on the transition experience of students with vision impairments and the role of ICTs in that respect. In this study, I have been interested in understanding the way students with vision impairments construct the meaning of their transition. I used action research (AR) to this end. My research approach, as discussed in this chapter, has allowed me to uncover some significant insights. What emerges from this research is the connection between ICTs and self-determination among students with vision impairments. Also, I have proposed a conceptual framework to understand the paradigm shift towards Transition 2.0 and I have unveiled its overlapping and dynamic transition stages. On the other hand, AR has been shown to be not only a relevant research method for knowledge contribution but also useful for supporting the participants' practical challenges in the transition to university. All these insights represent a strong contribution not only to the scholarly community but also to disability and social policy practitioners.

Bibliography

Abner, G. H., & Lahm, E. A. (2002). Implementation of assistive technology with students who are visually impaired: Teachers' readiness. *Journal of Visual Impairment & Blindness, 96*(2), 98-105.

Adam, A., & Kreps, D. (2006). Enabling or disabling technologies? A critical approach to web accessibility. *Information Technology & People, 19*(3), 203-218. doi: doi:10.1108/09593840610689822

Adams, M., & Brown, S. (Eds.). (2006). *Towards inclusive learning in higher education: Developing curricula for disabled students*. New York: Routledge.

Algozzine, B., Browder, D., Karvonen, M., Test, D. W., & Wood, W. M. (2001). Effects of interventions to promote self-determination for individuals with disabilities. *Review of Educational Research, 71*(2), 219-277.

Allen, D. F., & Nelson, J. M. (1989). Tinto's model of college withdrawal applied to women in two institutions. *Journal of Research and Development in Education, 22*(3), 1-11.

Almog, N. (2011). *Academic and social adjustment of university students with visual impairment.* (Doctoral thesis, Bar Ilan University, Tel Aviv, Israel). Retrieved from http://in.bgu.ac.il/icqm/DocLib1/Nitsansalmog.pdf

Amadeo, J.-A. (2007). Patterns of Internet use and political engagement among youth. In P. Dahlgren (Ed.), *Young citizens and new media: Learning for democratic participation* (pp. 125-146).

Amichai-Hamburger, Y., & Ben-Artzi, E. (2003). Loneliness and Internet use. *Computers in Human Behavior, 19*(1), 71-80.

Ashar, H., & Skenes, R. (1993). Can Tinto's student departure model be applied to nontraditional students? *Adult Education Quarterly, 43*(2), 90-100.

Asselin, S. B. (2014). Learning and assistive technologies for college transition. *Journal of Vocational Rehabilitation, 40*(3), 223-230.

Astin, A. W. (1984). Student involvement: A developmental theory for higher education. *Journal of College Student Personnel, 25*, 297-308.

Attewell, P., Suazo-Garcia, B., & Battle, J. (2003). Computers and young children: Social benefit or social problem. *Social Forces, 82*(1), 277-296.

Attinasi, L. C., Jr. (1989). Getting in: Mexican Americans' perceptions of university attendance and the implications for freshman year persistence. *The Journal of Higher Education, 60*(3), 247-277.

Avison, D., Baskerville, R., & Myers, M. (2001). Controlling action research projects. *Information Technology & People, 14*(1), 28-45.

Avison, D., Lau, F., Myers, M., & Nielsen, P. A. (1999). Action Research. *Communications of the ACM, 42*(1), 94-97.

Bakken, J. P., & Obiakor, F. E. (2008). *Transition planning for students with disabilities: What educators and service providers can do*. Springfield, Illinois: Charles C Thomas.

Barak, A., & Sadovsky, Y. (2008). Internet use and personal empowerment of hearing-impaired adolescents. *Computers in Human Behavior, 24*(5), 1802-1815.

Bardin, J. A., & Lewis, S. (2008). A survey of academic engagement of students with visual impairments in general education classes. *Journal of Visual Impairment & Blindness, 102*, 472-483.

Barnes, C. (2007). Disability, higher education and the inclusive society. *British Journal of Sociology of Education, 28*(1), 135 - 145.

Barnes, C., & Mercer, G. (2006). *Independent futures: Creating user-led disability services in a disabling society*. Bristol: The Policy Press.

Baskerville, R. (1999). Investigating information systems with action research. *Communications of the AIS, 2*(3). Retrieved from http://portal.acm.org/citation.cfm?id=374476

Baskerville, R., & Myers, M. D. (2004). Special Issue on action research in information systems: Making IS research relevant to practice: Foreword. *MIS Quarterly, 28*(3), 329-335.

Baskerville, R., & Wood-Harper, A. T. (1998). Diversity in information systems action research methods. *European Journal of Information Systems, 7*, 90-107.

Bates, T. (2005). *Technology, e-learning and distance education* (Second ed.). New York: Routledge.

Beatson, P. (2001). *The disability revolution in New Zealand: A social map*. Palmerston North: Sociology Programme, Massey University.

Beilke, J. R., & Yssel, N. (1999). The chilly climate for students with disabilities in higher education. *College Student Journal, 33*, 364.

Belch, H. A. (2004). Retention and students with disabilities. *Journal of College Student Retention: Research, Theory and Practice, 6*(1), 3-22.

Bell, A., Crothers, C., Goodwin, I., Kripalani, K., Sherman, K., & Smith, P. (2007). *The Internet in New Zealand 2007: Final report*. Retrieved May 11, 2010, from http://www.aut.ac.nz/__data/assets/pdf_file/0004/15655/wipnz_2007_final_report.pdf

Bell, D. (1999). *The coming of the post-industrial society: A venture in social forecasting* (Third ed.). New York: Basic Books.

Beresford, B. (2004). On the road to nowhere? Young disabled people and transition. *Child: Care, Health & Development, 30,* 581-587.

Beresford, P. (2004). Treatment at the hands of professionals. In J. Swain (Ed.), *Disabling barriers-enabling environments* (pp. 245-250). London: SAGE Publications.

Berg, B. L. (2009). *Qualitative research methods for the social sciences* (Seventh ed.). Boston: Allyn & Bacon.

Boase, J., Horrigan, J., Wellman, B., & Rainie, L. (2006). *The strenght of Internet ties.* Retrieved from http://www.pewinternet.org/~/media//Files/Reports/2006/PIP_Internet_ties.pdf.pdf

Boerner, K., & Cimarolli, V. (2005). Social support and well-being in adults who are visually impaired. *Journal of Visual Impairment & Blindness, 99*(9), 521-534.

Bowker, N., & Tuffin, K. (2003). Dicing with deception: People with disabilities' strategies for managing safety and identity online. *Journal of Computer-Mediated Communication, 8*(2). Retrieved from http://jcmc.indiana.edu/vol8/issue2/bowker.html

Boyd, D. (2014). *It's complicated: The social lives of networked teens*. Yale University Press.

Boyle, T. P. (1989). An examination of the Tinto model of retention in higher education. *NASPA Journal, 26*(4), 288-294.

Braa, R., & Vidgen, K. (1999). Interpretation, intervention, and reduction in the organisational laboratory: A framework for in-context information systems research. *Accounting, Management and Information Technology, 9*(1), 1-21.

Bradbury, H. (2010). What is good action research? *Action Research, 8*(1), 93-109. doi: 10.1177/1476750310362435

Bradbury, H., & Reason, P. (2003). Action research: An opportunity for revitalizing research purpose and practices. *Qualitative Social Work, 2*(2), 155-175.

Bradley, N., & Poppen, W. (2003). Assistive technology, computers and Internet may decrease sense of isolation for homebound elderly and disabled persons. *Technology & Disability, 15*(1), 19-26.

Braxton, J., Sullivan, A., & Johnson, R. (1997). Appraising Tinto's theory of college student departure. *Higher education: Handbook of theory and research, 12,* 107-164.

Bridges, W. (2009). *Managing transitions: Making the most of change* (Third ed.). Philadelphia: Da Capo Lifelong.

Brower, A. M. (1992). The "Second Half" of student integration: The effects of life task predominance on student persistence. *The Journal of Higher Education, 63*(4), 441-462.

Brydon-Miller, M., Greenwood, D., & Maguire, P. (2003). Why action research? *Action Research, 1*(1), 9-28.

Bryman, A. (2008). *Social Research Methods* (Third ed.). New York: Oxford University Press.

Burgstahler, S. E. (2002). Distance learning: Universal design, universal access. *AACE Journal, 10*(1), 32-61.

Burgstahler, S. E. (2003). The role of technology in preparing youth with disabilities for postsecondary education and employment. *Journal of Special Education Technology, 18*(4), 7-19.

Cabrera, A. F., Nora, A., & Castaneda, M. B. (1993). College persistence: Structural equations modeling test of an integrated model of student retention. *The Journal of Higher Education, 64*(2), 123-139.

Caplan, S. E. (2003). Preference for online social interaction: A theory of problematic internet use and psychosocial well-being. *Communication Research, 30*(6), 625-648.

Carr, D. (2010). Constructing disability in online worlds: Conceptualising disability in online research. *London Review of Education, 8*(1), 51-61.

Carter, E. W., Hughes, C., Guth, C. B., & Copeland, S. R. (2005). Factors influencing social interaction among high school students with intellectual disabilities and their general education peers. *American Journal on Mental Retardation, 110*(5), 366-377.

Caton, S., & Kagan, C. (2007). Comparing transition expectations of young people with moderate learning disabilities with other vulnerable youth and with their non-disabled counterparts. *Disability & Society, 22*(5), 473 - 488.

