Impacts of Computer Technology by Mapuche Students in Chilean Schools

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Abstract

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Chile has embarked on a major initiative to introduce information and communication technologies (ICTs) in schools. Some of the reasons behind this initiative were the need to improve the equity and quality of education. Although, it must be noted that the introduction of ICTs, has not been an initiative in isolation, as there are other areas that were also identified as needing attention. For example, increasing the number of classrooms, upgrading existing schools, improving the quality of teachers and teaching practices, curriculum changes, increasing the number of scholarships to cover the cost of education, school lunches and free personal computers to high performing students.

The democratic governments that proceeded the Pinochet dictatorship, inherited an education system that was market driven, had structural deficiencies, poor performance results, impoverished schools and lacking in quality and equity. However, the model imposed by the dictatorship, has persisted during the various democratic governments that followed and so, has meant that teachers, parents and students, especially those in the secondary and tertiary levels have criticised and protested against it, demanding changes, such as a more equalitarian and free education.

As indicated earlier, the increased education budget, which has translated into increasing the number of classrooms, changes to the curriculum, teacher training and the introduction of ICT into the education system have not been without challenges and/or criticism. For example, although there have been marginal quantifiable results that would attest to the rationale behind these measures, there is still a significant number who believe that the changes have not been sufficient or go deep enough to remove any vestige from the reforms implemented during the dictatorship and then, there are those who oppose changes to education and want the reforms implemented by Pinochet to remain in place. It is evident that the political climate in Chile remains polarised and so, the subject of education has become politicised. Thus, it is in this context that the thesis sought to understand what challenges are being faced by rural schools, with emphasis on those where the majority of students are Mapuche and where ICTs have been introduced. The Mapuche are a native people who inhabit the southern regions of Argentina and Chile. The thesis looks at two schools and considers the Principals, Teachers, a Mapuche elder and the classroom activities to understand the actors at play.

The thesis is a primarily a qualitative research and draws on existing works and theory dealing with education, social factors, inclusion, exclusion and historical analysis of Chile's educational policies. However, there is no work, that was found, to have looked at Mapuche students and which has used Actor-Network Theory (ANT) to identify the actors and networks that may be possible within the observed school settings. Therefore, as a contribution to knowledge, this thesis uses ANT to identify and describe the human and non-human actors involved in the classroom when ICTs are used. As well, there are those other networks and actors outside the school, but which also are intertwined or have an impact on what takes place in the classroom and outside the school and which may play a part in the Mapuche students' education. This approach was taken, so that actors could be identified from a holistic viewpoint, to highlight where these may need to be taken into account, when considering the introduction of ICTs and with a specific emphasis on rural schools where the majority are Mapuche students.

The research used as a secondary approach, quantitative data on the schools' ethnicity numbers, performance indicators, connectivity rates and a number of social indicators including country and regional demographics. This data was necessary to have an overview and provide some context for this thesis' approach. However, the main strategy of the research was a qualitative approach by means of face-to face interviews, to gain a personal perspective from the human actors and to document it in the same manner. This approach was aimed at capturing the verbosity of their answers, which may have otherwise, been lost by simply asking the participants to answer a questionnaire. As well as interviews, classroom observations took place to capture the dynamics of the classroom and in particular, while ICTs were used. Finally, emails also served as a medium to capture data, however, these were essentially used to make contact or obtain clarification on a particular subject. All forms of communication and interviews were conducted in Spanish and translated into English by myself (the researcher), who is a native speaker of the language.

Finally, the recommendations that are proposed, contribute to both, academic and general knowledge and challenge the current top-down/homogenous approach to implement education reforms, which implies a homogenous school population, without the consideration of the various actors that have not been taken into account, but which play a part in the success or failure of the students to have access to equal opportunities both during and beyond schooling years.

Table of Contents

List of Figures

List of Tables

Abbreviations and Definitions

Abbreviation / Noun	Definition / Meaning
ANT	Actor-Network Theory, a theoretical and methodological approach to social theory.
CASEN	Encuesta de Caracterisacion Socioeconomica Nacional (in English, National Survey on the Socioeconomic Characterisation). The survey is carried out to ascertain the situation of households, with emphasis on areas such as, poverty, work, education and health. It also strives to measure the results of government programmes on these areas.
CEPAL	Comision Economica Para el Caribe y America Latina. In English, it is also known as the Economic Commission for Latin America and the Caribbean (ECLAC). It is a United Nations regional commission set up to encourage and contribute towards the region's economic development and cooperation.
CLP (or CLP$)	Chilean Peso, Chilean currency.
Enlaces (refer Red the Enlace below)	In English 'Linkages' – this is a nationwide network of school computers.
Entrepôt	Port city or centre where goods are brought in for transit. For example, import and export, collection and distribution.
ICT	Information and Communication Technology
INE	Instituto Nacional de Estadistica (in English, National Institute of Statistics)
JUNAEB	Junta Nacional de Apoyo Escolar y Becas. This is the Ministry of Education's national body for student aide and scholarships.
Lonko or Lonco	In Mapudungun, it means 'head' and is used to refer to a chief.
Machi	In Mapudungun, this is name for their healers. They are most often female and are recognised as people with great wisdom and

Abbreviation / Noun	Definition / Meaning
	powers of healing. The machi play an important in the Mapuche religion.
Mapuche	Indigenous people of the south of Chile and Argentina. The name is a complex name meaning people of the land (mapu = land; che = people)
Mapudungun	Language of the Mapuche, it was originally a verbal language. However, it has been phonetically written into text.
MINEDUC	Ministerio de Educacion (in English: Ministry of Education)
OECD	Organization for Economic Co-operation and Development
PC	Personal Computer
PISA	Programme for International Student Assessment
Red Enlaces (or Enlaces for short)	Pilot program created in 1992 and aimed at introducing information and communication technologies into educational establishments via a network of school computers. The program initially connected 12 schools in Santiago and was later expanded to connect schools in the Araucania region covering a total of 100 establishments. The program was expanded nationally in 1995 and included 5300 schools.
Ruca	Mapuche hut or dwelling.
SIMCE	Sistema de la Medicion de la Calidad de la Educacion (in English: System for Measuring the Quality of Education).
Toqui	Mapudungun name/title given to a leader during a time of war. The word means axe or axe bearer.
UNESCO	United Nations Educational, Scientific and Cultural Organization.
Werken	Mapudungun word for messenger. The Werken is a figure of authority but not a chief. The Werken usually acts as a counsellor and a messenger to the Lonkos.

Publications and Awards

The following publications have been produced as a result of this thesis:

Toro, F. 2014, 'Experiences as a Student in Chile with Only Pre-computer Technologies', in A. Tatnall & B. Davey (eds), *Reflections on the History of Computers in Education: Early Use of Computers and Teaching About Computing in Schools.*, Springer, Heidelberg, vol. 424, pp. X, 423 pages. Chapter pp. 347 – 364.

Toro, F. & Tatnall, A. 2016, 'Developing a Project to Investigate the Introduction of ICT to Mapuche Students in Chile', *International Journal of Actor-Network Theory and Technological Innovation (IJANTTI)*, vol. 8, no. 1, pp. 34-43.

The following publication has referenced the author working on this thesis:

Tatnall, A. 2011, *information Systems Research, Technological Innovation and Actor-Network Theory*, Heidelberg Press.

The author was admitted to the Degree of Master of Business in 2005, with the following thesis completed:

Toro, F. 2005, 'Teachers' Perspectives on the Introduction and Use of Information and Communication Technologies in Schools in Chile', Master of Business Computing thesis, Victoria University of Victoria.

Statement of Original Authorship

I, Fernando Toro, declare that this work, titled:

‘Impacts of Computer Technology by Mapuche Students in Chilean Schools’,

is solely my work, that the sources used, quoted or mentioned throughout the thesis have been acknowledged accordingly by means of references.

Fernando Toro

Rationale / Bias of Study

Origins of the Researcher

I was born in Arica, Chile, a commune which was settled by the Spanish in 1541. Arica is the northernmost city in Chile sharing a border with Peru and Bolivia. Arica is a port city which does not attract much trade, unlike Valparaiso which is closer to the capital, Santiago and thus, is the major port of the country. The city is known for its climate and cultural diversity and it is common to see Chileans, Peruvians, Bolivians, descendants of Chinese, Italians and other nationalities living in the city. Also, because of its temperate climate, the city also attracts other migrants from other parts of the American continent and the Caribbean and now the city has people from Ecuador, Haiti, Cuba and Colombia. Arica, in 2015, had a population of about 196,000 (Colaboradores de Wikipedia; 2017) and during the 1970s, it was approximately 92,000 (Instituto Nacional De Estadistica - Dirección Regional Arica y Parinacota 2009).

The region of Arica-Parinacota, the capital being Arica, has a number of Aymara people, who had inhabited the region long before the arrival of the Spaniards to the American continent and their descendants have continued to live in the region. Thus, it was not unusual for some schools in Arica to be more mixed in terms of ethnic backgrounds. As for my personal experience, while I attended school in my early years in Arica, it meant that I had classmates whose parents were of either Peruvian, Bolivian, Aymara, Mapuche, Quechua, Italian, Chinese or African ancestry.

Primary School Years

I attended school in Arica from the late 1960s until early 1975. It must be clarified that I only attended primary school in Chile and completed the rest of my education in Australia. During my primary school years in Arica, I attended three different schools, namely, ‘Escuela No.18 – Escuela Republica de Israel’,

‘Escuela No. 1’ or, sometimes referred to as, ‘Escuela Modelo’ and now renamed ‘Colegio Integrado Eduardo Frei Montalva’ and also, a rural school, now named, ‘Liceo Agrícola José Abelardo Núñez Murúa’, which is located in San Miguel de Azapa, a small rural village, which is about 13 kilometres east of Arica in the Azapa Valley, a narrow fertile valley where the inhabitants mainly worked on the land. According to the census carried out in Chile in 2002, the village of San Miguel had about 850 inhabitants (Colaboradores de Wikipedia 2017). During the early 1970s, the population would have been much smaller.

Memories of San Miguel School

The reason why we attended the school in San Miguel was purely on the insistence of my brother and I. We asked our parents to enrol us at the school in San Miguel after we had spent the summer vacations at our grandfather's house, who had bought a property in the Azapa Valley. During our summer vacations in the valley, we had made new friends and we wanted to spend more time in the valley and we managed to convince our parents to enrol us at the local school. Initially, we were enrolled for the first semester of the year and we completed the second semester in our main school in Arica, the ‘Escuela No. 1’. The following year, we were enrolled for the whole year at San Miguel’s school. The subsequent years and until 1975, we attended our usual school, ‘Escuela No. 1’ in Arica.

It was during the time at San Miguel’s Primary School where I observed the marked differences that existed between my usual urban school in Arica and the students at the rural school. The school buildings at the San Miguel school were new and looked like they had been built recently. However, these looked like the basic prefabricated structure found in most schools, comprised of metal frames, concrete panels and bricks. My usual school in Arica was a much older building made of bricks and concrete, it had two levels, a paved courtyard, a multi-purpose sports ground (basketball and mini football), showers and a theatre/hall. Apart from the differences of the actual physical facilities, I also

noted the difference in the quality or lack of school utensils in a number of students at the San Miguel school. For example, some students did not have proper exercise books rather, they had exercise books, which had been made by their parents from paper that had been recycled from cement/concrete bags (Toro 2005).

The school uniform was also noted to be somewhat, different. Whereas, in my school in Arica I wore a navy-blue blazer, white shirt, tie and grey pants. In San Miguel's school, we could wear a knitted navy-blue cardigan, grey pants or jeans, but this was not overly enforced. In addition, some students had very old shoes and clothing. It was easy to see that their parents did not have much in terms of monetary resources (Toro 2005). It was easy to spot the differences between this small rural school and my usual school in Arica. I felt that in this rural school, the environment was more relaxed, where students did not have to conform to strict rules. For example, I remember on one occasion where a classmate left the school during lunchtime, fetched a horse from a nearby property then took it to the school yard, so that we could ride it during our break. This would never have happened in my school in Arica. Arica was urbanised and so, there were no horse in the city. But also, the fact that the student left the school grounds during school hours indicated that the San Miguel school was more relaxed, compared to what I was accustomed to. In the 'Escuela No. 1', leaving the school grounds during school hours and without permission could lead to a reprimand and or even a suspension. Notwithstanding, the school in San Miguel demanded respect towards the teachers and fellow students, but it seemed more relaxed and the teachers appeared and acted as less authoritarian. However, and despite its relaxed approach, I noticed that the students showed more respect towards the teachers than my classmates in Arica, who were often more assertive and willing to mock some teachers more than others and always pushing the boundaries.

I remember one of my good friends from San Miguel's school, who was extremely smart and well ahead of the other students. I have often wondered whatever happened to my friend. Did he go on to study further or did he end

up, as many had before him, working in the fields of the valley? I cannot answer that question, but I hope that Bartolomeo (not his real name) has had a good life. Anyway, looking back, I believe that the period spent at San Miguel's school was an eye opener for me at the time. It showed me the unfair situation in which most of the students found themselves in and also the question of why this was the case. To this day, these questions have remained and have framed the reasons or basis for this thesis.