Chang, S. C.-H., & Schaller, J. (2002). The views of students with visual impairments on the support they received from teachers. *Journal of Visual Impairment & Blindness, 96*(8), 558-575.

Chua, W. F. (1986). Radical developments in accounting thought. *The Accounting Review, 61*(4), 601-632.

Cimarolli, V. R., Reinhardt, J. P., & Horowitz, A. (2006). Perceived overprotection: Support gone bad? *The Journals of Gerontology Series B: Psychological Sciences and Social Sciences, 61*(1), S18-S23.

Clausen, J. A. (1995). Gender, contexts, and turning points in adults' lives. In P. Moen, J. Glen H. Elder & K. Luscher (Eds.), *Examining lives in context: Perspectives on the ecology of human development* (pp. 365-389). Washington, DC: American Psychological Association.

Cobb, B., Sample, P. L., Alwell, M., & Johns, N. R. (2006). Cognitive - behavioral interventions, dropout, and youth with disabilities: A systematic review. Remedial and Special Education, 27(5), 259-275.

Çoklar, A. N. (2012). *Evaluations of students on Facebook as an educational environment*. Retrieved from http://dergipark.ulakbim.gov.tr/tojqi/article/viewFile/5000093471/5000086962

Coghlan, D., & Brannick, T. (2005). *Doing action research in your own organization* (Second ed.). London: SAGE Publications.

Coghlan, D., & Brannick, T. (2010). *Doing action research in your own organization* (Third ed.). Los Angeles: SAGE Publications.

Coghlan, D. (2011). Action research: Exploring perspectives on a philosophy of practical knowing. *The academy of Management Annals, 5*(1), 53-87. doi: 10.1080/19416520.2011.571520

Cook, J. A., Fitzgibbon, G., Batteiger, D., Grey, D. D., Caras, S., Dansky, H., & Priester, F. (2005). Information technology attitudes and behaviors among individuals with psychiatric disabilities who use the Internet: Results of a web-based survey. *Disability Studies Quarterly, 25*(2), N.PAG. Retrieved from http://helicon.vuw.ac.nz/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=ehh&AN=17284205&site=ehost-live

Cook, A. M., & Polgar, J. M. (2014). *Assistive Technologies: Principles and Practice* (Fourth ed.). St. Louis, Missouri: Elsevier Health Sciences.

Corn, A., & Koenig, A. J. (1996). *Foundations of low vision: clinical and functional perspectives*. New York: AFB Press.

Coursaris, C. K., & Liu, M. (2009). An analysis of social support exchanges in online HIV/AIDS self-help groups. *Computers in Human Behavior, 25*(4), 911-918.

Creswell, J. W. (2003). *Research design: Qualitative, quantitative, and mixed methods approaches* (Second ed.). Thounsand Oaks, CA: SAGE Publications.

Creswell, J. W. (2007). *Qualitative inquiry and research design: Choosing among five approaches* (Second ed.). Thousand Oaks, CA: SAGE Publications.

Cumming, T. M., Strnadová, I., & Singh, S. (2014). iPads as instructional tools to enhance learning opportunities for students with developmental disabilities: An action research project. *Action Research, 12*(2), 151-176.

Dabbagh, N., & Kitsantas, A. (2012). Personal Learning Environments, social media, and self-regulated learning: A natural formula for connecting formal and informal learning. *The Internet and Higher Education, 15*(1), 3-8.

DaDeppo, L. M. (2009). Integration factors related to the academic success and intent to persist of college students with learning disabilities. *Learning Disabilities Research & Practice, 24*(3), 122-131.

Davis, R. A. (2001). A cognitive-behavioral model of Pathological Internet Use. *Computers in Human Behavior, 17*(2), 187-195.

Davison, R., Martinsons, M. G., & Kock, N. (2004). Principles of canonical action research. *Information Systems Journal, 14*(1), 65-86.

Deci, E. L., Connell, J. P., & Ryan, R. M. (1989). Self-determination in a work organization. Journal of Applied Psychology, 74(4), 580-590.

deFur, S. H., Todd-Allen, M., & Getzel, E. E. (2001). Parent participation in the transition planning process. *Career Development for Exceptional Individuals, 24*(1), 19-36.

Denzin, N. K., & Lincoln, Y. S. (2005). Introduction: The discipline and practice of qualitative research. In N. K. Denzin & Y. S. Lincoln (Eds.), *The SAGE hanbook of qualitative research* (Third ed., pp. 1-33). Thousand Oaks: SAGE Publications.

Dewson, S., Aston, J., Bates, P., Ritchie, H., & Dyson, A. (2004). *Post-16 transitions: A longitudinal study of young people with special educational needs: Wave two*. London: DfES Publications.

Diesfeld, K., McLean, M., Phelan, T., Patston, P., Miller-Burgering, W., & Vickery, R. (2008). The challenge of designing optimum legal services for disabled people: the New Zealand experience. *Disability & Society, 23*(5), 431-443.

Dimigen, G., Roy, A. W. N., Horn, J., & Swan, M. (2001). Integration of visually impaired students into mainstream education: Two case studies. *Journal of Visual Impairment & Blindness, 95*(3), 161-164.

Dobransky, K., & Hargittai, E. (2006). The disability divide in internet access and use. *Information, Communication & Society, 9*(3), 313-334.

Duquette, C. (2000). Experiences at university: Perceptions of students with disabilities. *Canadian Journal of Higher Education, 30*(2), 123-141.

Ebersold, S. (2008). Adapting higher education to the needs of disabled students: Developments, challenges and prospects. In OECD (Ed.), *Higher education to 2030* (pp. 221-240): OECD Publishing.

Ebersold, S., & Evans, P. (2003). *Disability in higher education*. Paris: OECD Publications.

Eckes, S. E., & Ochoa, T. A. (2005). Students with disabilities: Transitioning from high school to higher education. *American Secondary Education, 33*(3), 6-20.

Elden, M., & Chisholm, R. F. (1993). Emerging varieties of action research: Introduction to the special issue. *Human Relations, 46*(2), 121-142.

Elliott, T., & Wilson, C. (2004). *Audit of disability outreach activity in South Yorkshire*, from http://www.aimhigher.ac.uk/syorks/resources/Final%20audit%20report2.pdf

Ellis, K. (2010). A purposeful rebuilding YouTube, representation, accessibility and the socio-political space of disability. *Telecommunications Journal of Australia, 60*(2), 21.21-21.12. doi: doi:10.2104/tja10021

Ellison, N. B., Steinfield, C., & Lampe, C. (2007). The benefits of facebook "friends:" Social capital and college students' use of online social network sites. *Journal of Computer-Mediated Communication, 12*(4), 1143-1168.

English, R. M., & Duncan-Howell, J. A. (2008). Facebook© goes to college: Using social networking tools to support students undertaking teaching practicum. *Journal of Online Learning and Teaching, 4*(4), 596-601.

Erin, J. N., & Wolffe, K. E. (1999). *Transition issues related to students with visual disabilities*. Austin: Pro-ed.

Evans, S., & Douglas, G. (2008). E-learning and blindness: A comparative study of the quality of an e-learning experience. *Journal of Visual Impairment & Blindness, 102*(2), 77-88.

Eysenbach, G., & Till, J. E. (2001). Ethical issues in qualitative research on Internet communities. *BMJ: British Medical Journal, 323*(7321), 1103-1105.

Fairweather, J. S., & Shaver, D. M. (1990). A troubled future?: Participation in postsecondary education by youths with disabilities. *The Journal of Higher Education, 61*(3), 332-348.

Ferrell, K. (2007). *Issues in the field of blindness and low-vision*. Retrieved from http://www.unco.edu/ncssd/resources/issues_bvi.pdf

Fitzgerald, B., & Howcroft, D. (1998). Towards dissolution of the IS research debate: From polarization to polarity. *Journal of Information Technology, 13*(4), 313.

Flick, U. (2002). *An introduction to qualitative research* (Second ed.). London: SAGE Publications.

Fowler, C. H., Konrad, M., Walker, A. R., Test, D. W., & Wood, W. M. (2007). Self-determination interventions' effects on the academic performance of students with developmental disabilities. *Education and Training in Developmental Disabilities, 42*(3), 270-285.

Fox, R. N. (1986). Application of a conceptual model of college withdrawal to disadvantaged students. *American Educational Research Journal, 23*(3), 415-424.

Frankland, H. C., Turnbull, A. P., Wehmeyer, M., & Blackmountain, L. (2004). An exploration of the self-determination construct and disability as it relates to the Dine (Navajo) culture. *Education and Training in Developmental Disabilities, 39*(3), 191-205.

Frick, K. D., Gower, E. W., Kempen, J. H., & Wolff, J. L. (2007). Economic impact of visual impairment and blindness in the United States. *Archives of Ophthalmology, 125*(4), 544-550.

Gale, T., & Parker, S. (2011). *Student transition into higher education*. Retrieved from http://fyhe.com.au/wp-content/uploads/2012/10/Student-transition-into-higher-education.-ALTC-Good-practice-report.-Gale-T-Parker-S-Deakin-1.pdf

Gale, T., & Parker, S. (2014). Navigating student transition in higher education: Induction, development, becoming. In H. Brook, D. Fergie, M. Maeorg & D. Mitchell (Eds.)*Universities in Transition: Foregrounding Social Contexts of Knowledge in the First Year Experience* (pp. 13-40). Adelaide, Australia. University of Adelaide Press.