The School Visits

As an adult, I have visited Chile twice. The first visit took place in 1994 (unrelated to this thesis). On this occasion, while I was visiting relatives of a personal friend, I spent some time at the rural location of Loncopangue in the Bio Bio region, about 600 kilometres to the south of Santiago. It was during a football match that I met some students and the Principal of the local school. The match was a usual occurrence for the locals to which I was invited to take part in.

I struck up a conversation with the Principal, who was interested to hear about Australia and its schools. He took me to the school and introduced me to the caretaker and a teacher. He then gave me a tour of the school. I remember from this occasion that the Principal showed me with pride, a television which was used in conjunction with a video cassette player to impart lessons. However, the television in the classroom had a story behind it. A year or so earlier, a Dutch tourist visited the area and promised the Principal that he would donate a TV to the school. The Principal did not make much of it and thought it was just a spur of the moment comment. Until, some months later, a TV arrived at the school. The TV was being used to show educational videos to the students.

The Principal gave me a short history of the school and indicated that the school was also a boarding school, because the majority of the students did not live close the school. Therefore, some students arrived each week on

Sunday. Hence, the football match to keep them busy. At the end of the week, they would go back home on Friday afternoon, to spend the weekend with their parents or guardians. The majority of the children at this school were not from wealthy families, by any means. Instead, their parents were farm workers, where usually the male works and the female stays at home. Having seen this and hearing about the school, brought back a few memories of my primary school years at a rural school in Arica. Albeit, the school that I attended in San Miguel was not a boarding school, it also had better and newer facilities at the time and it was bigger in size, judging by the number of classrooms and teachers.

The next visit took place in late 2010 (related to this thesis), during which, two schools in the region of Araucania were visited. The observations from the schools I visited in 2010 revealed that the children were in a similar situation to those that I had seen during my primary school years and the chance visit in 1994, i.e. lacking economic resources, distance and displacement from family. However, some improvements were noted, that is, I did not see exercise books made from recycled paper bags and proper school utensils, such as new pens, pencils, colouring pens and books were being used. On the other hand, the state of the schools was notably older and lacked new equipment, such as tables and chairs. Also, in one of the schools, it was obvious that repairs were needed to some sections of the building. Later, the school Principal pointed out that the building that housed the toilets had been damaged by the earthquake that hit the country in February of that year. They had been waiting since, for the repairs to take place, with aid from the Government.

So many years have passed since I attended school in Chile, yet some of the memories seemed to have been repeated in seeing similar levels of poverty, lack of resources and no apparent end to the age-old problem of exclusion and lack of opportunities. It is in this context and lack of answers that this research aims to examine a couple of rural schools in a holistic manner, so that we can uncover and analyse the different forces at play during the early years of Mapuche school children where ICTs have been introduced.

Thesis Outline

This thesis is organised as follows:

Chapter 1

Chapter 1 provides a brief outline on the history of Chile, an account of the challenges faced by the Mapuche since the first contact, during the colonial period, the new Chilean Republic and the present day.

Chapter 2

Chapter 2 gives an outline of the educational reforms that have taken place since the presidency of Mr Eduardo Frei (1964 - 1970) to Mrs Michelle Bachelet (2017). It also provides details of the various evaluations programs that have been implemented to measure the results of the education reforms.

Chapter 3

This chapter provides an introduction to the context of this thesis and describes the top down education policy approach. It also provides qualitative and quantitative data on income inequality, poverty, social and demographic stratification, poverty in the Araucania region; as well as, data specifically related to the indigenous population, indigenous language proficiency and Internet use.

Chapter 4

This chapter is dedicated to the methodology of this thesis. It starts with describing the background of the researcher. The chapter also describes the data collection approach, research paradigm, the research questions, contribution to knowledge, aims and limitations of this thesis.

Chapter 5

This chapter provides the literature review undertaken and which was relevant for this thesis. It discusses Information and Communication Technologies, citizenship, status, education, structure as a means of hegemony, globalisation, democracy as it relates to education, race gender and class, social inclusion, social capital and Actor-Network Theory.

Chapter 6

This chapter details the visits to the Escuela Basica School 1 and the interviews and observations that took place. The chapter's interviews, as they are described on this chapter, were conducted in Spanish and translated to English by myself.

Chapter 7

This chapter details the visits to the Escuela Basica School 2 and the interviews and observations that took place during this time. Similarly, to the previous chapter, the interviews contained in this chapter were conducted in Spanish and translated to English by myself.

Chapter 8

This chapter examines the data collected from an actor-network theory perspective, it identifies the networks, human and non-human actors and evaluates these from different angles, as smaller networks that are centric to Mapuche culture, school and students, to then provide a more holistic view where those smaller networks are integrated into a more inclusive and bigger network.

Chapter 9

This chapter provides a discussion and reflection on the main findings of this thesis by juxtaposing the theory and data collected and which, is centred on the questions posed in the Methodology chapter, which are as follows:

Major Research Question:
1. How are ICTs being used in the classroom environment by the Mapuche students and as such, are ICTs being used as a tool to improve their education outcomes and what have they experienced as a result?

Sub Questions:
The following sub questions have been formulated with an ANT approach and were expected to result in a more descriptive reply.

1. What challenges are experienced by the students?
2. What challenges are experienced by the teachers?
3. What challenges are experienced by the school?
4. In what context are ICTs perceived by teachers?
5. Are there any visible impacts on the student's Mapuche language?
6. What impacts are the aims proposed by the Chilean Ministry of Education having on the Mapuche students (relationship between policy and effect)?

This chapter also provides recommendations based on the findings of this thesis and for further research.

CHAPTER 1 – Brief Historic Outline

Introduction

This chapter starts with a brief outline on the history of Chile, since the arrival of the Spaniards, as they made their way South in search of gold and other riches. It is in their push South that the Spaniards encounter the Mapuche people. Thus, the early part of the chapter gives a brief account of the challenges that the Mapuche have faced since the first contact, during the colonial period, the new Chilean Republic and the present day.

This chapter also gives a brief timeline of key events that have impacted the Mapuche, including the Agrarian Reform that took place from 1962 to 1989. This is to get an insight into the Mapuche culture and to get an overview of the constant struggles that the Mapuche have been faced with up to the present day. This historical approach also sets the tone to clarify some of the rationale of this thesis.

Chile – The First Peoples

The Republic of Chile is situated in South America, sharing a border with Peru, Bolivia and Argentina. Prior to the Spanish conquest, various indigenous people inhabited the territory that is now Chile. The north was inhabited by the Aymara, Atacameño, Diaguita and Chango people, amongst others. In the central and south regions, the Mapuche, Picunche, Pehunche, Cunco, Huilliche, Pampa, Renquele, Moluche, Nagche and Puelche (Chihuailaf et al. 2008; Llancaqueo 2006). To the far south including Patagonia, the Chono, Kawesqar, Selknam and Yagan people (Wikipedia Contributors; 2015). It must be noted that the Mapuche territory covered a great part of what now includes the Argentinian and Chilean southern regions (Chihuailaf et al. 2008). However, in what is now the Chilean territory, the Mapuche were not conquered by the Incas, in fact, according to Chihuailaf et al. (2008) the Mapuche in the northern part of their territory lived in harmony with Inca

colonisers, Diaguitas and Chango people. However, the Incas were never able to conquer the Mapuche, to whom the Incas referred to as rebels in arms or ‘Purumuaka’ in their language (Chihuailaf et al. 2008).

The Spaniards’ Encounter with the Mapuche

In 1535, the Spanish conquistador Diego de Almagro had attempted to conquer the country but his endeavours had proved difficult due to the misinformed belief that the country contained vast quantities of gold, which was not the case, and the fact that in order to get to the central valleys, found closer to the centre of the country, meant crossing extensive mountain ranges, thus, he turned back to Peru arriving in Arequipa in 1537 (Barros Arana 1999). However, it was not until 1540 when Pedro de Valdivia left Cuzco on another expedition bound for Chile, which resulted in the founding of Santiago de la Nueva Extremadura on the 12th of February 1541 (Barros Arana 1999), on the site that is now the capital of Chile. The complete name did not survive and to this day the city is only known as Santiago (Barros Arana 1999). The city was settled by a small number of Spaniards who set out to plan and build the city. However, in September of the same year, 1541, the city was attacked and burned by natives who were now in conflict with the Spanish (Aylwin 2002; Barros Arana 1999). This set the tone for the conquest of Chile and the conflict, which ensued between the Spanish and Mapuche. This conflict can be marked by a period of all-out war that took place from 1550 to 1656 (Biblioteca Nacional de Chile 2014). After more than 100 years of war, the conflict somewhat subdued, according to Llancaqueo (2006) due to the recognition by the Spanish of the autonomy of the Mapuche to the south of the Bio Bio river, due to treaties resulting from the rebellion of 1598-1601 and the battle of Curalaba. However, according Chihuailaf et al. (2008) treaties did not last long and the conflicts continued until once again, the Spanish recognized the same borders in 1641. However, this and other treaties met with the same fate, the relative peace did not last and the conflict with the Mapuche continued until the war of independence (1801-1810), which resulted in the Spanish being ousted and Chile becoming an independent nation.

A New Nation – New Challenges for the Mapuche

Once the new nation was born, the Mapuche faced a new threat and the war now continued with the Chileans and lasted until 1882 (Chihuailaf et al. 2008; Vazques 2012). Practically, the Mapuche fought for their lands for over 300 years and it was not until 1972 when the Salvador Allende Government passed Law 17.729 to stop the usurping of the Mapuche lands and give back their ancestral lands (Chihuailaf et al. 2008). However, this was short lived and the Pinochet dictatorship reversed any gains by the Mapuche via a counter agrarian reform and by taking back their ancestral lands (Chihuailaf et al. 2008). To this day, the Mapuche continue to fight for their lands resulting in attacks on property and individuals from both sides of the conflict, hunger strikes by jailed Mapuche leaders and other forms of protest. These events are often reported in the newspapers and appear to have polarised the relationship between the Mapuche, Government (both central and local), land owners and the police (La Nacion 4 May 2015, 20 May 2015). The Mapuche have opted to also raise their concerns in the United Nations (UN) to intercede on their behalf with the Chilean government (Enlace Mapuche Internacional 2014).

The Mapuche and the State

The Mapuche have, throughout their history, come into conflict first with the colonial powers and then continuing with the new born republics and continues to the present day. Llancaqueo (2006) indicates that the:

> ‘pivotal points of the Mapuche social movements from the end of the XX century have been: Political, territorial, cultural economic and social rights; the affirmation of their identity; the reclamation of a reparation for the objective responsibility of the State for the damage caused for over a century following the occupation of the territory to the south of river Bio Bio’. (p. 9)

In addition, Llancaqueo (2006) reiterates that the political and economic restructuring generates the collapse of the imaginary territorial boundaries that

gave the sense of identity. Thus, in the case of the Mapuche, the loss of these actors of their society can be argued to have the potential to erode their sense of belonging and therefore, eat away at the very fibre of their society. Furthermore, in the current disputes for the territory, in which, the environment, the loss of native trees and the depletion of the soil feature prominently, it is possible to observe on this arena a number of actors involved in the decision making, in the use of the land and resource (Llancaqueo 2006).

The following table provides a brief outline of some of the events that have marked the history of the Mapuche, such as, their losses and gains in their relationship with the State.

Table 1.1 - Timeline of Historical Events Impacting the Mapuche.

Century/Period	**Event**
XVI	First attempt to conquer the Mapuche by the Spanish making incursions into Mapuche territory, which expanded from the Pacific Ocean (southern Chile) on the west to the Atlantic Ocean on the east (southern Argentina). A period characterised by continuous conflict between the Mapuche and Spanish. Contrary to other cultures which were conquered by the Spanish, the Mapuche did suffer a collapse of their symbolic universe as a result of contact or wars with a radically unknown culture.
XVII – XIX	A period of intense economic growth for the Mapuche within their territory. The territory also had increased trade with the Spanish, as well as allowed religious orders to co-exist in their space. This period was also marked with Spanish/Mapuche military and matrimonial alliances. The Mapuche country: period of autonomy, constructive agreements, political and commercial relations with the crown and nascent republics. Autonomous sociocultural space regained. This space expanded from the Pacific Ocean (southern Chile) on the west to the Atlantic Ocean on the east (southern Argentina).