Garrison-Wade, D. F., & Lehmann, J. P. (2009). A conceptual framework for understanding students' with disabilities transition to community college. *Community College Journal of Research and Practice, 33*(5), 415-443.

Gatz, L. B., & Hirt, J. B. (2000). Academic and social integration in cyberspace: Students and e-mail. *The Review of Higher Education, 23*(3), 299-318.

Getzel, E. E. (2008). Addressing the Persistence and Retention of Students with Disabilities in Higher Education: Incorporating Key Strategies and Supports on Campus. *Exceptionality, 16*(4), 207-219.

Getzel, E. E., & Briel, L. W. (2006). Pursuing postsecondary education opportunities for individuals with disabilities. In P. Wehman (Ed.), *Life beyond the classroom: Transition strategies for young people with disabilities* (Fourth ed., pp. 355-367). Baltimore, Maryland: Paul H. Brookes Publishing.

Getzel, E. E., & Wehman, P. (Eds.). (2005). *Going to college: Expanding opportunities for people with disabilities*. Baltimore, Maryland: P.H. Brookes.

Getzel, E. E., & Thoma, C. A. (2008). Experiences of college students with disabilities and the importance of self-determination in higher education settings. 31(2), . *Career Development for Exceptional Individuals, 31*(2), 77-84.

Giannini, M. J. (1981). Computing and the Handicapped: A Promising Alliance. *Computer, 14*(1), 12-13.

Gibbs, A. (1997). Focus groups. *Social Research Update*. Retrieved from http://sru.soc.surrey.ac.uk/SRU19.html

Gilmore, D., Bose, J., & Hart, D. (2001). Postsecondary education as a critical step toward meaningful employment: Vocational rehabilitation's role. *Research to Practice, 7*(4), 1–4.

Godfrey, A. J. R., & Brunning, D. M. (2009). Reconciling true and incurred costs of blindness in New Zealand. *Social Policy Journal Of New Zealand 36*, 208-216.

Goggin, G., & Newell, C. (2003). *Digital disability: The social construction of disability in new media*. Oxford: Rowman & Littlefield Publishers.

Goggin, G., & Newell, C. (2004). Disabled e-nation: Telecommunications, disability, and national policy. *Prometheus: Critical Studies in Innovation, 22*(4), 411 - 422.

Golan, N. (1981). Nature of transitions and the change process. In N. Golan (Ed.), *Passing through transitions: A guide for practitioners.* (pp. 11-). New York: Free Press.

Goldrick-Rab, S. (2007). What higher education has to say about the transition to college. *The Teachers College Record, 109*(10), 2444-2481.

Goodman, J., Schlossberg, N. K., & Anderson, M. L. (2006). *Counseling adults in transition: Linking practice with theory* (Second ed.). New York: Springer Publishing Company.

Graber, J. A., & Brooks-Gunn, J. (1996). Transitions and turning points: Navigating the passage from childhood through adolescence. *Developmental Psychology, 32*(4), 768-776.

Green, P. (2002). Naturalistic inquiry: A method for transforming curiosity into active inquiry. In P. Green (Ed.), *Slices of Life: Qualitative Research Snapshots* (pp. 3-17). Melbourne: RMIT University Press.

Gregor, S. (2006). The nature of theory in information systems. *MIS Quarterly, 30*(3), 611-642.

Grimaldi, C., & Goette, T. (1999). The Internet and the independence of individuals with disabilities. *Internet Research, 9*(4), 272-280.

Grosset, J. A. (1989). A conceptual framework for describing the causes of student attrition. *Philadelphia Community College Office of Institutional Research Report.* Retrieved December 4, 2010, from http://www.eric.ed.gov/PDFS/ED310819.pdf

Guba, E. G. (1990). The alternative paradigm dialog. In E. G. Guba (Ed.), *The paradigm dialog* (pp. 17-30). Newbury Park, CA: SAGE Publications.

Guba, E. G., & Lincoln, Y. S. (1986). But is it rigorous? Trustworthiness and authenticity in naturalistic evaluation. *New Directions For Program Evaluation, 30*, 73-84.

Guba, E. G., & Lincoln, Y. S. (1989). *Fourth generation evaluation*. Newbury Park: SAGE Publications.

Guba, E. G., & Lincoln, Y. S. (1998). Competing paradigms in qualitative research. In N. K. Denzin & Y. S. Lincoln (Eds.), *The landscape of qualitative research: Theories and issues* (pp. 195-220). Thousand Oaks, CA: SAGE Publications.

Guba, E. G., & Lincoln, Y. S. (2005). Paradigmatic controversies, contradictions, and emerging confluences. In N. K. Denzin & Y. S. Lincoln (Eds.), *The SAGE hanbook of qualitative research* (Third ed., pp. 191-215). Thousand Oaks, CA: SAGE Publications.

Guiffrida, D. (2006). Toward a cultural advancement of Tinto's theory. *The Review of Higher Education, 29*(4), 451-472.

Gulam, W. A., & Triska, J. (1998). Students with special needs: A paradigm for the transition from school to college in the United Kingdom. *Journal on Postsecondary Education and Disability, 13*(2). Retrieved from http://74.125.155.132/scholar?q=cache:4D1cfkrBqHQJ:scholar.google.com/&hl=en&as_sdt=2000

Gumpel, T., & Nativ-Ari-Am, H. (2001). Evaluation of a technology for teaching complex social skills to young adults with visual and cognitive impairments. *Journal of Visual Impairment & Blindness, 95*(2), 95-107.

Gurung, B., & Rutledge, D. (2014). Digital learners and the overlapping of their personal and educational digital engagement. *Computers & Education, 77*, 91-100.

Gutterman, B., Rahman, S., Supelano, J., Thies, L., & Yang, M. (2009). Information & Communication Technologies (ICT) in education for development. *United Nations, Global Alliance for ICT and Development.* Retrieved July 30, 2011, from http://unpan1.un.org/intradoc/groups/public/documents/gaid/unpan034975.pdf

Hadley, W. M. (2011). College students with disabilities: A student development perspective. *New Directions for Higher Education, 2011*(154), 77-81.

Hall, T., Healey, M., & Harrison, M. (2004). Fieldwork and disabled students: Discourses of exclusion and inclusion. *Journal of Geography in Higher Education, 28*(2), 255-280.

Halpin, R. L. (1990). An application of the Tinto model to the analysis of freshman persistence in a community college. *Community College Review, 17*(4), 22-32.

Hampton, K., & Wellman, B. (2003). Neighboring in Netville: How the Internet supports community and social capital in a wired suburb. *City and Community, 2*(4), 277-311.

Hanson, J. (2006). *The housing and support needs of people aged 18-55 with sight loss.* Retrieved November 12, 2010, from http://eprints.ucl.ac.uk/3853/1/3853.pdf

Hanson, J., & Percival, J. (2005). The housing and support needs of visually impaired adults living in England today. *British Journal of Visual Impairment, 23*(3), 102-107.

Hasebrink, U., & Paus-Hasebrink, I. (2007). Young people's identity construction and media use: Democratic participation in Germany and Austria. In P. Dahlgren (Ed.), *Young citizens and new media: Learning for democratic participation* (pp. 81-101). New York: Taylor & Francis.

Hazan, P. L. (1981). Computing and the Handicapped. *Computer, 14*(1), 9-10.

Helal, A., Moore, S., & Ramachandran, B. (2001). Drishti: An integrated navigation system for visually impaired and disabled. *Fifth International Symposium on Wearable Computers.*, from

http://netlab18.cis.nctu.edu.tw/html/paper/2002_02_27/Drishti%20an%20integrated%20navigation%20system%20for%20visually%20impaired%20and%20disabled.pdf

Hearn, G., Foth, M., & Gray, H. (2009). Applications and implementations of new media in corporate communications: An action research approach. *Corporate Communications: An International Journal, 14*(1), 49-61. doi: 10.1108/13563280910931072

Hersh, M., & Johnson, M. A. (2008). *Assistive technology for visually impaired and blind people*. London: Springer Science & Business Media.

Heron, J. (1981). Philosophical basis for a new paradigm. In P. Reason & J. Rowan (Eds.), *Human inquiry: A sourcebook of new paradigm research* (pp. 19-35). New York: John Wiley & Sons.

Hewett, R., Douglas, G., & Keil, S. (2014). Post-16 transition experience of visually impaired young people in England and Wales: Early findings from a longitudinal study. *British Journal of Visual Impairment, 32*(3), 211-222.

Hill, N. E., & Taylor, L. C. (2004). Parental school involvement and children's academic achievement. *Current Directions in Psychological Science, 13*(4), 161-164. doi: 10.1111/j.0963-7214.2004.00298.x

Hillman, K. (2005). The first year experience: The transition from secondary school to university and TAFE in Australia. *Australian Council for Educational Research: Camberwell*, from http://acer.edu.au/documents/LSAY_lsay40.pdf

Hinchey, P. H. (2008). *Action research*. New York: Peter Lang.

Hirschheim, R., & Klein, H. K. (1994). Realizing emancipatory principles in information systems development: The case for ETHICS. *MIS Quarterly, 18*(1), 83-109. doi: 10.2307/249611

Hodges, J. S., & Keller, M. J. (1999). Visually impaired students' perceptions of their social integration in college. *Journal of Visual Impairment & Blindness, 93*(3), 153.

Holden, M. (2005). Virtual environments for motor rehabilitation: review. *Cyberpsychology & Behavior, 8*(3), 187-211.

Hollier, S., & Murray, I. (2006). *The evolution of e-inclusion: Technology in education for the vision impaired.* Retrieved from http://digitalcommons.ilr.cornell.edu/cgi/viewcontent.cgi?article=1343&context=gladnetcollect

Holter, I. M., & Schwartz-Barcott, D. (1993). Action research: What is it? How has it been used and how can it be used in nursing? *Journal of Advanced Nursing, 18*(2), 298-304. doi: 10.1046/j.1365-2648.1993.18020298.x

Hong, B. S., Ivy, W. F., Gonzalez, H. R., & Ehrensberger, W. (2007). Preparing students for postsecondary education. *Teaching Exceptional Children, 40*(1), 32-38.

Huebner, K. M. (1986). Social skills. In G. T. School (Ed.), *Foundations of education for blind and visually handicapped children and youth: Theory and practice* (pp. 341-362). New York: American Foundation for the Blind Inc.

Hughes, C. (2001). Transition to adulthood: Supporting young adults to access social, employment, and civic pursuits. *Mental Retardation & Developmental Disabilities Research Reviews, 7*, 84-90.

Hult, M., & Lennung, S.-Å. (1980). Towards a definition of action research: A note and bibliography. *Journal of Management Studies, 17*(2), 241-250. doi: 10.1111/j.1467-6486.1980.tb00087.x

Hutchinson, J. O., Atkinson, K., & Orpwood, J. (1998). *Breaking down barriers: Access to further and higher education for visually impaired students*. Cheltenham: Stanley Thornes Publishers Ltd.

Huurre, T. M. (2000). *Psychosocial development and social support among adolescents with visual impairment*. Retrieved November 20, 2010, from http://dev.ee.tut.fi/allpub/bitstream/handle/123456789/1359/951-44-4842-1.pdf?sequence=1

Ivanoff, S. D., & Hultberg, J. (2006). Understanding the multiple realities of everyday life: Basic assumptions in focus-group methodology. *Scandinavian Journal of Occupational Therapy, 13*, 125-132.

James, R., Krause, K.-L., & Jennings, C. (2010). *The first-year experience in Australian universities: Findings from 1994 to 2009*. Retrieved from http://cshe.unimelb.edu.au/research/experience/docs/FYE_Report_1994_to_2009.pdf

Jeannie, F. L., & Bonnie, S. B. (2000). An analysis of factors that contribute to parent-school conflict in special education. *Remedial and Special Education, 21*(4), 240.

Joe, C. (2010). *Retaining the knowledge of older experts in an organisational context and the role of ICT*. PhD thesis in Information Systems, Victoria University of Wellington, Wellington, New Zealand. Retrieved from http://researcharchive.vuw.ac.nz/bitstream/handle/10063/1613/thesis.pdf?sequence=1

Johnson, L., Adams, S., & Haywood, K. (2011). *The NMC Horizon Report: 2011 K-12 Edition*. Austin, Texas: The New Media Consortium.

Jorgensen, S., Fichten, C. S., Havel, A., Lamb, D., James, C., & Barile, M. (2005). Academic performance of college students with and without disabilities: An archival study. *Canadian Journal of Counselling 39*(2), 101-117.

Kaneko, T., Fujiyoshi, M., Oouchi, S., Teshima, Y., Ikegami, Y., Watanabe, Y., & Yamazawa4, K. (2010). Comprehending and making drawings of 3D objects by visually impaired people: Research on drawings of geometric shapes by various methods of projection In K. Miesenberger, J. Klaus, W. Zagler & A. Karshmer (Eds.), *Computers helping people with special needs* (pp. 548-555). Heidelberg: Springer.

Kaplan, B., & Maxwell, J. (2005). Qualitative research methods for evaluating computer information systems. In J. Anderson & C. Aydin (Eds.), *Evaluating the Organizational Impact of Healthcare Information Systems* (pp. 30-55). New York: Springer.

Keeffe, J. E., Chou, S.-L., & Lamoureux, E. L. (2009). The cost of care for people with impaired vision in Australia. *Archives of Ophthalmology, 127*(10), 1377-1381. doi: 10.1001/archophthalmol.2009.242

Kef, S., & Dekovic, M. (2004). The role of parental and peer support in adolescents well-being: a comparison of adolescents with and without a visual impairment. *Journal of Adolescence, 27*(4), 453-466.

Kekelis, L. S., & Sacks, S. Z. (1992). The effects of visual impairment on children's social interactions in regular education programs. In S. Sacks, L. Kekelis & R. Gaylord-Ross (Eds.), *The Development of social skills by blind and visually impaired students: exploratory studies and strategies* (pp. 59-82). New York: AFB Press.

Kelley, P., Sanspree, M., & Davidson, R. (2000). Vision impairment in children and youth. In B. Silverstone (Ed.), *The lighthouse handbook on vision impairment and vision rehabilitation* (Vol. Two, pp. 1137-1151). New York: Oxford University Press.

Kelly, S. M., & Smith, D. W. (2011). The impact of assistive technology on the educational performance of students with visual impairments: A synthesis of the research. *Journal of Visual Impairment & Blindness, 105*(2), 73-83.

Kelly, S. M., & Wolffe, K. E. (2012). Internet use by transition-aged youths with visual impairments in the United States: Assessing the impact of postsecondary predictors. *Journal of Visual Impairment & Blindness, 106*(10), 597.

Kemmis, S. (2007). Action research. In M. Hammersley (Ed.), *Educational research and evidence-based practice* (pp. 167-180). London: SAGE Publications.

Kemmis, S., & McTaggart, R. (2005). Participatory accion research: Communicative action and the public sphere. In N. K. Denzin & Y. S. Lincoln (Eds.), *The SAGE handbook of qualitative research* (Third ed., pp. 559-603). Thousand Oaks, CA: SAGE Punlications.

Kemmis, S. (2006). Exploring the relevance of critical theoryfor action research: Emancipatory action research in the footsteps of Jurgen Habermas. In P. Reason & H. Bradbury (Eds.), *Handbook*

of Action Research: The concise paperback edition (pp. 94-105). London: SAGE Publications.

Kennedy, T. L. M., Smith, A., Wells, A. T., & Wellman, B. (2008). Networked families. *Pew Internet & American Life Project.* Retrieved June 10, 2010, from http://www.pewinternet.org/~/media//Files/Reports/2008/PIP_Networked_Family.pdf.pdf

Kincheloe, J. L., & McLaren, P. L. (2000). Rethinking critical theory and qualitative research. In N. K. Denzin & Y. S. Lincoln (Eds.), The SAGE Hanbook of Qualitative Research (Third ed., pp. 191-215). (Second ed., pp. 279-313). Thousand Oaks, CA: SAGE Punlications.

King, G., Cathers, T., Brown, E., Specht, J. A., Willoughby, C., Polgar, J. M., Havens, L. (2003). Turning points and protective processes in the lives of people with chronic disabilities. *Qualitative Health Research, 13*(2), 184-206.

Kim, Y.-i. (2003). The effects of assertiveness training on enhancing the social skills of adolescents with visual impairments. *Journal of Visual Impairment & Blindness, 97*(5), 285-297.

Kim-Rupnow, W. S., & Burgstahler, S. (2004). Perceptions of students with disabilities regarding the value of technology-based support activities on postsecondary education and employment. *Journal of Special Education Technology, 19*, 43-56.

Klein, H. K., & Myers, M. D. (1999). A set of principles for conducting and evaluating interpretive field studies in information systems. *MIS Quarterly, 23*(1), 67-93.

Klemes, J., Epstein, A., Zuker, M., Grinberg, N., & Ilovitch, T. (2006). An assistive computerized learning environment for distance learning students with learning disabilities. *Open Learning, 21*(1), 19-32.

Kobus, M. B. W., Rietveld, P., & van Ommeren, J. N. (2013). Ownership versus on-campus use of mobile IT devices by university students. *Computers & Education, 68*, 29-41.

Kochhar-Bryant, C., Bassett, D. S., & Webb, K. W. (2009). *Transition to postsecondary education for students with disabilities*. Thousand Oaks, CA: Corwin Press.

Kock, N., & Lau, F. (2001). Information systems action research: Serving two demanding masters. *Information Technology & People, 14*(1). Retrieved from http://www.emeraldinsight.com/journals.htm?articleid=1486093&show=abstract

Kralik, D., Visentin, K., & Van Loon, A. (2006). Transition: a literature review. *Journal of Advanced Nursing, 55*(3), 320-329.

Kraut, R., Patterson, M., Lundmark, V., Kiesler, S., Mukopadhyay, T., & Scherlis, W. (1998). Internet paradox: A social technology that reduces social involvement and psychological well-being? *American Psychologist, 53*(9), 1017-1031.

Krishna, S., Colbry, D., Black, J., Balasubramanian, V., & Panchanathan, S. (2008). *A systematic requirements analysis and development of an assistive device to enhance the social interaction of people who are blind or visually impaired.* Retrieved from https://hal.inria.fr/file/index/docid/325432/filename/Systematic.pdf

Krupp, J. A. (1987). Councelling with an increased awareness of the transition process. *Counselling and Human Development, 19*(7), 1-15.

Kvasny, L., & Richardson, H. (2006). Critical research in information systems: looking forward, looking back. *Information Technology & People, 19*(3), 196-202.

Lachapelle, Y., Wehmeyer, M. L., Haelewyck, M. C., Courbois, Y., Keith, K. D., Schalock, R., . . . Walsh, P. N. (2005). The relationship between quality of life and self-determination: an international study. *Journal of Intellectual Disability Research, 49*(10), 740-744.