Century/Period	Event
XIX to start of XX	Chilean war of Independence from Spain (1801-1810). Military occupation and fractioning of Mapuche territory between the new republics of Argentina and Chile.
1859 to 1881	Constitution of rural property, formation of urban system and the articulation of the regional spaces towards the primary product exporter model. This period of republican invasion culminated with major losses for the Mapuche in terms of autonomy, land, lives, the collapse of their power structures and other resources such as livestock and grains. This period is also characterised by the poverty that affected the Mapuche, the labelling as indigenous, which meant a state of subjugation by the Republic, which also forbade their customs, religion and language.
1931 to 1948	A period of continuous fractioning and division of indigenous communities. During this period, a total of 832 communities were splintered into 12,737 communes.
1962 to 1989 Agrarian Reforms	This timeframe is characterised by three distinct periods linked to the presidents of the time. These are detailed as follows: **1962 – 1964: Presidency of Jorge Alessandri** First agrarian reform, mainly due to pressure from the State Department of the United States of America through the Alliance for Progress program. This was seen as a weak and ineffective agrarian reform in which the government did not seek to implement wide ranging reforms and instead let to the relabelling of existing government bodies to oversee the reforms. Although, the reforms were superficial and minimal, it put on the public debate the necessity for reforms in this area and became a

Century/Period	Event
	political issue for subsequent election campaigns. **1965 – 1970 Presidency of Eduardo Frei M.** This period was characterised by a real agrarian reform, which included expropriation and liquidation of large land states. The reform became a social issue and brought into the discussion the workers, resulting in the breaking of the country's elite. Although, the government promised 90, 000 new owners as a result of the agrarian reform, by the end of its term there were only 4,000 new owner/farmers incorporated into cooperatives. **1970 – 1973 Presidency of Dr Salvador Allende** During the Allende government, major reforms took place. However, it also meant an increase in the mobilisation by the Mapuche, who saw in Allende a chance to participate and recuperate their lands. Through a compromise with the Mapuche Allende introduced a law which sought to buy back the land usurped from the Mapuche and to rectify and finalise land title rights and titles. This led to a sharp increase in the land that was given back to the Mapuche (refer to Appendix 2 - Expropriations). During the Allende period a total of 152 land holdings were expropriated in favour of the Mapuche alone. Although, the majority of the land that the Mapuche sought to reclaim did not end up being recognised as such, they viewed this period a start in the right direction. **1973 – 1990 The Dictatorship Years** A military junta deposed the Allende government on the 11th of September 1973. The new order of the regime presented two conflicting views, a neoliberal decentralisation and regional planning. These

Century/Period	Event
	acquired a market driven approach which had long impacting implications. The new regime imposed a massive reversal of the expropriations that had taken place during the previous governments, as part of the agrarian reforms. Thus, the previous land owners, retook the land (much of which had originally belonged to the Mapuche in the first place). This period is also characterised by the division and fragmentation of the Mapuche communities, the incursion of forestry, mining and hydro energy industries on their lands.
1990 to Present days. The Transition to Democracy	When democracy returned, the ensuing governments agreed, as part of the transition, to continue with the economic model left by the military regime. The Mapuche did not recover their lands, to the levels achieved during the agrarian reforms. The governments adopted new measures and programs to tackle issues in education, poverty and health but not discussion of agrarian reform took place. The Mapuche focus on their fights with the government and conglomerates which have come into their ancestral lands to exploit the resources. As a result, and to this day, certain groups within the Mapuche have become more militant, resorting to strikes, protest marches, hunger strikes and even more direct action such as attacks on private property. The state has responded with a heavy militarised policing and persecution and in some instances, some Mapuche leaders have been incarcerated under terrorism laws.

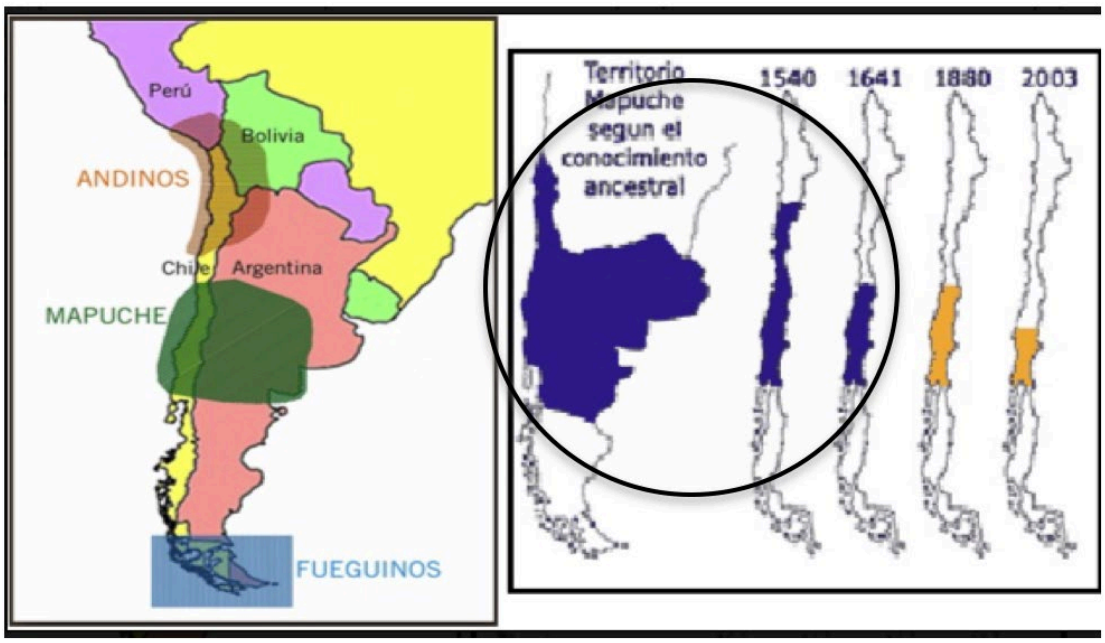
Adapted and translated from Llancaqueo (2006)

A Perception of Self Identity

It is evident that in where there has been a conquered society, the historical and socio-anthropological description of the conquered seems to be misrepresented by the self-perception of the dominant society of being the guardians of the roots of their society (Becerra Peña 2011). In the case of the Mapuche, this has translated into receiving messages, models and values of the dominant society which has discriminated and undervalued the Mapuche culture and which has also been replicated in the education system (Becerra Peña 2011). Having said, it is also evident that in Chile, society would most often deny their mestizo roots and see themselves as more closely related to their Hispanic or European roots (Godoy, Hoces & Roa 2006). Throughout the document, Godoy, Hoces and Roa (2006) argue that education in Chile and as found in the government approved texts, the view that is imparted is one of misrepresentations, misinterpretations, erroneous stereotypes and perceptions.

Map of Mapuche Territory

The Mapuche have inhabited, a portion in Chile (and Argentina) since long before the arrival of the Spanish. With reference to Chile, they occupied the south of present Chile from the Aconcagua river as their northern border to the Chiloe Islands in the South (Llanqinao, Rebolledo & Briceño 2008). This region was and is a fertile part of the country with many sources of fresh water and forests. With reference to the maps below, the shaded area on the left-hand side map depicts the territory of the Mapuche, which covered both sides of the border, that is, present day Chile and Argentina. This map also shows the territory inhabited by other cultures, such as the Fueginos, that is, those in the far south in the region known as ‘Tierra del Fuego’ (in English, Land of fire), as well as those to the north in the Andean region of Chile, Peru and Bolivia that are commonly referred to as the Andinos.



Map not to scale - Adapted from Gonzales (2012)

Figure 1.1 - Mapuche Territory

The Maps above depict the lands inhabited by the Mapuche and their diminishing territory from the 1500s to 2003 (right side map). The map on the left provides an overall view of Mapuche territory prior to the Spanish arrival. The countries' borders are the present borders of the countries, as named on the map. These borders are marked, so that the reader is able to see the area that comprised the Mapuche territory, which included parts of Chile and Argentina.

The territory attributed to have been inhabited by the Mapuche, as seen in the circled maps above (including those from 1540 and 1641), has been recognised to have been passed down by ancestral knowledge.

Conclusion

As discussed in this chapter, the Mapuche have been impacted not only by their first contact with the Spanish but also as a result of the nascent republics (although, this thesis only concentrates on the Mapuche within the current Chilean territory, a similar situation was and is faced by the Mapuche on the

Argentinian side). Unlike other cultures which succumbed to the advancing forces of Spanish conquistadors, the Mapuche continued to wage war against the Spanish and practically until Chile's independence in 1810. This was followed by a period of major setbacks for the Mapuche, as the new republic proceeded to annexe the lands of the Mapuche and thus, leading to a continuance of their conflict, but this time with a new opponent.

Presently, the Mapuche territory is a reduced and fractioned space. Any gains that were achieved via the agrarian reforms or governments recognising their plight, were reversed during the dictatorship, as it embarked on neo-liberal reforms, resulting in major setbacks for the Mapuche. However, the Mapuche have regained their impetus to fight for equal rights, which had been reversed during the dictatorship and recognition of their lands that have been acquired by private conglomerates for exploitation of its resources. This has culminated in an ongoing conflict by the Mapuche against the state and a militarised police force. For example, some regions of the Araucania have had a heavy police presence and the Mapuche have taken more militant action against state and or private property, which have resulted in the destruction of property and deaths on both sides.

The schools visited during the fieldwork are located in the region that has seen centuries of conflict. As indicated above, these conflicts have taken a new dimension and continue to this day. The Mapuche have suffered displacement and dispossession, which has affected their way of life and culture. This has meant that they also experience exclusion, poverty, lack of schooling, alcoholism, fragmented families and loss of cultural values, e.g. indigenous language proficiency.

CHAPTER 2 – Outline of Education Reforms

Introduction

In this chapter, an outline of the educational reforms that have taken place since the presidency of Mr Eduardo Frei (1964 - 1970) to Mrs Michelle Bachelet's last term as president (2014 - 2018) is presented. I chose to start from the Presidency of Mr Frei, to capture the changes that took place in education during the time that I started primary school in Chile. From this time until 1975, is the period that forms part of the bias, as indicated earlier, of this thesis. Notwithstanding, the chapters describes the reforms that have taken place from 1964 to the present (as at 2017 Bachelet's term), capturing the changes that took place in the country during democracy, dictatorship and back to democratic transition. The chapter also details the various evaluations programs that have been implemented to measure the reforms to education.

The Eduardo Frei Montalva Reforms

During the Presidency of Mr Eduardo Frei Montalva (1964 – 1970), education reforms took place to make it a reality for all citizens to have equal opportunities (Cazanga Moncada 1999). The reforms comprised injection of funds, the extension of primary education from 6 to 8 years, which comprised two cycles; the first cycle comprised years 1 to 4 (Cazanga Moncada 1999). Also, as (Cazanga Moncada 1999) explains, in a first for the country, President Frei made it possible that positions within the ministry of education be filled by members of the education profession. These reforms also ensured that all children entered school (Schiefelbein 1992), and so it also gave impetus to start measuring results, at least as a form of measuring the reforms as such.

The first measures on academic performance took place during the period of 1968 to 1971 (Schiefelbein 1992). Accordingly, Schiefelbein (1992) indicates that the first measures took place in 1968 (during the presidency of Mr Frei, as listed in Cazanga Moncada (1999) when year 8 students were tested to

measure their performance. These tests were designed so that the government could measure the quality of education and thus be able to increase the quality of education, as well as the reasoning capabilities and the ability to retain information by the students. The latter emphasised the ability to memorize information (Schiefelbein 1992) which was a common method of learning during that period.

The second test took place in 1970 and this time the results provided accurate results on performance given that the teachers had already adopted the measures implemented earlier by the government. On the other hand, Cazanga Moncada (1999) argues that by the end of the Frei presidency, the teachers had sent a clear message that the educational reforms implemented by the government had not been well-received by the teachers. The teachers had agreed to a number of measures, during their XVII convention in January 1969, which were necessary for education to progress and improve in Chile (Cazanga Moncada 1999). Some of these points recommended a more inclusive system, free of discrimination based on social, religion or race; a more consultative system which included students, parents, workers and communities (Cazanga Moncada 1999).

During the presidency of Mr Eduardo Frei Montalva, the state agency known as JUNAEB (Junta Nacional de Auxilio Escolar y Becas) was created in 1964 (Junta Nacional de Auxilio Escolar y Becas 2017a). The agency was and is tasked with administering state resources to ensure that students can enter, remain and succeed in their education (Junta Nacional de Auxilio Escolar y Becas 2017a). To this day, the JUNAEB imparts a number of scholarships and student aids to promote equality and access to education for disadvantaged students. For example, the recent Indigenous Scholarship (in Spanish, Beca Indigena) which is available to indigenous primary school students and 'I Choose My PC' (in Spanish, Yo Elijo Mi PC) which started in 2009 and rewards high performing 7th grade students of low socio-economic families to choose from a range of laptops that the Ministry of Education fully funds (Junta Nacional de Auxilio Escolar y Becas 2017a, 2017b; Wikipedia 2017).

The Dr Salvador Allende Reforms

The 1970s saw Dr Salvador Allende elected as president. Dr Allende was voted into power with a popular agenda aimed at and which included the working class (Cazanga Moncada 1999).

The results from the second test (which took place in 1970) had demonstrated the students needed more textbooks and an adequate nutrition (Schiefelbein 1992). The results also aided the government to direct resources where and as needed and which resulted in education attracting approximately 20% of the national budget (Cazanga Moncada 1999; Toro 2005).

During this time, the government gave education greater emphasis and so the first education minister was a teacher (Mr Mario Astorga), who also had been the president of the Teachers Union of Chile (Cazanga Moncada 1999). In addition, education was not seen as an isolated item. The government recognized that nutrition was also important in the performance of students. Therefore, from 1971 breakfast were served in a total of 64% of schools including public and private schools, as well as a half a litre of milk for every student in the country (Cazanga Moncada 1999). In addition, 700,000 lunch rations were also provided (Cazanga Moncada 1999). The costs of these was absorbed by the government and were aimed to mainly close the socio-economic gaps which existed in the country (Cazanga Moncada 1999). Although Brunner (2005) argues that some of these reforms brought forward by the Allende government were merely a socialist utopia typical of the times in South America, Cazanga Moncada (1999) indicates that compared to 1970, over half a million more students had been able to access education by 1973 (518,000). This figure was contrasted also to the number of students who were marginalised from education in 1970 (estimated to be 500,000), between the ages of 6-18 years and which by 1973 was reduced to 50%. Overall, by 1973, the percentage of students in the education system (from pre-school to high school) reached 92% (Cazanga Moncada 1999). These figures were not only reflective of the task that the government had given itself but also the

participative and inclusive view of education. Therefore, higher education and people who had never had access to education also saw an increase in the number of enrolments (Cazanga Moncada 1999) and as Arnove (1973) noted, two months before the coup which toppled Dr Allende, in his discussion on education and political participation, similarly to the view of the Allende government he saw that historically in Latin America, education and the social systems had denied its citizens the opportunities and competencies required for participation (Arnove 1973; Cazanga Moncada 1999). The government of Doctor Salvador Allende was toppled by a military coup on the 11th of September 1973. Changes to the education system were to undergo a radical shift, as compared to previous reforms.