Lau, F. (1999). Toward a framework for action research in information systems studies. *Information Technology & People, 12*(2), 148-164.

Lau, F., & Hayward, R. (2000). Building a virtual network in a community health research training program. *Journal of the American Medical Informatics Association, 7*(4), 361-377.

Lavin, M., Marvin, K., McLarney, A., Nola, V., & Scott, L. (1999). Sensation seeking and collegiate vulnerability to Internet dependence. *CyberPsychology & Behavior, 2*(5), 425-430.

LeCompte, M. D., & Goetz, J. P. (1982). Problems of reliability and validity in ethnographic research. *Review of Educational Research, 52*(1), 31-60.

Lewin, K. (1946). Action research and minority problems. *Journal of social issues, 2*(4), 34-46.

Li, Z., Griffin-Shirley, N., Kelley, P., Banda, D. R., Lan, W. Y., Parker, A. T., & Smith, D. W. (2012). The relationship between computer and Internet use and performance on standardized tests by secondary school students with visual impairments. *Journal of Visual Impairment & Blindness, 106*(10), 609-621.

Lincoln, Y. S. (1995). Emerging criteria for quality in qualitative and interpretive research. *Qualitative inquiry, 1*(3), 275-289.

Lincoln, Y. S. (2001). Engaging sympathies: Relationships between action research and social constructivism. In P. Reason & H. Bradbury (Eds.), *Handbook of Action Research: Participative Inquiry and Practice* (pp. 124-132). London: SAGE Publications.

Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic inquiry*. Newbury Park: SAGE Publications.

Lincoln, Y. S., & Guba, E. G. (1986). But is it rigorous? Trustworthiness and authenticity in naturalistic evaluation. *New Directions for Program Evaluation, 1986*(30), 73-84. doi: 10.1002/ev.1427

Livingston, P. M., McCarty, C. A., & Taylor, H. R. (1997). Visual impairment and socioeconomic factors. *British Journal of Ophthalmology, 81*(7), 574-577.

Lupton, D., & Seymour, W. (2000). Technology, selfhood and physical disability. *Social Science & Medicine, 50*(12), 1851-1862.

Madriaga, M. (2007). Enduring disablism: Students with dyslexia and their pathways into UK higher education and beyond. *Disability & Society, 22*(4), 399 - 412.

Manduchi, R., & Kurniawan, S. (Eds.). (2012). Assistive technology for blindness and low vision. Boca Raton, Florida: CRC Press.

Mason, H. (1999). Assessment of vision. In H. Mason & S. McCall (Eds.), *Visual impairment: Access to education for children and young people* (pp. 51-63). London: David Fulton Publishers.

Mason, J. (2002). *Qualitative researching* (Second ed.). London: SAGE Publications.

Masters, J. (1995). *The history of action research*. Retrieved August 16, 2010, from http://www.scu.edu.au/schools/gcm/ar/arr/arow/rmasters.html

Maxwell, J. (2004). Using qualitative methods for causal explanation. *Field Methods, 16*(3), 243-264.

Mays, N., & Pope, C. (2000). Qualitative research in health care: Assessing quality in qualitative research. *BMJ: British Medical Journal, 320*(7226), 50-52.

McCutcheon, G., & Jung, B. (1990). Alternative perspectives on action research. *Theory into Practice, 29*(3), 144-151.

McDonnell, J., Jameson, J. M., Riesen, T., Polychronis, S., Crockett, M. A., & Brown, B. E. (2011). A comparison of on-campus and distance teacher education programs in severe disabilities. *Teacher Education and Special Education: The Journal of the Teacher Education Division of the Council for Exceptional Children, 34*(2), 106-118.

McDougall, J., Evans, J., & Baldwin, P. (2010). The importance of self-determination to perceived quality of life for youth and young adults with chronic conditions and disabilities. *Remedial and Special Education, 31*(4), 252-260.

McGraw, P., Winn, B., & Whitaker, D. (1995). Reliability of the Snellen chart: Better charts are now available. *BMJ: British Medical Journal, 310*(6993), 1481-1482.

McKay, J., & Marshall, P. (2001). The dual imperatives of action research. *Information Technology & People, 14*(1), 46-59.

McLoughlin, C., & Lee, M. J. W. (2007). *Social software and participatory learning: Pedagogical choices with technology affordances in the Web 2.0 era.* Paper presented at the ICT: Providing choices for learners and learning, Singapore.

McLean, K. C., & Pratt, M. W. (2006). Life's little (and big) lessons: Identity statuses and meaning-making in the turning point narratives of emerging adults. *Developmental Psychology, 42*(4), 714-722.

Mehra, B., Merkel, C., & Bishop, A. P. (2004). The internet for empowerment of minority and marginalized users. *New Media Society, 6*(6), 781-802.

Meister, D. B., & Gronski, C. M. (2007). Action research in a virtual setting: Cautions from a failed project In N. Kock (Ed.), *Information Systems Action Research* (pp. 217). Texas: Springer US.

Mertens, D. M. (1998). *Research methods in education and psychology: Integrating diversity with quantitative & qualitative approaches*. Thousand Oaks, CA: SAGE Publications.

Mertens, D. M. (2010). *Research and evaluation in education and psychology: Integrating diversity with quantitative, qualitative and mixed methods* (Third ed.). Thousand Oaks, CA: SAGE Publications.

Michaels, C. A., & McDermott, J. (2003). Assistive technology integration in special education teacher preparation: Program coordinators' perceptions of current attainment and importance. *Journal of Special Education Technology, 18*(3), 29-41.

Miers, M. E., Clarcke, B. A., Pollard, K. C., Rickaby, C. E., Thomas, J., & Turtle, A. (2007). Online interprofessional learning: The student experience. *Journal of Interprofessional Care, 21*(5), 529-542.

Miles, M. B., & Huberman, A. M. (1994). *Qualitative data aAnalysis: An expanded sourcebook* (Second ed.). Thousand Oaks: SAGE Publications.

Ministry of Education. (2003). *Participation in tertiary education 2003*. Retrieved from http://www.educationcounts.govt.nz/__data/assets/pdf_file/0004/7357/participation-in-tertiary-education-2003-web-vers.pdf

Ministry of Education. (2006). *Enabling the 21st century learner: An e-learning action plan for schools*. Retrieved from http://www.minedu.govt.nz/~/media/MinEdu/Files/EducationSectors/PrimarySecondary/PolicyAndStrategy/ELearningActionPlan.pdf

Ministry of Education. (2010). Profile & trends: The tertiary education system 2009. *Tertiary Sector Performance Analysis and Reporting.* Retrieved September 18, 2010, from http://www.educationcounts.govt.nz/__data/assets/pdf_file/0003/80076/2009-p-and-t-full.pdf

Ministry of Education. (2014, November 6). Understanding vision impairment. Retrieved November 14, 2014, from

http://www.minedu.govt.nz/NZEducation/EducationPolicies/SpecialEducation/PublicationsAndResources/ResourcesForEducators/TeacherBooklets/AccessToLearning/UnderstandingVisionImpairment.aspx

Ministry of Health. (1998). Disability in New Zealand: Overview of the 1996/97 surveys. Retrieved July 20, 2010, from http://www.moh.govt.nz/notebook/nbbooks.nsf/0/8F59A8A1E64B33C04C2566AF007F7141/$file/Disability%20in%20New%20Zealand.pdf

Mistry, V. (2011). Critical care training: using Twitter as a teaching tool. *British Journal of Nursing, 20*(20), 1292-1296.

Molina, M. (2008). *Digital genre: A mechanism for knowledge sharing and reuse in business clusters.* PhD thesis in Information Systems Management, Victoria University of Wellington, Wellington, New Zealand. Retrieved from http://researcharchive.vuw.ac.nz/bitstream/handle/10063/1234/thesis.pdf?sequence=1

Moore, J., & LeJeune, B. J. (2010). Low vision. *International Encyclopedia of Rehabilitation.* Retrieved October 20, 2010, from http://cirrie.buffalo.edu/encyclopedia/article.php?id=17&language=en

Morahan-Martin, J., & Schumacher, P. (2000). Incidence and correlates of pathological Internet use among college students. *Computers in Human Behavior, 16*(1), 13-29.

Morahan-Martin, J., & Schumacher, P. (2003). Loneliness and social uses of the Internet. *Computers in Human Behavior, 19*(6), 659-671.

Morgan, G., & Smircich, L. (1980). The case for qualitative research. *The Academy of Management Review, 5*(4), 491-500.

Morningstar, M. E., Turnbull, A. P., & Turnbull, H. R., III. (1995). What do students with disabilities tell us about the importance of family involvement in the transition from school to adult life? *Exceptional Children, 62*(3), 249.

Morse, J. (1983). Psychological aspect of low vision. In T. J. Randall (Ed.), *Understanding low vision* (pp. 43-54). New York: AFB Press.

Moser, I. (2006). Disability and the promises of technology: Technology, subjectivity and embodiment within an order of the normal. *Information, Communication & Society, 9*(3), 373 - 395.

Mumford, E. (2001). Advice for an action researcher. *Information Technology & People, 14*(1), 12-27.

Murray, C., Goldstein, D. E., Nourse, S., & Edgar, E. (2000). The postsecondary school attendance and completion rates of high school graduates with learning disabilities. *Learning Disabilities Research & Practice, 15*(3), 119-127.

Myers, M. D. (1997). *Qualitative research in information systems.* Retrieved August 30, 2010, from http://www.qual.auckland.ac.nz/

Myers, M. D. (2009). Qualitative research methods. In M. D. Myers (Ed.), *Qualitative research in business & management* (pp. 53-117). London: SAGE Publications.

Myers, M. D., & Klein, H. K. (2011). A set of principles for conducting critical research in information systems. *MIS Quarterly, 35*(1), 17-36.

Myers, M. D., & Newman, M. (2007). The qualitative interview in IS research: Examining the craft. *Information and Organization, 17*(1), 2-26.

Neumann, Y., & Finaly-Neumann, E. (1989). Predicting juniors' and seniors' persistence and attrition: A quality of learning experience approach. *The Journal of Experimental Education, 57*(2), 129-140.

Newell, C., & Debenham, M. (2005). Disability, chronic illness and distance education. In C. Howard & P. Rogers (Eds.), *Encyclopedia of distance learning* (Vol. 2, pp. 591-598). California: Idea Group Reference.

Ngwenyama, O. K. (1991). The critical social theory approach to information systems: Problems and challenges. In M. D. Myers & D. Avison (Eds.), *Qualitative Research in Information Systems* (pp. 114-125). London, UK: SAGE Publications.

Ngwenyama, O. K. (1990). *The critical social theory approach to information systems: Problems and challenges.* Paper presented at the IFIP WG 8.2 Working Conference, Copenhagen, Denmark.

Nie, N., & Erbring, L. (2002). Internet and society: A preliminary report. *IT & Society, 1*(1), 275-283.

Nikora, L. W., Karapu, R., Hickey, H., & Awekotuku, N. T. (2004). Disabled Maori and disability support options. *Maori and Psychology Research Unit, University of Waikato.* Retrieved July 30, 2010, from http://waikato.researchgateway.ac.nz/bitstream/10289/460/1/content.pdf

Noffke, S. E. (1997). Professional, Personal, and Political Dimensions of Action Research. *Review of Research in Education, 22*, 305-343.

Obst, P., & Stafurik, J. (2010). Online we are all able bodied: Online psychological sense of community and social support found through membership of disability-specific websites promotes well-being for people living with a physical disability. *Journal of Community & Applied Social Psychology, 20*(6), 525-531. doi: 10.1002/casp.1067

Office for Disability Issues. (2002). *Briefing to the incoming Minister for Disability Issues: Towards a fully inclusive New Zealand*. Retrieved July 28, 2010, from http://www.odi.govt.nz/documents/publications/bim-towards-a-fully-inclusive-nz-2002.pdf

Office for Disability Issues. (2009). *Work in progress 2009: The annual report from the Minister for Disability Issues to the House of Representatives on implementing the New Zealand Disability Strategy*. Wellington: Ofice for Disability Issues Retrieved from http://www.odi.govt.nz/documents/nzds/progress-reports/2009-nzds-progress-report.pdf.

Olesen, K., & Myers, M. D. (1999). Trying to improve communication and collaboration with information technology An action research project which failed. *Information Technology & People, 12*(4), 317-332.

Olsson, T. (2007). An indispensable resource: The internet and young civic engagement. In P. Dahlgren (Ed.), Young citizens and new media: Learning for democratic participation (pp. 147-204). New York: Taylor & Francis.

Orlikowski, W. J., & Baroudi, J. J. (1991). Studying information technology in organizations: Research approaches and assumptions. *Information Systems Research, 2*, 1-28.

Pandit, J. C. (1994). Testing acuity of vision in general practice: Reaching recommended standard. *BMJ: British Medical Journal,, 309*(6966), 1408.

Parente, P., & Bishop, G. (2003). *BATS: The blind audio tactile mapping system*. Paper presented at the ACM Southeast Regional Conference. http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.10.6189&rep=rep1&type=pdf

Pascarella, E. T., & Chapman, D. W. (1983). A multiinstitutional, path analytic validation of Tinto's model of college withdrawal. *American Educational Research Journal, 20*(1), 87-102. doi: 10.3102/00028312020001087

Pascarella, E. T., & Terenzini, P. T. (1980). Predicting freshman persistence and voluntary dropout decisions from a theoretical model. *The Journal of Higher Education, 51*(1), 60-75.

Patton, M. Q. (2002). *Qualitative research & evaluation methods* (Third ed.). Thousand Oaks, CA: SAGE Publications.

Peters, O. (2004). Learning with new media in distance education. In M. G. Moore & W. G. Anderson (Eds.), *Handbook of Distance Education* (pp. 87-112). Mahwah, New Jersey: Lawrence Erlbaum Associates.

Pfeiffer, J. P., & Pinquart, M. (2013). Computer use of adolescents with and without visual impairment. *Technology & Disability, 25*(2), 99-106.

Pittman, L. D., & Richmond, A. (2008). University belonging, friendship quality, and psychological adjustment during the transition to college. *Journal of Experimental Education, 76*(4), 343-362.

Punie, Y., Cabrera, M., Bogdanowicz, M., Zinnbauer, D., & Navajas, E. (2005). *The future of ICT and learning in the knowledge society*. Retrieved from http://ftp.jrc.es/EURdoc/eur22218en.pdf

Putnam, R. D. (2000). *Bowling alone: The collapse and revival of American community*. New York: Simon & Schuster.

Rabiee, F. (2004). Focus-group interview and data analysis. *Proceedings of the Nutrition Society, 63,* 655–660.

Rainie, L., & Wellman, B. (2012). *Networked: The new social operating system.* Cambridge: MIT Press.

Rapoport, R. N. (1970). Three dilemmas in action research. *Human Relations, 23*(6), 499-513. doi: 10.1177/001872677002300601

Raskind, M. H., & Higgins, E. L. (1998). Assistive technology for postsecondary students with learning disabilities. *Journal of Learning Disabilities, 31*(1), 27-40.

Reiff, H. B. (1997). Academic advising: An approach from learning disabilities research. *Journal of Counseling & Development, 75*(6), 433-441.

Rendon, L., Jalomo, R., & Amaury, N. (2000). Theoretical considerations in the study of minority student retention in higher education. In J. M. Braxton (Ed.), *Reworking the student departure puzzle* (pp. 127-156). Nashville: Vanderbilt University Press.

Richardson, H., & Robinson, B. (2007). The mysterious case of the missing paradigm: A review of critical information systems research 1991–2001. *Information Systems Journal, 17*(3), 251-270.

Roentgen, U. R., Gelderblom, G. J., Soede, M., & de Witte, L. P. (2008). Inventory of electronic mobility aids for persons with visual impairments: A literature review. *Journal of Visual Impairment & Blindness, 102*(11), 702-724.

Rosen, M. (1991). Coming to terms with the field: Understanding and doing organizational ethnography. *Journal of Management Studies, 28*(1), 1-24.

Rossman, G. B., & Rallis, S. F. (2003). *Learning in the field: An introduction to qualitative research* (Second ed.). Thousand Oaks, CA: SAGE Publications.

Roulstone, A. (1998). *Enabling technology: Disabled people, work, and new technology*. Buckingham: Open University Press.

Rovai, A. P. (2003). In search of higher persistence rates in distance education online programs. *The Internet and Higher Education, 6*(1), 1-16.

Sacks, S. Z., Kekelis, L., & Gaylord-Ross, R. (Eds.). (1992). *The Development of social skills by blind and visually impaired students: Exploratory studies and strategies*. New York: AFB Press.

Sanders, K. Y. (2006). Overprotection and lowered expectations of persons with disabilities: The unforeseen consequences. *Work, 27*(2), 181-188.

Scherer, K. (1997). College life on-line: Healthy and unhealthy Internet use. *Journal of College Student Development, 38*(6), 655.

Scherer, M. J. (2002). The change in emphasis from people to person: Introduction to the special issue on Assistive Technology. *Disability & Rehabilitation, 24*(1-3), 1-4. doi: 10.1080/09638280110066262

Schneider, K. (2001). Students who are blind or visually impaired in postsecondary education. *George Washington University, HEATH Resource Center*. Retrieved September 24, 2010, from http://eric.ed.gov/PDFS/ED468793.pdf

Schumacher, K. L., & Meleis, A. l. (1994). Transitions: A central concept in nursing. *Journal of Nursing Scholarship, 26*(2), 119-127. doi: 10.1111/j.1547-5069.1994.tb00929.x

Schuster, J. L., Timmons, J. C., & Moloney, M. (2003). Barriers to successful transition for young adults who receive SSI and their families. *Career Development for Exceptional Individuals, 26*(1), 47-66.

Schwandt, T. A. (1990). Paths to inquiry in the social disciplines. In E. G. Guba (Ed.), *The Paradigm Dialog* (pp. 258-276). Newbury Park: SAGE Publications.

Schwandt, T. A. (1998). Constructivist, interpretivist approaches to human inquiry. In K. Denzin & Y. S. Lincoln (Eds.), *Landscape of Qualitative Research: Theories and Issues* (pp. 221-259). Thousand Oaks, CA: SAGE Publications.

Scott, R. (2009). *Undergraduate educational experiences: The academic success of college students with blindness and visual impairments*. (Doctoral thesis, North Carolina State University, Raleigh, North Carolina, United States). Retrieved from http://repository.lib.ncsu.edu/ir/bitstream/1840.16/3692/1/etd.pdf

Scott, S. (2013). *iOS - Worthy of the Hype as Assistive Technology for Visual Impairments? A phenomenological study of iOS device use by individuals with visual impairments*. 3601339 Ed.D., Tennessee State University, Ann Arbor. ProQuest Dissertations & Theses Global database.

Seale, C. (1999). Quality in qualitative research. *Qualitative inquiry, 5*(4), 465-478.