The Dictatorship Years and its Reforms

During the early 1980s and in the midst of the military dictatorship (1973 - 1990), the country embarked on an intense market–based education reform (Bellei 2014; Carnoy 1998; Delannoy 2000; Sánchez, Salinas & Harris 2011), which decentralised education and so, public schools were handed over to municipal governments (Delannoy 2000) and introduced a voucher system which was aimed at creating incentives for parents who, as a result, would be able to select the school of their choice (Delannoy 2000). This strategy was part of a wider privatisation strategy aligned to the free market global economy (Schiefelbein & Schiefelbein 2000; Toro 2005) and which, by 1993 had resulted in more than 90 percent of the previously state owned resources, to become privatised (Silva & Figueroa 2002).

With reference to the education sector, the reforms also included the privatisation of higher education (Schiefelbein & Schiefelbein 2000). In addition, Delannoy (2000) and Carnoy (1998) argue that the objective was to raise efficiency through a decentralised administration, labour deregulation and competition between public and private schools. On the other hand, Schiefelbein and Schiefelbein (2000) describe the strategy as much wider and encompassing. In effect, it was part of and geared towards further deregulation

of the market, reduce political opposition and to open higher education towards free market economics (Willington Germano 2006). Furthermore, none of the measures that impacted education had included measures to inform, consult or train the public and or affected parties to precipitate the desired outcomes (Delannoy 2000) and given that these reforms were carried out under a military regime, there was little or no room for discussion (Willington Germano 2006).

In summary, Schiefelbein and Schiefelbein (2000) are of the opinion that these measures rather than being a strategy *per se*, it was a response to the subjective perception that spending on public education is often inefficient (Schiefelbein & Schiefelbein 2000). And so, as Willington Germano (2006) explains with reference to superior education, in Chile from 1980 to 1993 a total of 45 new private universities appeared in the country and the number of public universities was reduced to 3. As a consequence, financing superior education fell from almost 75% in 1973 to 26% in 1996 (Willington Germano 2006). In addition, Zyngier (2015) points out that due to the neo-liberal changes imposed under the Pinochet dictatorship during the 1980s, Chile is one of the most socioeconomically segregated education systems in the OECD, whereby, over 52% of students attend private, for-profit schools (Zyngier 2015).

The other encompassing change that the deregulation of education brought with it was the elimination of the collective bargaining of salary contracts by teachers (Schiefelbein & Schiefelbein 2000). As control was given to the municipalities, salaries under the new changes would be negotiated at each of the 327 municipalities that existed in the country at the time (Schiefelbein & Schiefelbein 2000) and where each of the mayors and or councillors were appointed by the Ministry of Government.

Theory and practice are not often intrinsically correlated and so the aggressive privatisation program undertaken by the regime (Silva & Figueroa 2002) and with reference to the education system, started to provide results which were far from what was perhaps, the expected outcomes, which the advocates of these measures had extolled prior to and during the inception period. But first,

let us not forget that in order to implement the decentralisation measures and limit state intervention, as indicated by Schiefelbein and Schiefelbein (2000), 150 ‘Chicago Boys’ were employed by the Pinochet regime to lead the government’s elite staff to carry this vision forward. This took place at a time when ‘Reaganomics’ and ‘Thatcherism’ were also determining the economics of the 1980s (Schiefelbein & Schiefelbein 2000) and with the continuous support for that vision from two well-known University of Chicago professors, Milton Friedman and Arnold Harberger, the military regime was able to push forward with their measures (Cabalin 2012; Schiefelbein & Schiefelbein 2000).

At this point, it is fair to ask if any of the objectives, as described by Delannoy (2000) above were realised or translated to a better and quality education, an efficient system, where informed parents were able to make better choices regarding the child’s education. Without being redundant, the measures were expected to deliver efficiency through a decentralised administration, labour deregulation and competition between public and private schools.

Return to Democracy and the Birth of Enlaces

Mr Patricio Alwyn, became the first president of Chile (1990 to 1994) after the Pinochet dictatorship had ended and democracy was once again restored (Bauer 2017). Prior to 1990, Chile had a minimal exposure to ICTs in education. However, in the early 1990s, the country embarked on a national initiative to reform the education system, as well as implement ICTs in schools, (Sánchez & Salinas 2008; Silva & Figueroa 2002). As a result, 1992 saw the creation of ‘Programa Enlaces’ or often referred to only as ‘Enlaces’ (‘Linkages Program’ in English) (Claro et al. 2012; ENLACES Centro de Educación y Tecnología del Ministerio de Educación 2009b; Sánchez & Salinas 2008; Silva & Figueroa 2002). Notwithstanding, the reforms were implemented on the foundations of the new market model imposed by the previous dictatorial regime (Brunner 2005).

The ‘Enlaces’ program was developed as an experimental initiative to implement computer technology in schools (Claro et al. 2012; Sánchez & Salinas 2008). However, ‘Enlaces’ was not an isolated program. In fact, it was part of major initiatives and reforms envisaged by the government. The need for the changes were due to the failures of the inherited education system which had been through a period of decentralisation and privatisation during the Pinochet dictatorship (Planas 2011; Sánchez, Salinas & Harris 2011; Toro 2014). For example, as described by Sánchez and Salinas (2008), Claro et al. (2012) and Toro (2014), there was also a need to improve the quality and equity in education in publicly financed education in Chile. Thus, ‘Enlaces’ was broadly seen as part of the national consensus and urgent need for more equity and quality in the Chilean education (Sánchez & Salinas 2008). Furthermore and as indicated by Sánchez and Salinas (2008), the broader reforms were centred on the regulatory frameworks, changes to curriculum (to both, primary and secondary levels), teacher training and development, increasing pedagogical resources and infrastructure for schools, improving students attendance and increasing the time spent on teaching. These changes did also encompass an increase in the educational budget, as indicated by Sánchez and Salinas (2008).

The subsequent coalition governments that proceeded Mr Alwyn’s presidency, as well as students, parents and teachers have all had an interest in the education system. As a result educational reform, has been a contentious political problem in the country (Planas 2011). On the one hand, the majority of students, parents and a significant part of the electorate, claim that education should be free of charge, not for profit, of good quality and inclusive. On the other hand, governments have struggled to fully deliver on those claims. One of the difficulties rests on the inherited system from the Pinochet years and to this day there are those who believe that education is not a right but a commodity and so a price should be put on it. On the other hand, teachers have claimed that better wages and opportunities are necessary to improve education, the teaching profession and prospects for teachers. But teachers

have opposed moves by the government to test their current skills, so that a health check is performed on the current teacher qualities and performance.

The various governments have strived to implement different measures aimed at improving the standard of education. For example, more money is allocated to education in terms of teacher training, ICTs in the classroom, internet connectivity, scholarships and other monetary help designed to help those who cannot meet the cost of education, free laptops to high performing students who come from low socio-economic families. However, some argue that the crux of the problem appears to be the fact that education in Chile, since the Pinochet dictatorship, has been driven by a market model and is geared to the generation of profits as opposed to providing education, as the main tenet. This model persisted beyond the Pinochet regime and has continued to some degree, during the various democratic governments that followed (Cabalin 2012). As a result, students have demanded and protested constantly for a change in the education system. In 2006, parents and concerned citizens joined the students in the cause by marching alongside students. Of the many marches that took place around the country, the most prominent was the march by secondary school students, which was labelled as the ‘march of penguins’, alluding to the uniforms worn by the students (Cabalin 2012). Amongst the claims of the students, was the 24-hour student travel card (on public transport), increase to the number of food rations in school and no fee to sit for the ‘University Selection Test’ (in Spanish, ‘Prueba de Selection Universitaria’ or PSU for short) (Cabalin 2012). Currently, the fee is still in place an as at November 2017, the cost is $(CLP) 39,960 or $(AUD) 64.14. However, there is a scholarship to cover the cost of the university selection test, to which students with economic hardship can apply.

Chile has always maintained a centralised system in education. That is, the Ministry of Education oversees the education administration for the entire nation. This is opposed to the description provided by Osorio and Nieves (2014) on the Spanish experience, after the death of the dictator in 1975 and

culminating in the complete decentralisation of the educational administration by 1990s, whereby, each region became responsible for overseeing the education in their territory. It is important to note that similarly to Spain, Chile also implemented plans to introduce ICTs in education. However, as indicated by Osorio and Nieves (2014), in Spain the regions were in control of the implementation and were more attuned to a pilot approach, whereas in Chile, the approach was a top-down homogenous approach.

President Lagos and the Attempt to Close the Digital Divide

There is consensus that the inequitable access to ICT can have implications in societies and thus, there has been an increased emphasis in government initiatives to tackle this issue (Marshall & Taylor 2005). The digital breach was an important issue which during the Presidency of Mr Ricardo Lagos (2000 – 2006) was recognised and so a program was put in place to address the digital breach. However, Forno and Rivera (2009), argue this initiative translated into an exercise of futility and was close to farcical. In fact, they start their description of the facts by stating that in Chile, there is no digital divide. Following that bold statement, they set out to describe the results of their interviews with the people that took part in training to eliminate the digital divide in Chile. To explain how this was done, the authors describe how Lagos, during a speech given at the World Trade Centre in New York on the 21st May 2000, affirmed that all Chileans would be brought into the digital age. Bill Gates was also present at this event and gifted the Chilean president 5 computers with satellite capability, as well as two trucks equipped with the latest technology and facilities to be used as mobile digital classrooms (Forno & Rivera 2009) that would travel the length of Chile teaching people how to use a computer. The altruism and intent may have been clear, but the implementation and how it unfolded, according to Forno and Rivera (2009), reads like a tragicomedy. Forno and Rivera (2009) set out to interview Mapuche people who participated in the training that took place in the trucks. According to the recollected accounts, many felt nervous, hesitant and some even felt threatened by the trucks that looked from outer space. In fact, some people only turned up to

look at the trucks. Forno and Rivera (2009) then describe the events, as explained by those that were trained to be digitally accomplished. They were taught to move the mouse, turn the computer off and on, with people taking turns to do these tasks (Forno & Rivera 2009), then they were provided lunch and told to come back next morning. The next day, the same tasks were performed but most people had not retained the previous day's lesson, others were still nervous and unable to move the mouse with precision or confidence and so, nobody had learned to hold and move the mouse proficiently and with purpose or turn the computer on (Forno & Rivera 2009). However, at the end of the lessons, everyone was given a certificate attesting that they were digitally capable and thus, ironically Forno and Rivera (2009) state that in Chile the digital divide does not exist.

The description of events presented by Forno and Rivera (2009) provide a number of issues in the manner that the program was implemented, for example a top-down approach with little consultation or oversight about the needs of the community and its intended recipients, a once-only opportunity to access ICT and no ongoing programs. If this approach is compared with the project initiated by the University of Central Queensland to introduce ICT to the inhabitants of the regional city of Rockhampton so that they would be able to participate in the information age (Marshall & Taylor 2002, 2005), the approach and results are very different. What is important to note between the two examples is that the Rockhampton initiative concentrated in a subset of the community and was neither a top-down, bottom-up, but a more transparent approach (Marshall & Taylor 2002, 2005), as opposed to the limited two days exercise described by (Forno & Rivera 2009).

The Bachelet Reforms

Michelle Bachelet was elected President of Chile (second non-consecutive term) on the 11th of March 2014 (Wikipedia contributors 2015). Her campaign was focused on bringing many changes to the country and which included a list of 50 promises that would be carried out within the first 100 days of her

government (Ministerio de Educación 2014). One of these promises was the much-awaited and highly expected, educational reform or as it was known in Spanish as 'Reforma Educacional' (Bellei 2014; Gobierno de Chile 2013) which aimed to end public funding to private schools, to make all primary and secondary education free of charge, and to ban questionable selective practices used in school admission processes (Bellei 2014; Zyngier 2015).

The Bachelet educational reforms originated from the evaluation and results provided by SIMCE, previous investments in education, such as infrastructure, equipment and target programs (Gobierno de Chile 2013). Despite these reforms, education remained segregated, unequal, reduced and fragile. Furthermore, the results from SIMCE specifically showed that education was poorer in quality and equity, as well as promoting far more exclusion and selection practices (Gobierno de Chile 2013). In addition, President Bachelet indicated back in 2013 that according to the countries evaluated by PISA, Chile was in second position as those countries with more social segregation (Gobierno de Chile 2013). In fact, according to OECD (2015a), the country has remained steady in terms of number students performing well despite their disadvantaged backgrounds from 2006 to 2015 (OECD 2015a), thus, there was no increase in the number of resilient students, as well as no changes to the results in science, mathematics and reading from 2006 to 2015 and performance was below the OECD average (OECD 2015a).

The proposals of the educational reforms were sent to the Chilean parliament on the 19th of May 2014. In fact, much of 2014 was spent on passing laws which strived to end profiteering, creation of new state universities and technical education centres, increased expenditure in pre-school education, end discrimination and selection based on paying capacity, so that instead of schools choosing their students, families would be able to choose the school which best suit their needs (Ministerio de Educación 2014). As a result, a long controversial legislative debate was expected (Bellei 2014) given that many of those who backed the Pinochet reforms are now members of Parliament in opposition. To this day, debate remains on parts of the reforms which aim to bring free education to all students. However, this has faced roadblocks from

opposition parties, which have forced a watered-down version of the reforms which would only guarantee gratuity for around 50% to 60% of families of low socio-economic spectrum, as opposed to universal free coverage.

Scholarships During Bachelet Presidencies

During the first presidency of Michelle Bachelet, a number of scholarship programs were established to benefit students who were classified as lacking resources or from a low socio-economic status and enrolled in a subsidized school, namely, the 'I Choose my PC' Scholarship (in Spanish, 'Yo Elijo Mi PC') and 'I Connect to Learn' (in Spanish, 'Me Conecto Para Aprender') were established and so, through the 'Yo Elijo Mi PC' scholarship, 30,000 PCs were given in the first year (2009) and then increased to 60,000 per year after that (Junta Nacional de Auxilio Escolar y Becas 2017b; Wikipedia 2017). According to figures provided by Junta Nacional de Auxilio Escolar y Becas (2017b), since its inception, 350,000 students have benefited as a result of the scholarships and an extra 30,000 who are enrolled in a subsidized school in grade seven were expected to benefit in 2017.

The other government initiative which has been implemented and as mentioned above, is the 'Me Conecto para Aprender'. This scholarship has a much broader coverage and strives to narrow the digital divide by increasing the access to ICTs (Ministerio de Educación 2017b) and to facilitate the learning process. In fact, this program was designed to allow all students, as opposed to cater for those who only meet the criteria of the 'Yo Elijo mi PC' scholarship. Under the 'Me Conecto para Aprender' scholarship, all students who are enrolled in a public school, are in grade seven and who have not received already a PC through the 'Yo Elijo mi PC' scholarship in the last few years, qualify to receive a PC (Ministerio de Educación 2017b). This is major initiative that allows the students to choose from a range of portable PCs such as HP 440, ACER ES1, HP 250, ACER E5, HP Pavilion X360 (Ministerio de Educación 2017a). In addition to the portable PCs that the students can access, they all get a 32 GB flash drive, a backpack, antivirus software,

educational software, 12 months broadband access and warranty for the equipment (Ministerio de Educación 2017a).

Education Spending

Chile spent 4.1% of GDP in 2011 in education (CEPALSTAT Databases and Statistical Publications 2014) and 4.5% of GDP in 2012, thus it was ranked 90th, as compared to the rest of the world, where Lesotho was ranked 1st, with 13% of GDP, according to 2008 figures and Cuba was ranked 2nd, with 12.8% of GDP, according to 2011 figures (Central Intelligence Agency 2014). Notably, Australia in 2010 was ranked 56th from a total of 173 countries that are listed in the rankings (Central Intelligence Agency 2014) .

Evaluation Programs

Programa de Evaluación del Rendimiento - PER (in English: Performance Evaluation Program)

According to Carnoy (1998), to evaluate the educational reforms, 4th and 8th grade students were tested in 1982. These tests were to be conducted annually on the same grades in order to compare the figures (Carnoy 1998). However, according to Carnoy (1998) and Schiefelbein and Schiefelbein (2000), the results and analysis of these tests for the period from 1982 to 1988 showed that average overall scores in Spanish and Mathematics declined for 4th graders.

The first tests were designed not only as a means of performance measures but also a means of fostering competition amongst schools and assisting the potential *clients* in making a choice as to which school was better suited for the needs of their siblings (Schiefelbein 1992). Thus, as indicated by Schiefelbein (1992) the 'Programa de Evaluación del Rendimiento' (in Spanish), in short, PER (in English, 'Performance Evaluation Program') was created in 1981, which served as a powerful tool in the decentralisation process and also shifted the focus of responsibility from state to schools, to

improve the quality of education (Schiefelbein 1992). Interestingly, according to Schiefelbein (1992) the results from the PER testing in 1982, showed that the majority of the schools' performance levels were dependant on the economic situation of the school and on exceptional cases, similarly to what was shown in the 1968 – 1971 results, some schools in low socio-economic areas were able to perform well (Schiefelbein 1992). Moreover, it was possible to ascertain that results of those schools which performed well under those circumstances, were attributed to the supervisors and the role they played on those schools (Schiefelbein 1992). However, these indicators were not followed up to be implemented globally or to achieve some uniformity (Schiefelbein 1992).

Sistema de Evaluación de la Calidad de la Educación – SECE and Sistema de Medición de la Calidad de la Educación – SIMCE

Later on, in 1985 and as indicated in Agencia de Calidad de la Educación (2015); to analyse the data provided by the PER testing, the 'Sistema de Evaluación de la Calidad de la Educación' (in Spanish and abbreviated as SECE. In English, 'System for Evaluating the Quality of Education') was founded. The PER system only lasted three years and so a new system was implemented in 1988 (Agencia de Calidad de la Educación 2015) which is known as the 'Sistema de Medición de la Calidad de la Educación', (it is usually abbreviated as SIMCE and in English it translates to: 'Education Quality Measurement System') and to this day, it is still in operation. The SIMCE is managed and run by the 'Agencia de Calidad de la Educacion' (in Spanish, 'Agency for the Quality of Education'), which was established by Law Article 20.529 and which is tasked to safeguard and monitor the quality of education (Agencia de Calidad de la Educación 2017b; Biblioteca del Congreso Nacional de Chile 2017).

The aim of SIMCE is to create a series of tests devised to measure academic performance and the quality of education. These tests are administered to primary students in years 2, 4, 6 and 8, as well as those in secondary education

of years 10 and 11. Accordingly, the advocates of SIMCE at the time of its inception, argued that these tests would also help parents make informed decisions on the performance of schools and thus enrolling the students at the school of their choosing, as the results are made public and accessible online with detailed performance results by region, locality (urban/rural), classification (private, subsidised, municipal) and by school (Agencia de Calidad de la Educación 2017a).

Conclusion

In this chapter, we have seen that Chile has gone through several changes in the education sector over the last 50 or so years. This chapter started by describing the reforms that took place during the Frei presidency, in which members of the teaching profession were included within the pertinent government ministries tasked with implementing these reforms. It also gave birth to performance measures, to gauge the impact of the reforms, as well as the introduction of scholarships to help disadvantaged students. However, and despite teachers being involved in the reform process, the changes were not well received by every teacher and so the they demanded further changes.

During the short-lived Dr Allende's mandate (1970-1973), education was one of the main focuses of the government. Following the results provided by the performance tests implemented by the previous government of Mr Frei; it was established that students needed more textbooks and an adequate nutrition, the government directed resources to where these were required and as needed, resulting in education attracting approximately 20% of the national budget. The overall reforms did not treat education as an isolated issue and thus, as discussed above, nutrition was also included as an important factor. In addition, Dr Allende's government was able to increase the number of students in schools, something which had proved difficult in previous governments.

Dr Allende was deposed by a violent military coup on the 11th of September 1973. During the dictatorship, the education system was beset with structural changes and radical market-driven reforms which decentralised education, handing over public schools to municipal governments, and the introduction of a voucher system aimed at creating incentives for parents to select the school of their choice. The latter resulted in some schools being disadvantaged due to their location in low socio-economic areas leading to progressive decaying of teacher quality, buildings and resources. In addition, the financing of superior education fell from almost 75% in 1973 to 26% in 1996. Due to the neo-liberal changes imposed during the dictatorship, Chile is one of the most socioeconomically segregated education systems in the OECD, whereby, over 52% of students attend private, for-profit schools. Thus, once democracy returned, these were some of the inherited structural and economic changes that impinged on education, some of which continue to this day, for example, the high cost of higher education, the ratio of private schools and the segregation of the education system.

The democratic governments that ruled after the end of the dictatorship, became aware of the challenges being faced by the education system. The constant public and student protests brought the subject back into discussion and as a result, education became one of their main challenges to improve equity and quality. Spending on education was increased to bring updates and repair infrastructure, changes were made to the curriculum, teachers were given access to training, ICTs started to be introduced connecting practically all of the schools in the country and providing computers to schools. The measuring that started during the dictatorship continued but was also increased and expanded to also measure socioeconomic factors. This resulted in programs designed to help disadvantaged families and/or students, by providing subsidies, scholarships, school rations and laptops.

The second Bachelet government emphasised (as at 2017) and continued with changes to the education system. However, given that the system had retained a lot of the structural changes imposed during the dictatorship and remained market driven, the public and students feel that there is a long way to go. For

example, one of the main issues that every government has evaded to tackle is the high cost of higher education, given that a great number of students have incurred massive debts which they are unable to repay and so there is a consensus amongst students in asking the government to condone their debts. It remains to be seen where these demands end up, with the onset of a new government in Chile from 2018, which will be presided by a former minister of the Pinochet dictatorship, who has promised to roll back some of the reforms implemented by previous governments and that has placed as the minister for education, a person who has indicated and believes that education is a commodity and should not be free.

Finally, the changes that took place in Chile during the Allende government and the dictatorship that followed, where indicative of the times, that is, the Cold War, a time of progressive governments in Latin America and the involvement of the U.S.A in the politics of the region and the Milton Friedman shock therapy that was implemented in Chile during the Pinochet years and which continues to have an impact on both the economy and education.

CHAPTER 3 - Introduction to the Context of the Thesis

Introduction

This chapter starts by describing the top-down education policy approach so that later on, it is considered as one of the important actors on the education of the Mapuche. Then, it is followed by providing some general data about Chile, both qualitative and quantitative data on income inequality, poverty, social and demographic stratification, poverty in the Araucania region (which is where the schools are located). There is also an explanation of the CASEN (Socioeconomic Characterisation Survey) and the data is provided in relation to indigenous population, indigenous language proficiency and Internet use.

Top-Down Education

There is ample literature and empirical data which deals with pedagogical techniques, outcomes, literacy, student to teacher ratios, curriculum, government policy and statistical data depicting student performance and policy indicators (Australian Bureau of Statistics 2002; López-Claros 2006; Rambla 2004). With reference to Information and Communication Technologies (ICTs), we can find a similar trend whereby, there are many and varied aspects covering impacts, the technology itself, teacher training and the use of ICTs and education policy (Alvarez 1995; Granger et al. 2002; Lankshear, Green & Snyder 2000; Ministerio de Educación 2007b; Quintanilla, Mierzejewski & Rodrigo 2008). On the other hand and with specific reference to educational policy, other researchers agree that it has always emerged from a universal, top-down and generic approach (Roy 2005); (Davis, Castellano & Lahache 2000) including the focus by Apple (2012) on the role curricula plays in the generation and regeneration of the ideological supremacy of the dominant classes (Apple 2012). Considering this universal approach, I will try to understand what impacts such policies may have on the Mapuche. Does it

alienate or exclude some members of society, in this case, the Mapuche students. And so, it may be possible to ask, what are the expected or desired outcomes by those governments that implement these strategies that seem to resemble a 'one-size-fits-all' or homogenous model, whereby, the implementation follows a blanket approach, often assuming a homogenous population. It is important to note that this approach is also a top-down approach, whereby the driver, is the Government and or its Ministry of Education. As opposed to a bottom-up sequence which inverses the uptake or acquisition of ICTs, that is, the parents of the students (Osorio & Nieves 2014). On the other hand, these strategies may be fit-for-purpose in some circumstances, for example, the private sector and industry specific; neither a top-down or bottom-up approach but more consultative and inclusive approach may be a better fit (Marshall & Taylor 2002, 2005), However, in the case of the Mapuche, who live in a region with a high poverty index (Valenzuela, Toro & Rojo-Mendoza 2017) with its inherited issues related to the lack of inclusion and literacy rates, education needs to be looked at a level that consults and includes the community. So, that it is the community that becomes empowered to identify and tackle their issues within the circumstances of their own culture (Marshall, Kinuthia & Taylor 2009).

Despite the implications that a top-down approach may entail, there are other factors that need to be considered as actors that may also impinge on the education of students. In this case, Mapuche students. Some of these may be the unequal distribution of income in the country (OECD 2015b) and which would perhaps be accentuated by the fact that most students are located in a rural setting. The other is government spending on education, as compared to other OECD countries (CEPALSTAT Databases and Statistical Publications 2014). These are only a few of the many factors that may or may not have an impact. However, this research seeks to look at the different actors that may do so in order to shed light on the subject.

Chile – Some Important Facts

Chile in 2010, was the first South American country to join the OECD (OECD 2010). According to the OECD, acceptance into the organisation was as the result of international acknowledgement of nearly two decades of democratic reform and comprehensive economic policies (OECD 2010).