Seale, J. (2006). *E-learning and disability in higher education: Accessibility research and practice*. New York: Routledge.

Seifert, L. S. (2012). Self-regulation in disability: Migraine management as action research. *Action Research, 10*(4), 336-355.

Seymour, W., & Lupton, D. (2004). Holding the line online: Exploring wired relationships for people with disabilities. *Disability & Society, 19*(4), 291-305.

Shevlin, M., Kenny, M., & Mcneela, E. (2004). Participation in higher education for students with disabilities: an Irish perspective. *Disability & Society, 19*(1), 15 - 30.

Shih, R. C. (2011). Can Web 2.0 technology assist college students in learning English writing? Integrating Facebook and peer assessment with blended learning. *Australasian Journal of Educational Technology, 27*(5), 829-845.

Smith, A. (2015). *U.S smartphone use in 2015*. Retrieved from http://www.pewinternet.org/files/2015/03/PI_Smartphones_0401151.pdf

Smith, J. K. (1983). Quantitative versus qualitative research: An attempt to clarify the issue. *Educational Researcher, 12*(3), 6-13.

Smith, P., Smith, N., Sherman, K., Goodwin, I., Crothers, C., Billot, J., & Bell, A. (2009). *The Internet in New Zealand 2009*. Retrieved May 11, 2010, from http://www.aut.ac.nz/__data/assets/pdf_file/0017/107450/WIPNZ-2009-Full-Report-final---for-web.pdf

Snyder, T. D., & Dillow, S. A. (2010). Digest of education statistics 2009 (NCES 2010-013). *National Center for Education Statistics, Institute of Education Sciences*. Washington, DC: U.S. Department of Education.

Söderström, S., & Ytterhus, B. (2010). The use and non-use of assistive technologies from the world of information and communication technology by visually impaired young people: A walk on the tightrope of peer inclusion. *Disability & Society, 25*(3), 303-315.

Sorensena, E. K., & Murchúb, D. Ó. (2004). Designing online learning communities of practice: A democratic perspective. *Journal of Educational Media 29*(3), 189-200.

Sowers, J.-A., & Powers, L. (1995). Enhancing the participation and independence of students with severe physical and multiple disabilities in performing community activities. *Mental Retardation, 33*(4), 209-220.

Spady, W. (1971). Dropouts from higher education: Toward an empirical model. *Interchange, 2*(3), 38-62. doi: 10.1007/bf02282469

Spears, R., Postmes, T., Lea, M., & Wolbert, A. (2002). When are net effects gross products? The power of influence and the influence of power in computer-mediated communication. *Journal of Social Issues, 58*(1), 91-108.

Statistics New Zealand. (2007). *2006 Disability Survey*. Retrieved July 12, 2010, from http://www.stats.govt.nz/browse_for_stats/health/disabilities/DisabilitySurvey2006_HOTP06.aspx

Statistics New Zealand. (2014). *Disability Survey: 2013*. Retrieved November 19, 2010, from http://www.stats.govt.nz/browse_for_stats/health/disabilities/DisabilitySurvey_HOTP2013.aspx

Steere, D. E., Rose, E. D., & Cavaiuolo, D. (2007). *Growing up: Transition to adult life for students with disabilities*. Boston: Allyn & Bacon.

Stewart, D. W., Shamdasani, P. N., & Rook, D. W. (2007). *Focus groups: Theory and practice* (Second ed.). Thousand Oaks, CA: SAGE Publications.

Stienstra, D., & Troschuk, L. (2005). Engaging citizens with disabilities in eDemocracy. *Disability Studies Quarterly, 25*(2). Retrieved from http://dsq-sds.org/article/view/550/727

Stockley, J., & Brooks, B. (1995). Perception and adjustment: Self and social. *British Journal of Visual Impairment, 13*(1), 15-18.

Straub, D., Gefen, D., & Boudreau, M. (2004). *The ISWorld quantitative, positivist research methods website*. Retrieved from http://dstraub.cis.gsu.edu:88/quant/

Strobel, W., Fossa, J., Arthanat, S., & Brace, J. (2006). Technology for access to text and graphics for people with visual impairments and blindness in vocational settings. *Journal of Vocational Rehabilitation, 24*(2), 87-95.

Stumbo, N. J., Martin, J. K., & Hedrick, B. N. (2009). Assistive technology: Impact on education, employment, and independence of individuals with physical disabilities. *Journal of Vocational Rehabilitation, 30*(2), 99-110.

Susman, G. I., & Evered, R. D. (1978). An assessment of the scientific merits of action research. *Administrative Science Quarterly, 23*(4), 582-603.

Tavernier, R., & Willoughby, T. (2012). Adolescent turning points: The association between meaning-making and psychological well-being. *Developmental Psychology, 48*(4), 1058-1068.

Tennat, M. (1996). Disability in New Zealand: An historical survey. *New Zealand Journal of Disability Studies*(2), 3-33.

Terenzini, P. T., Springer, L., Yaeger, P. M., Pascarella, E. T., & Nora, A. (1996). First-generation college students: Characteristics, experiences, and cognitive development. *Research in Higher Education, 37*(1), 1-22.

Test, D. W., Mason, C., Hughes, C., Konrad, M., & et al. (2004). Student involvement in individualized education program meetings. *Exceptional Children, 70*(4), 391-412.

Thoreau, E. (2006). Ouch!: An examination of the self-representation of disabled people on the Internet. *Journal of Computer-Mediated Communication, 11*(2), 442-468.

Thorne, S. (2000). Data analysis in qualitative research. *Evidence Based Nursing, 3*(3), 68-70.

Thornton, K., & Yoong, P. (2011). The role of the blended action learning facilitator: An enabler of learning and a trusted inquisitor. *Action Learning: Research and Practice, 8*(2), 129-146.

Thurlow, M. L., Sinclair, M. F., & Johnson, D. R. (2002). Students with disabilities who drop out of school: Implications for policy and practice. *Issue Brief, 1*(2), 1-7.

Tierney, W. G. (1992). An anthropological analysis of student participation in college. *The Journal of Higher Education, 63*(6), 603-618.

Tierney, W. G. (1999). Models of minority college-going and retention: Cultural integrity versus cultural suicide. *The Journal of Negro Education, 68*(1), 80-91.

Tilley, C. M. (2009). *A sense of control: Virtual communities for people with mobility impairments*. Oxford: Chandos Publishing.

Tinto, V. (1975). Dropout from higher education: A theoretical synthesis of recent research. *Review of Educational Research, 45*(1), 89-125.

Tinto, V. (1982). Limits of theory and practice in student attrition. *The Journal of Higher Education, 53*(6), 687-700.

Tinto, V. (1988). Stages of student departure: Reflections on the longitudinal character of student leaving. *The Journal of Higher Education, 59*(4), 438-455.

Tinto, V. (1993). *Leaving college: Rethinking the causes and cures of student attrition* (Second ed.). Chicago: University of Chicago Press.

Tollefsen, M., & Flyen, A. (2006). Internet and accessible entertainment. In K. Miesenberger, J. Klaus, W. Zagler & A. Karshmer (Eds.), *Computers Helping People with Special Needs* (pp. 396-402). Heidelberg: Springer.

Traxler, J. (2013). Mobile learning: Shaping the frontiers of learning technologies in global context. In R. Huang (Ed.), *Reshaping Learning: New Frontiers of Educational Research* (pp. 237-251). Heidelberg: Springer.

Tresman, S. (2002). Towards a strategy for improved student retention in programmes of open, distance education: A case study from the Open University UK. *The International Review of*

Research in Open and Distance Learning, 3(1). Retrieved from http://www.irrodl.org/index.php/irrodl/article/viewArticle/75/145

Troiano, P. F., Liefeld, J. A., & Trachtenberg, J. V. (2010). Academic support and college success for postsecondary students with learning disabilities. *Journal of College Reading and Learning, 40*(2), 35-44.

Tsukamoto, M., Nuspliger, B., & Senzaki, Y. (2009). *Using Skype to connect a classroom to the world: Providing students an authentic language experience within the classroom.* Paper presented at the 5th annual CamTESOL Conference on English Language Teaching., National Institute of Education, Phnom Penh, Cambodia

Utley, B. L., Roman, C., & Nelson, G. L. (1998). Functional vision. In S. Z. Sacks & R. K. Silberman (Eds.), *Educating Students Who Have Visual Impairments With Other Disabilities* (pp. 371-405). Baltimore: Paul H. Brookes Publishing Co.

Van Gennep, A. (1960). *The rites of passage* (M. B. Vizedom & G.L.Caffee, Trans.). London: Routledge & Kegan Paul (translation of the 1908 edition).

Veletsianos, G. (2012). Higher education scholars' participation and practices on Twitter. *Journal of Computer Assisted Learning, 28*(4), 336-349.

Velleman, E., van Tol, R., Huiberts, S., & Verwey, H. (2004). 3D shooting games, multimodal games, sound games and more working examples of the future of games for the blind. In K. Miesenberger, J. Klaus, W. Zagler & D. Burger (Eds.), *Computers Helping People with Special Needs* (pp. 257-263). Heidelberg: Springer.

Völkel, T., & Weber, G. (2008). *RouteCheckr: Personalized multicriteria routing for mobility impaired pedestrians.* Paper presented at the 10th international ACM SIGACCESS Conference on Computers and accessibility, Nova Scotia, Canada.

Voorhees, R. A. (1987). Toward building models of community college persistence: A logit analysis. *Research in Higher Education, 26*(2), 115-129.