Currently, Chile has an estimated population of just under 18 million people (Central Intelligence Agency 2014; CEPALSTAT Databases and Statistical Publications 2014; Instituto Nacional De Estadisticas 2014a, 2014b). Over the last two decades, the country has managed to lower poverty and has one the lowest poverty levels in Latin America (Central Intelligence Agency 2014). For example, according to figures provided by CEPALSTAT Databases and Statistical Publications (2014) the poverty rate in 1990, at the start of democracy, was at 38.6% and the extreme poverty rate was at 13%. In 2011, these rates were 11% and 3.1% respectively.

On the other hand and with reference to income distribution and inequality, Chile ranks as one of the worst countries in the world (Cabalin 2012; El Pais Plus 2014) and amongst OECD countries, where its unequal access to education maintains the uneven income distribution constant (Central Intelligence Agency 2014). For example, according to a study carried out by Universidad de Chile's Faculty of Economics and Business, using data from Chile's Internal Revenue Service, it found that the richest .01 % of the population (1200 persons) receive 10% of the total income (El Pais Plus 2014). A more simplistic, yet effective example, was given by Senator Lagos Weber during an interview, in which he used '*Completos'* (Chilean version of Hot Dogs) instead of currency to explain how wealth is distributed in Chile. Using this example, he indicated that if he had 100 Hot Dogs and 100 children, under the current system. The distribution would not be 1 Hot Dog per child. Instead, 1 child gets 30 Hot Dogs, 9 children get 40 Hot Dogs. And so, thus far, 10 children have already taken 70 Hot Dogs. Meaning that the remaining 30 Hot Dogs need to be divided amongst the 90 children remaining (La Nacion 30 Apr

2014). In fact, according to the latest OECD report on Income inequality and distribution, it indicates that in those countries reported by the OECD the gap between rich and poor continues to widen (OEDC 2015) and in particular, Chile is the most unequal OECD country in terms of income inequality (OECD 2015b; OEDC 2015). As indicated above, since the mid 2000s, the country has managed to reduce poverty by one point (Gini coefficient). However, the OECD argues that although this reduction is not negligible, it is insufficient to remove the country from being one of the most unequal (OECD 2015b).

Income Inequality

The OECD defines Income Inequality as follows:

> 'Income is defined as household disposable income in a particular year. It consists of earnings, self-employment and capital income and public cash transfers; income taxes and social security contributions paid by households are deducted. The income of the household is attributed to each of its members, with an adjustment to reflect differences in needs for households of different sizes', (OECD 2017a).

The latest OECD figures related to income inequality, using the Gini coefficient, which is based on the comparison of cumulative proportions of the population against cumulative proportions of income they receive (OECD 2017a); suggest that Chile has managed to reduce income inequality marginally (OECD 2017a) but as stated earlier, Chile remains as one of the most unequal countries of the OECD (OECD 2015b). For example, upon examining these values from 2009 to 2015, based on Gini coefficient as follows:

0 = complete equality

1 = complete inequality

The following figures are provided by OECD (2017a)

Table 3.1 - Income Inequality

Year	**Gini coefficient** 0 = complete equality; 1 = complete inequality
2009	0.480
2011	0.471
2013	0.465
2015	0.454

Adapted from: OECD (2017a)

Thus, we can see that from 2009 to 2015, there is a difference of 0.026.

Poverty

With reference to poverty rates, the OECD defines it as follows:

> ‘The poverty rate is the ratio of the number of people (in a given age group) whose income falls below the poverty line; taken as half the median household income of the total population.’, (OECD 2017b).

Figures provided by the OECD are as follows:

Table 3.2 - Poverty Rates

Year	**Ratio**
2009	0.178
2011	0.184
2013	0.168
2015	0.161

Adapted from OECD (2017b)

From the above figures, we see that there was an increase from 2009 to 2011. However, from 2011 to 2015 there has been a gradual decrease in the poverty rate.

The above figures are based on the total population and do not segment into ethnic groups in Chile. Therefore, the following section provides a more

detailed account focusing on the Mapuche within the region of Araucania, which is also where the two schools that are included in this thesis, are located.

Social and Demographic Stratification – A Definition Closer to Home

According to Crompton (1993); Valenzuela, Toro and Rojo-Mendoza (2017), the definition of social stratification is described as organised structures of inequality. In addition, these are formed by groups which may be segmented by income, occupation (e.g. *manual*, *non-manual*) and life style (Valenzuela, Toro & Rojo-Mendoza 2017). In Chile, as well as, the rest of Latin America, the population is of mixed descent (*mestizo/mestizaje*) (Valenzuela, Toro & Rojo-Mendoza 2017). In defining inequality within the Chilean context, Valenzuela, Toro and Rojo-Mendoza (2017) indicate that Chile has a noticeable unequal distribution of income, the same has also been reported by Cabalin (2012), OECD (2015b); OEDC (2015) as discussed earlier. However, and in addition to social stratification, in Chile there is also another stratification factor that has resulted from a system that allows parents, in their search for better schools, to choose from public, private, subsidised or other non-state institutions (UNESCO 2016). In fact, UNESCO (2016) argues that this 'search' is both cause and consequence of demographic stratification. In addition, UNESCO (2016) also indicates that empirical data has consistently shown that the result is in fact greater stratification and the benefits of school choice in terms of quality are mixed and heavily debated.

The Araucania Region – The Mapuche and Poverty

The region of Araucania has the highest proportion of Mapuche people, as compared to other regions in Chile, in fact, over 30% of its inhabitants consider themselves Mapuche. It is also one of the poorest regions in the country (Aylwin 2002; Valenzuela, Toro & Rojo-Mendoza 2017). This figure rises higher when we look at the communes within Araucania. For example, in the communes of Saavedra, Cholchol, Galvarino and Freire, the rate of poverty is

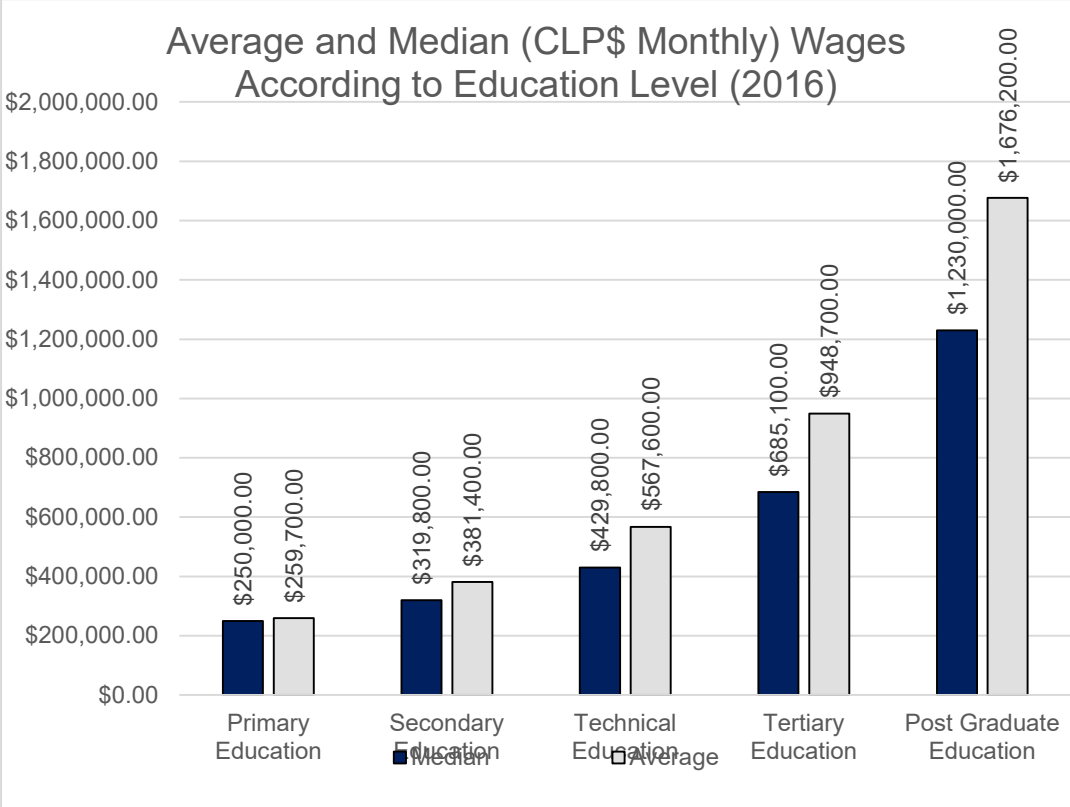
about 60% and with just over 67% of this group living in rural areas (Cerda 2009; Valenzuela, Toro & Rojo-Mendoza 2017). It must be noted that the schools which are the subject of this thesis are located in two of the zones mentioned above, that is, Saavedra and Galvarino.

Valenzuela, Toro and Rojo-Mendoza (2017) indicate that there has been little effort towards profiling the Araucania region socio-economically. However, Cerda (2009) as referenced by Valenzuela, Toro and Rojo-Mendoza (2017) has provided one of the better known studies on the subject. Cerda (2009) has concluded that the region, having high levels of poverty and unemployment, as well as low levels of schooling, has resulted in low level of growth. However, as indicated by Valenzuela, Toro and Rojo-Mendoza (2017), this phenomenon is not isolated to the Mapuche or ethnicity and affects all social sectors. In fact, the region has the highest proportion of poor people of Chile and it is the 'third region with the greatest number of people in poverty, with 217,755 people living beneath the poverty line' (Valenzuela, Toro & Rojo-Mendoza 2017). This means that poverty affects Mapuche and non-Mapuche and so, poverty does not distinguish between groups.

Although, Valenzuela, Toro and Rojo-Mendoza (2017) argue that there has been little effort towards profiling the Araucania region socio-economically. There is some evidence that allows us to understand, to some extent, the levels of poverty in the region. For example, the discrepancies in wages that exist between the Araucania region and the rest of the country have been highlighted by an analysis carried out on the CASEN 2015 survey by Durán and Kremerman (2017), in which they show that in the Araucania region, 70% of those who are employed, receive a salary that is less than the national average. Moreover, figures provided by the National Statistics Institute (Instituto Nacional De Estadisticas 2016) have shown that in 2016, the average wage for workers in Chile reached CLP$517,540.00 (per month); as at 2016 exchange rate, this amount would be about to AUD$1,071.00 (XE Corporation 2018a). However, the workers in the Araucania region, obtained the lowest average and median wages, compared to the rest of the country, that is CLP$383,876.00 and CLP$285,476.00 respectively (Instituto Nacional De

Estadisticas 2016; Lara 2017). With reference to education levels and wages, it was found, at a national level, that the higher the education level, the higher the wages. For example, those with university education earned on average, 2.5 times more than those with only secondary education (Instituto Nacional De Estadisticas 2016; Lara 2017). According to Hepp (2009), communities which have a high index of poverty as reported by CASEN surveys, tend to also have the worst index of learning. The latter is true on those areas where the Mapuche are concentrated, leading to the erroneous association of poor education and student performance to ethnicity (Hepp 2009).

The following Figure depicts the differences, at a national level, that exist in wages as a result of education levels. It also depicts the Median (dark shade) and the Average (lighter shade) monthly wages in Chilean Pesos (CLP$) as at end of 2016.



Adapted from Instituto Nacional De Estadisticas (2016).

Figure 3.1 - Average and Median (Monthly) Wages According to Education Level (2016)

As seen above, it is evident that those who have attained a tertiary level and above of education, have a higher Median and Average wage, compared to those who have only completed secondary education. In the case of the Mapuche in the region of Araucania, they are on the lower end of the scale, as indicated by Instituto Nacional De Estadisticas (2016) and Lara (2017). As a matter of reference, as at Dec 2016, one million Chilean Pesos (CLP$) was equivalent to AUD$ 2,075.00 (XE Corporation 2018b).

CASEN – The Socioeconomic Characterisation Survey

To put the situation of the indigenous people in Chile into perspective, let us look at the results of the CASEN 2015 survey. CASEN is the short name for 'National Survey of Socioeconomic Characterisation' (in Spanish: 'Encuesta de Caracterización Socioeconómica Nacional'), which has been under the guidance of the Ministry of Social Development and has been carried since 1990 and approximately, every two years, thus, 1992, 1994, 1996, 1998, 2000, 2003, 2006, 2009, 2011, 2013 and 2105 (Ministerio de Desarrollo Social 2017). According to the Ministerio de Desarrollo Social (2017), the aim of the survey is to periodically understand the situation of the population, with a focus on those that are in a state of poverty. It also looks at education, income, health, housing and jobs.

In addition, the survey is a means by which the government can evaluate the impact of fiscal expenditure on the relevant areas the survey targets and social programs that are also targeting these areas (Ministerio de Desarrollo Social 2017).

The Data from CASEN 2015 – Indigenous People

On July 2017, the Chilean Ministry of Social Development published the CASEN 2015 results centred on the indigenous people in Chile (Ministerio de Desarrollo Social - Subsecretaría de Evaluación Social 2017). The results were comprehensive and provided some very relevant data that contextualises

with the theme of this thesis. Therefore, the following section provides some of the data provided by CASEN 2015

The below table depicts the percentage, from the total population in Chile who identify as indigenous over the time period from 2009 to 2015.

Table 3.3 - Percentage of Population Belonging to an Indigenous People

Year	Percentage (%)
2006	6.6
2009	6.9
2011	8.1
2013	9.1
2015	9.0

Adapted from Ministerio de Desarrollo Social - Subsecretaría de Evaluación Social (2017)

Upon a further breakdown of the above table, CASEN 2015 data provides the following figures depicting the composition of the various indigenous people in terms of numbers and percentage. Therefore, the below table depicts the number and percentage of the indigenous by People/culture.

Table 3.4 - Composition of Indigenous People (as at 2015)

People	Number of People	Percentage (%)
Diaguita	63,081	4.0
Yámana	131	0.0
Kawashkar	5,298	0.3
Colla	16,088	1.0
Atacameño	31,800	2.0
Mapuche	1,329,450	83.8
Quechua	27,260	1.7
Rapa Nui	5,065	0.3
Aymara	107,507	6.8

Adapted from Ministerio de Desarrollo Social - Subsecretaría de Evaluación Social (2017)

In the above table, we can see that the Mapuche represent the largest group with over 80% of the total indigenous people.

Language – Mapudungun

The language spoken by the Mapuche is the Mapudungun, although, it is also known as Mapuzugun. Furthermore, the Mapudungun is used by the Mapuche in Chile and Argentina (Garrido, Martinez & Solano 2011; Wikipedia contributors 2017c). For the purpose of this thesis, the term Mapudungun will be used to identify the language.

The Mapuche in Chile have been facing a number of challenges in retaining their language. The number of younger Mapuche who speak the language has been decreasing and thus, only older generations are still retaining the language. Data from CASEN 2015 (Ministerio de Desarrollo Social - Subsecretaría de Evaluación Social 2017), provides details on the knowledge and use of the Indigenous languages in the country, as well as also providing the same details on the Mapuche language.

The below table depicts the percentage of the indigenous population and their command of their language over the time period from 2009 to 2015.

Table 3.5 - Indigenous Population's Command of Language

Year	Speaks and Understands	Only Understands	Neither Speaks or Understands
2009	12.0	10.6	77.3
2011	11.0	10.4	78.6
2013	10.9	10.4	78.7
2015	10.7	10.7	78.6

Adapted from Ministerio de Desarrollo Social - Subsecretaría de Evaluación Social (2017)

The above table demonstrates that there is a greater number of indigenous people who neither speak nor understand their language. These numbers appear to contradict the supposed outcomes as a result of the government declaration, as included in the 'Ley General de Educacion' (No. 20370) (in English: General Law of Education) which was promulgated on the 17 August of 2009 (UNESCO 2010) and which indicates that the official language of Chile

is Spanish and so, teaching is in Spanish (UNESCO 2010). However, the government recognises that there are important groups, in terms of numbers that speak a language other than Spanish and the biggest of these is the Mapuche (UNESCO 2010). Moreover, the 'Ley General de Educacion' stipulates the following:

> 'The '*Ley General de Educacion 2009*' incorporates the intercultural aspect as a principle of the Chilean Education (Article 3), and Article 23 stipulates that intercultural and bilingual education is expressed in the curricular sector and it is aimed at the boys and girls, youth and adults who recognise cultural and origin diversity and in which, there is teaching and transmission of language, cosmo-vision and history of their origin and people, establishing a harmonious dialogue in society.
> Through Decree No. 280 (July 2009), a progressive and gradual calendar has been established (until 2017) for the implementation of the subject for teaching of the indigenous language.'
> Translated from Spanish and adapted from UNESCO (2010).

In addition to the above and according to UNESCO (2010), the government in Chile has indicated that texts written in Mapudungun are now available, there are efforts towards those who speak the language and also can write it and finally, that the imparting of knowledge and education, be done in their native language.

Moreover, as indicated by UNESCO (2010), the 'Programa Nacional de Educacion Intercultural Bilingue', also known as the PEIB for short (in English: National Program of Bilingual Intercultural Education), was born in 1996, during the Presidency of Eduardo Frei Ruiz-Tagle (1994 - 2000) to mitigate the lack of development, high levels of poverty and marginalisation of the indigenous people (Miller 2012). As a matter of interest, Mr Frei Ruiz-Tagle is the son of former president Mr Eduardo Frei Montalva (1964 - 1970). As part of the PEIB, a number of programs and didactic materials have been developed in the languages of the Aymara, Mapuche, Quechua, and Rapa Nui peoples (UNESCO 2010). However, these are still treated as a second language. Also, texts have been written capturing the context of the Mapuche, Atacama, Aymara cultures and which are suitable up to grade three of basic education (UNESCO 2010).

According Sotomayor et al. (2015) the Ministry of Education claimed in 2013 that 472 schools had implemented an indigenous language subject. Out of the 472, 407 (86%) did so in the Mapuche language Mapudungun. Sotomayor et al. (2015) also indicate that the Araucania region is where the majority of schools have included Mapudungun as a subject, that is, 220 (54%) schools. Moreover, Sotomayor et al. (2015) argue that students attending these school belong to a low socioeconomic level and that the average level of education attained by their parents is 9 years of schooling.

To implement the indigenous language as a subject and as part of this program, it was necessary to also innovate and adopt a dual teaching approach. For this, the indigenous traditional educator was brought into the school, who in turn was supported by the teacher, who was adept in the pedagogical aspect and could mentor the traditional educator (Sotomayor et al. 2015).

According to Sotomayor et al. (2015), figures provided by the Ministry of Education indicate that there are 323 registered traditional educators, of which, 275 (85%) are of Mapuche origin. The Araucania region has the greatest number, with 49% of registered Mapuche traditional educators.

Language by Age Group

The below table depicts the distribution of indigenous people and their command of their language by age group. These figures include all the indigenous population.

Table 3.6 - Percentage of Indigenous People and Language Command by Age Group (as at 2015)

Age Group (in years)	Speaks and Understands	Only Understands	Neither Speaks or Understands
0 to 14	5.0	6.4	88.6
15 to 29	7.1	10.3	82.6
30 to 44	12.4	13.6	74.1

Age Group (in years)	Speaks and Understands	Only Understands	Neither Speaks or Understands
45 to 59	14.2	13.9	71.9
60 or more	24.9	13.1	62.0

Adapted from Ministerio de Desarrollo Social - Subsecretaría de Evaluación Social (2017)

Upon examining the figures above, it is evident that the younger generations are not retaining the language and it seems that as the younger generations get older, the number of proficient people on the language will continue to decrease. Given that these figures include all indigenous people. The reasons for this trend may be many and varied according to each particular culture. However, these are not mentioned in the survey results. Finally, it is assumed that all languages in the region are at a critical point and are in danger of extinction in the not too distant future if these trends continue.

With reference to the Mapuche and further to the above, the CASEN 2015 survey also provided a breakdown on the use and command of the Mapudungun language by the Mapuche. Thus, the below table depicts the percentage of the Mapuche population (by region: Urban and Rural) and their command of their language in terms of use and knowledge.

Table 3.7 - Percentage of Mapuche's Knowledge of Their Language (by Region: Urban and Rural)

Region	Speaks and Understands	Only Understands	Neither Speaks or Understands
Urban	6.7	10.0	83.2
Rural	22.4	15.0	62.6
Total	10.9	11.4	77.7

Adapted from Ministerio de Desarrollo Social - Subsecretaría de Evaluación Social (2017)

In the above table, it is evident that the differences between the Urban and Rural regions are significant, whether it is those who speak and understand the language, only understand the language or neither speak or understand the language. Although, those in the rural setting have much greater numbers

than those who speak and understand the language, as opposed to those living in an urban setting.

Furthermore, the above figures are also consistent with a previous work discussed by Sotomayor et al. (2015) in which it was found that in the regions of Biobío, Araucanía, Los Lagos and Los Río, which is where the majority of the Mapuche are concentrated; 67.1% of those individuals, 10 years and older, do not possess any competency in Mapudungun and only 38.3% of the population has some competence. From this last group, Sotomayor et al. (2015) indicate that 4% have a basic command of the language and 9.6% have intermediate level of proficiency. Also, 24.7% of the Mapuche population, mostly adults and elders, have a high proficiency in the language, which is consistent with the figures for all indigenous people at 24.9% (refer to previous table 3.6). Moreover, Sotomayor et al. (2015) indicate that the language is predominantly spoken in rural areas, as opposed to urban and mostly by the elders. Sotomayor et al. (2015) argue that one of the reasons for this diminishing trend is related to the lack of presence of the language, given that Spanish dominates the spaces where a functional use of the language could be adopted. In addition, Sotomayor et al. (2015) argue that the Mapuche has become a more urban society, where the use of their original language is no longer necessary.

Internet Use by Indigenous People - CASEN 2015

The CASEN 2015 also provided some data in relation to internet usage by indigenous people. However, these figures did not dive further to provide the same data by each of the separate cultures or at least the major one in terms of number, that is the Mapuche.

The below table depicts the percentage of indigenous and non-indigenous people from 5 years and above, who use the Internet.

Table 3.8 - Use of Internet by indigenous and Non-Indigenous People

	Years		
Region	**2011**	**2013**	**2015**
Indigenous	46.9	54.1	63.3
Non-Indigenous	52.7	54.8	66.8

Adapted from Ministerio de Desarrollo Social - Subsecretaría de Evaluación Social (2017)

As evidenced above, the number of Internet users has been increasing and the gap between the indigenous and non-indigenous internet users has been decreasing.

Further data provided above by the Ministerio de Desarrollo Social - Subsecretaría de Evaluación Social (2017) in the CASEN 2015 survey, it also breaks down the data further to compare the differences between the Urban and Rural internet users. Thus, the below table depicts the percentage of indigenous and non-indigenous people from 5 years and above, who use the Internet and compares between Urban and Rural regions.

Table 3.9 - Use of Internet by Indigenous and Non-Indigenous People (Urban and Rural)

	Percentage by Origin	
Region	Indigenous	Non-Indigenous
Urban	71.5	69.9
Rural	38.7	43.2

Adapted from Ministerio de Desarrollo Social - Subsecretaría de Evaluación Social (2017)

As seen above, the figures suggest a significant disparity between the Rural and Urban users, for both indigenous and non-indigenous. Also, it is interesting to note that those indigenous users in an Urban setting have a slightly higher percentage compared to non-indigenous Urban user. Whereas, in the Rural setting, the opposite is true and the non-indigenous have almost, five percentage points difference over the indigenous users. These figures seem to suggest that those indigenous users (71.5%) in an urban setting may be

able to access the Internet from more accessible outlets, such as libraries, internet cafés, friend's places or other close-by locations. Whereas, in a rural setting, these outlets may not exist, and if they do, may be too few or far, or connection is not available due to lack of infrastructure or simply is not affordable. Thus, we can see the discrepancy between the indigenous people for Urban and Rural setting, with a 38.7% for the latter.

Prejudice Against the Indigenous Population

The data provided by Ministerio de Desarrollo Social - Subsecretaría de Evaluación Social (2017), as seen above, demonstrate some aspects of the challenges faced by the Mapuche. However, a recent survey on the perceptions and manifestations of racism in Chile, which was published on the 9th of February 2018, by the Instituto Nacional de Derechos Humanos (2018) shows a marked negativity against the first nations by the general population. The table below shows the perceptions that were captured, and which suggest that over 50 percent of the respondents hold negative views about the first nations in Chile.

Table 3.10 - Perceptions and Manifestations

Perception	Percentage (%)
First nations people are not hard workers	63.1
First nations people are not likeable	71.7
First nations people are not humble	65.7
First nations people are uneducated	73.4
First nations people do not show solidarity	69.3
Part of the first nations people tend to be violent	81.6
Part of the first nations people tend to be rebellious	82.9
Part of the first nations people tend to be lazy	69.1
Part of the first nations people tend to be strange	65.2
Part of the first nations people tend to be undesirables	67.4

Adapted and translated from Instituto Nacional de Derechos Humanos (2018)

According to the Instituto Nacional de Derechos Humanos (2018), the figures, as seen above, also indicate that the respondents consider the first nations people responsible for the current violent situations being experienced as a

result of the Mapuche protesting against the incursions and dispossession of their lands. Moreover, the data provide by the Instituto Nacional de Derechos Humanos (2018) also indicate that the above figures (perceptions) are accentuated in the medium to high socioeconomic groups within the country and in the northern and southern regions of the country. Also, a third of the population victimises the indigenous people, whereby, this is accentuated in the central region of the country and the metropolitan region, which includes the capital Santiago. In addition, the same tendencies in perceptions are found amongst the younger population (Instituto Nacional de Derechos Humanos 2018).

Conclusion

There is evidence suggesting that the level of poverty in Chile has been diminishing. However, this has not ameliorated the levels of inequalities which exist around wealth distribution and income inequalities. It is evident that the region of Araucania experiences a high level of poverty and wage disparity, which is where the highest number of Mapuche are concentrated, the Mapuche being the largest indigenous group in the country. However, when we look at the wage disparities according to education levels, the Mapuche are and will continue to be impacted if the low levels of education are maintained. It is also evident that the younger Mapuche generation are gradually losing their language. The older generation still retains their language, but this is a smaller and diminishing number by comparison.

Internet usage figures were provided to understand the gaps that exist between rural and urban setting, whereby the figures suggest a significant disparity between the Rural and Urban users, for both the indigenous and non-indigenous. Which seems to suggest that the introduction of computers in all schools, which also included rural schools, appears to suggest that internet use may be possible and limited to the school setting, which is where computers are found. It is unlikely that rural dwellers would be able to afford a computer and access the Internet from their homes. It is important to note that

Mapuche students would also be accessing the Internet from their school, albeit with limited access time due to student/computer ratios.