Wagner, M., & Blackorby, J. (1996). Transition from high school to work or college: How special education students fare. *The Future of Children, 6*(1), 103-120.

Walsham, G. (2006). Doing interpretive research. *European Journal of Information Systems, 15*(3), 320-330.

Watling, S. (2011). Digital exclusion: Coming out from behind closed doors. *Disability & Society, 26*(4), 491-495.

Watson, J. A. (2010). *Transitioning peer consulting: A technology-in-practice approach.* (Doctoral thesis, Victoria University of Wellington, Wellington, New Zealand). Retrieved from http://researcharchive.vuw.ac.nz/bitstream/handle/10063/1351/thesis.pdf?sequence=1

Webb, M. (1988). Freshman year retention at three campuses of a large urban community college district: 1983-1986. *Community College Journal of Research and Practice, 12*(3), 213-242.

Webster, A., & Roe, J. (1997). *Children with visual impairments: Social interaction, language and learning*. London, New York: Routledge.

Wehmeyer, M. (1996). Self-determination as an educational outcome: Why is it important to children, youth and adults with disabilities. In D. J. Sands & M. Wehmeyer (Eds.), *Self-determination across the life span: Independence and choice for people with disabilities* (pp. 15-34). Michigan: P.H. Brookes Pub.

Wehmeyer, M. (1999). A functional model of self-determination: Describing development and implementing instruction. *Focus on Autism and other Developmental Disabilities, 14*(1), 53-61.

Wehmeyer, M., & Abery, B. H. (2013). Self-determination and choice. *Intelectual and Developmental Diabilities, 51*(5), 399-411.

Wehmeyer, M., & Palmer, S. B. (2003). Adult outcomes for students with cognitive disabilities three-years after high school: The impact of self-determination. *Education and Training in Developmental Disabilities, 38*(2), 131-144.

Wehmeyer, M., & Schalock, R. (2001). Self-determination and quality of life: Implications for special education services and supports. *Focus on exceptional Children, 33*(8), 1-16.

Wehmeyer, M., & Schwartz, M. (1997). Self-determination and positive adult outcomes: A follow-up study of youth with mental retardation or learning disabilities. *Exceptional Children, 63*(2), 245-255.

Weiser, E. B. (2001). The functions of Internet use and their social and psychological consequences. *CyberPsychology & Behavior, 4*(6), 723-743.

Wellman, B., & Haythornthwaite, C. (2002). *The Internet in everyday life*. Malden, MA, USA: Blackwell Publishers.

Wellman, B., Haase, A., Witte, J., & Hampton, K. (2001). Does the Internet increase, decrease, or supplement social capital?: Social networks, participation, and community commitment. *American Behavioral Scientist, 45*(3), 436-455.

Wenger, E. (2001). *Supporting communities of practice: A survey of community-oriented technologies.* Retrieved March 31, 2010, from https://guard.canberra.edu.au/opus/copyright_register/repository/53/153/01_03_CP_technology_survey_v3.pdf

Wenger, E., McDermott, R., & Snyder, W. (2002). *Cultivating communities of practice: A guide to managing knowledge*. Boston, Mass.: Harvard Business School Press.

Wenger, E., White, N., Smith, J. D., & Rowe, K. (2005). *Technology for communities.* Retrieved April 23, 2010, from http://technologyforcommunities.com/CEFRIO_Book_Chapter_v_5.2.pdf

Wessel, R., Jones, J., Markle, L., & Westfall, C. (2009). Retention and graduation of students with disabilities: Facilitating student success. *Journal of Postsecondary Education and Disability, 21*(3), 116-125.

Wethington, E. (2003). Turning points as opportunities for psychological growth. In C. L. Keyes & J. Haidt. (Eds.), *Flourishing: positive psychology and the life well-lived* (pp. 37-53). Washington, DC: American Psychological Association.

Whitehead, J., & McNiff, J. (2006). *Action research: Living theory*. London: SAGE Publications.

Wilcox, P., Winn, S., & Fyvie-Gauld, M. (2005). 'It was nothing to do with the university, it was just the people': The role of social support in the first-year experience of higher education. *Studies in Higher Education, 30*(6), 707-722.

Wiley, A. (2009). At a cultural crossroads: Lessons on culture and policy from the New Zealand Disability Strategy. *Disability & Rehabilitation, 31*(14), 1205-1214.

Williamson, K., Wright, S., Schauder, D., & Bow, A. (2001). *The Internet for the blind and visually impaired.* Retrieved from http://onlinelibrary.wiley.com/doi/10.1111/j.1083-6101.2001.tb00135.x/abstract;jsessionid=B3461F8DB2C1BDC416D2B09E1D443BE9.f03t04

Wilson, K., Getzel, E., & Brown, T. (2000). Enhancing the post-secondary campus climate for students with disabilities. *Journal of Vocational Rehabilitation, 14*(1), 37-50.

Wilson, J., Walker, B. N., Lindsay, J., Cambias, C., & Dellaert, F. (2007). *Swan: System for wearable audio navigation*. Paper presented at the Wearable Computers, 2007 11th IEEE International Symposium. http://sonify.psych.gatech.edu/~walkerb/publications/pdfs/2007iswc-wilson-et-al-submitted.pdf

Wisniewski, L., & Sedlak, R. (1992). Assistive devices for students with disabilities. *The Elementary School Journal, 92*(3), 297-314. doi: 10.2307/1001982

World Health Organization. (2014, August 2014). *Visual impairment and blindness.* Retrieved November 17, 2014, from http://www.who.int/classifications/icd/en/

Young, K., & Rogers, R. (1998). The relationship between depression and Internet addiction. *CyberPsychology & Behavior, 1*(1), 25-28.

Appendix A

TE WHARE WĀNANGA O TE ŪPOKO O TE IKA A MĀUI
VICTORIA
UNIVERSITY OF WELLINGTON

Participant Information Sheet

Researcher: Edgar Pacheco, School of Information Management, Victoria University of Wellington

I am a PhD student in the School of Information Management at Victoria University of Wellington. As part of this degree I am undertaking a research project leading to a thesis. The project I am undertaking seeks to explain the factors affecting the transition to university education of visually impaired and blind students and the role of Information and Communication Technologies (ICTs) in addressing students' transition experience. The University requires ethics approval to be obtained for research involving human participants.

I am inviting undergraduate students, from Victoria University of Wellington to participate in this study. Each participant will be asked to give her or his consent to the researcher's unobtrusive observations and note taking of their meetings with the disabilities advisers. Participants will be asked to take part in one of several focus group meetings planned for this research project. The purpose of these focus group meetings is to identify potential transition issues and explore any ICT tool(s) that could be used in this respect. The focus group meetings will be organized in the period between February and November 2012. Each focus group meeting will last between 1.5 and 2 hours.

Later, at some point after the focus group meetings, participants will be asked to take part in individual interviews. Each interview will take around thirty to forty minutes. It is very important for this research project that participants, who agreed to participate in the focus groups, also take part in the interviews. The interview information will provide data regarding individual perceptions and personal accounts of the transition process and the role of ICT tool(s) in this process. Both focus groups and individual interviews will be recorded and transcribed verbatim, and the responses will be used for my research project on an anonymous basis.

Should any participants feel the need to withdraw from the project, they may do so without question at any time before the data is analysed. They just need to let the researcher know at the time. Participants' identity will be kept confidential. In the same way, all material collected will be kept secret. No other person besides me and my supervisors, Prof. Miriam Lips and Prof. Pak Yoong, will see participants' responses. The thesis will be submitted for marking to the School of Information Management and deposited in the Victoria University Library. It is intended that one or more articles will be submitted for publication in scholarly journals. All the material collected for this study will be destroyed two years after the end of the project.

If you have any questions or would like to receive further information about the project, please contact me at 463-5025 and/or edgar.pacheco@vuw.ac.nz or my supervisors, Prof. Miriam Lips (Miriam.Lips@vuw.ac.nz) and Prof. Pak Yoong (Pak.Yoong@vuw.ac.nz), at the School of Information Management at Victoria University, P O Box 600, Wellington.

Edgar Pacheco

Signed:

SCHOOL OF INFORMATION MANAGEMENT
FACULTY OF COMMERCE AND ADMINISTRATION

Appendix B

TE WHARE WĀNANGA O TE ŪPOKO O TE IKA A MĀUI
VICTORIA
UNIVERSITY OF WELLINGTON

Participant Consent Form

Title of project: Visual impairment and the transition to university education: the role of ICTs

I have been provided with and have understood the explanation about the nature and objectives of this research project. I have had an opportunity to seek further clarification and ask questions and have them answered to my satisfaction. I understand that any information or opinions I provide will be kept confidential to the researcher, his supervisors and the person who transcribes the tape recordings. I understand that the information I have provided will be destroyed two years after the study is completed. I understand that I may withdraw (or any information I have provided) from this project (before data collection and analysis is complete) without having to give reasons or without penalty of any sort.

Having understood these points:

□ I consent to information or opinions which I have given being presented in the research reports and any subsequent scholarly publication on condition my identity is not revealed.

□ I understand that I will have an opportunity to check the transcripts of the interview before publication.

□ I understand that the data I provide will not be used for any other purpose or released to others without my written consent.

□ I would like to receive a summary of the results of this research when it is completed.

□ I agree to take part in this research.

Name of participant:

Signed:

Date:

SCHOOL OF INFORMATION MANAGEMENT
FACULTY OF COMMERCE AND ADMINISTRATION