The challenges faced by the Mapuche are notable, however, the perceptions, racism and negativity that is shown towards the indigenous people by the general population, as demonstrated by the survey results published by the Instituto Nacional de Derechos Humanos (2018), suggest that there is more ground to cover in order to improve the current situation of the indigenous population in Chile, especially a country which is predominantly mestizo (mixed race).

CHAPTER 4 - Methodology

Introduction

This chapter discusses the methodology of this thesis. It starts with describing the background of the researcher, so that it clarifies any bias towards the subject of this paper. In this chapter, it is detailed how the schools were picked, followed by the context in which these are found. The chapter then continues to describe the data collection approach, research paradigm, the research questions, contribution to knowledge, aims and limitations of this thesis.

Background of the Researcher

It is necessary to clarify at this point, my personal worldview and any bias towards the subject of this research. Being born in Chile and experiencing primary schooling as a student in Chile, have played a significant role not just in deciding the topic of this research but also in deciding the method of research for this dissertation. My epistemological and ontological position have shaped this dissertation to be a multi-method approach to a qualitative enquiry. Not content with examining just numbers and statistical data, I have set out to also hear the stories from the teachers and school principals, as well as observing Mapuche students in the classroom during lessons. In this manner of research, it is hoped, that the data gathered captures various aspects, including, actions or behaviours, key words and perceptions in a manner that is natural and conductive to conversations where candid responses may be obtained.

Whilst I attended primary school in Chile and sitting through Chilean history lessons, I would often hear and learn that the Mapuche were a brave race who fought the Spanish conquistadors for 300 years and in fact, not even the Inca empire was able to assimilate them into their empire, prior to the advent of the Spanish. In short, Chileans have been proud of the Mapuche and the history

lessons taught at school reflected this. But as seen earlier, the historical realities are different, given that the Mapuche continued their wars with the new republic, which is now the dominant society. In addition, it appears that the Mapuche history has been misappropriated and included as part of the nation's heritage whilst at the same time, a significant portion of Chileans have negative views of the indigenous people in general.

In the last few years, there has been a resurgent conflict between the Mapuche and the various democratic governments that have followed (post Pinochet dictatorship). Some of the issues being debated by the Mapuche have been land rights, equality, education and justice. With this in mind, I noticed a disconnect between the historical, yet narrow, view of the Mapuche as brave people and their daily reality as a result of many factors including the conquest of America, the birth of the republic, dispossession and exclusion.

As with first nations throughout the world, the Mapuche are not alone in their challenges that affect first nations. However, I needed to see what the reality is like for Mapuche students in a classroom environment that has had ICTs introduced and as argued by education representatives, to bring equal learning opportunities to all students in the country. I strived to ascertain the perceptions of teachers and principals tasked with the aims of the Ministry of Education, with regards to the students' likelihood of success and their present situation in terms of socio-economic factors and inclusion.

Finding the Schools

While having conducted the literature review, searching and obtaining data from the Chilean Ministry of Education (usually referred to as MINEDUC which is short for 'Ministerio de Educacion'), I was able to narrow the data and concentrate on two schools where the majority of the students were Mapuche.

I visited Chile in 2010, during which, two rural schools were visited. Teachers and school principals where interviewed, as well as one, a Mapuche educator, who was attached to one of the schools. In addition, I also observed how the students used computer technology during lessons. The information gathered was then used and compared to the mission and aims of the Ministry of Education (MINEDUC), as well as the results obtained in PISA, SIMCE and other data available from the OECD and Chilean Statistics Institute (INE). Of the two schools visited, one in particular stood out as a better candidate for the research for a number of reasons, some of which were that almost 100% of the students were Mapuche, the school had embarked on a program to rescue the Mapuche culture, ICTs were being used in the classroom and the majority of the students were classified at 'Risk', meaning that the level of socio-economic status was close to, or of extreme poverty. This is not to say that the previous school did not have students with similar economic problems, but it did not have a program to integrate the Mapuche culture as part of the curriculum. I believed at the time and still hold the same view, that the school Escuela Basica School 2 by integrating Mapuche culture and using ICTs did have a much better proposition to see technology and culture interactions at play. Finally, one additional school was contacted, and a brief conversation was held with the school Principal to provide some data and or reply, as to why and contrary to the guidelines of the Ministry of Education, their school is reticent and limits the use of ICTs during class and students are encouraged to solve problems by other means and not relying on ICTs. However, the Principal from this latter school did stop responding to my emails and so this school was not pursued further.

Having said that, this type of research is both descriptive and exploratory for it describes and provides information about the Mapuche students, teachers, the school environment and the location of the schools where the study took place. In addition, it explores how ICTs are being used by Mapuche students and if there are any clearly visible advantages in terms of performance by examining results available through the Ministry of Education, as well as other performance indicators. The research also uses Actor-Network Theory (ANT)

to expose and examine the networks and actors at play in the classroom. The latter has had little or no research that can be attributed to have also made use of ANT to derive the naturalistic approach, which is adopted by this thesis and which considers Mapuche students in a rural school and within a classroom setting.

Actor-Network Theory

The naturalistic paradigm (Guba & Lincoln 1981), now called constructivist (Guba & Lincoln 1989), as it also applies to this paper, lends itself and complements Actor-Network Theory (or ANT for short), to research the topic at hand, since both approaches make use of the analytic units that can be observed and the patterns which these can form, in short, the networks of both the humans and non-humans (Tatnall 2011).

To understand what Actor-Network Theory is and how this approach treats the human and non-human actors, it is must be first said that ANT is a methodology by which it is possible to trace the manner in which things come together and act, as well as get ignored or 'black-boxed' (Fenwick & Edwards 2010). ANT originated in the 1980s and its main designers were Bruno Latour, Michel Callon and John Law (Tatnall 2014). Furthermore, ANT relies on three principles: agnosticism, generalised symmetry and free association (Callon 1986; Tatnall 2011). With reference to agnosticism, it is required that all actors, humans and non-humans be treated impartially and devoid of preconceptions (Callon 1986; Callon & Blackwell 2007). Generalised symmetry seeks to explain opposing or incompatible positions in a manner which is neutral, be it humans and non-humans and therefore the social and technical are elements of the networks not given any special status (Callon 1986; Callon & Blackwell 2007; Tatnall 2011). Finally, free association requires the exclusion and relinquishment of all '*priori* distinctions between the technological or natural, and the social' (Callon 1986; Callon & Blackwell 2007; Tatnall 2011). As indicated above, ANT treats all actors fairly. In this approach, an actor is any human and non-human entity that is able to make its presence individually felt

(Law 1987). However, as Latour (1986) explains if a particular actor simply has power, it is powerless and that upon exerting power, it is others performing that action, but as an effect and not a cause. This latter statement becomes useful later on when this thesis explains how the networks are formed within the educational context of the schools visited and the Mapuche. In summary, this thesis sets out to identify the actors that are part of a typical classroom where ICTs are used and where the majority of students are Mapuche. The other aspect in which ANT is used, is to depict the networks and connections that are formed, and which are argued to be relevant to the Mapuche children's education.

The research approach also adopted characteristics of a case study (Merriam 2009; Mutch & New Zealand Council for Educational Research. 2005) which was best suited for this type of study, whereby; a particular school is studied. As explained by Merriam (2009), a 'case study is an in-depth description and analysis of a bounded system'. The bounded system is in the context of a case study and the research was the chosen school's classrooms while ICTs are being used. Similarly to the above description by Merriam (2009), Opie et al. (2004) argues that a case study can be accepted as an 'study of interactions of a single instance in an enclosed system', (p. 74). Thus, the two schools are taken as the bounded systems and the interactions that take place in the school and during lessons are then described and atomised using ANT.

The multi-method approach utilised interviews (Hannan 2006) and classroom observations, which enabled the researcher to collect data passively and actively. Interviews provided an active method of data collection and observations provided a better insight into the dynamics of the school.

The Schools' Location and Context

To narrow the scope of the research, a school was chosen from an area located in the Saavedra commune in the Araucania region, which is about 85

kilometres from Temuco. The area from where the school was chosen comprises a majority of Mapuche inhabitants, greater than any other region in Chile. That is just over 70% are Mapuche and the rest is made up of Mestizos (Perez 2010). In addition, according to the 2002 census and the Casen survey 2003, 16.4 % of the population is indigent and 38.3% live in poverty (Perez 2010). Moreover, as argued by Perez (2010), of the 700 children under four years of age, who were recorded by the 'Chile Crece Contigo' (in Spanish, Chile Grows with You) initiative, 196 presented a lag in their psychomotor development. Going back a few years, in 1997 infant mortality reached 40%. It is in this region, where over 70% of the labour is Mapuche and over 80% live in rural areas. In summary, the Araucania region ranks as the poorest in the country and where the Mapuche have literacy levels which are below the national average (Becerra Peña 2011; Perez 2010).

With reference to the education of the Mapuche living in the Saavedra locality, the area comprises over 71% of rural schools in which only have, between one and three teachers. Less than 5% progress to higher education (Perez 2010). For example, in Santiago, the capital of Chile, it is normal for students to progress to higher education. However, in the Araucania region, it is common to complete basic education, that is, a maximum of 8 years of schooling (Perez 2010).

Data Collection Approach

Initially, some quantitative data was sourced from the Chilean Ministry of Education's (MINEDUC) website, where it is possible to view and download data related to education, such as performance results, educational demographics, scholarships and other government programs. In addition, data was also collected from OECD publications that provided results related to education not only about Chile but also on other nations that form part of this organisation. This formed the basis to formulate the questions and areas that needed to be observed.

I visited Chile in October 2010. During this period, two rural schools were visited to observe the lessons taking place, where ICTs were being used. I passively observed the lessons sitting at the back of the classrooms, so as to have as little impact as possible while also taking notes. Sitting at the back of the class was preferred so as to not disturb or distract the students by my presence or note taking. Photographs were also taken of the empty classrooms, school buildings and surroundings to capture the structural settings in which the Mapuche students spent their school days.

In addition to the observations, I interviewed teachers, the school Principal and one Mapuche cultural aide. In keeping with the approach of the research, the interviews were purely qualitative so that their perceptions were captured. This approach to capture data at the schools was derived to get an *on-the-ground* view on the reality of the schools, as opposed to the quantitative data obtained earlier.

Approvals

With reference to getting approval from the pertinent bodies in Chile, approval was granted by Mr Rodrigo Carvajal – from the Ministry of Education in Chile and Head of the Program of Intercultural and Bilingual Education at the time (refer to Appendix 3) who made available a file containing the complete list of schools in Chile. Once the schools were selected and contacted via their respective School Principal's email, they were asked to participate, and I also sought permission to conduct the data collection at their respective schools. The participating schools agreed to take part, provided confidentiality was maintained at all times. With reference to any school records sighted and where individuals' or student names were visible, it was requested that none of these documents could be shown or displayed and no individual could be identified by name or photograph. However, the schools were assured that confidentiality was going to be maintained at all times even if they did not take part in the study.

Escuela Basica School 1 – The Galvarino Commune

The Escuela Basica School 1 is located in the community of Galvarino, which is approximately, 67 kilometres from Temuco (Temuco is the regional capital province of Cautin and the Araucania region). The school is comprised mainly of Mapuche students and it was originally visited for three days to conduct the observations and interviews. This school was visited from the between the 12th to the 14th October 2010. I had originally envisaged to spent one extra day at this school but given that the lessons and teaching methods observed did not vary from day one, any additional captured data seemed repetitive in nature.

Escuela Basica School 2 - Puerto Saavedra Commune

The school visited in Puerto Saavedra, is located in the south of Chile, in the region of Araucania near the commune of Puerto Saavedra. The school was visited from the 19th to the 22 October 2010, in which, three classrooms observations were carried out during lessons where ICTs were supposed to be used. Data was collected by passive observations, taking notes during lessons, interviews and photographs. I was non-participant observant (Opie et al. 2004) so that there was little or no impact on the group/s being observed. The classrooms were observed more than once for triangulation purposes. In addition, from the observed classrooms, I noted the actors that were at play while ICTs were being used in the classroom.

It must be noted that, pseudonyms have been used to protect the privacy of the participants. Also, the school names and some location names have been replaced with pseudonyms to also maintain the privacy of the establishments visited. This approach was informed to the participants (prior to the visits and interviews), to protect their identity, in case their replies were too candid or critical. The participants were comfortable with this approach at this school where teachers were at times blunt in their answers.

With reference to the interviews, none of the questions were designed to pressure the participants. However, the option was given to opt out at any time (prior, during and after). This option was never taken, and the participants seemed comfortable to provide critical and candid answers.

The interviews were estimated to last approximately 20 to 30 minutes, depending on where the participant was heading, which facilitated a semi-structured interview guide (Creswell 2003, 2007; Creswell & Plano-Clark 2007).

Given the nature of the research and the limited data available on the subject at hand using ANT; it was expected that the research would not be linear and involved the need to investigate other non-human factors that were not thought of or known to be actors within the research material. However, using the concepts of ANT, the research gives humans and non-humans a symmetrical treatment so that the associations that are created or exists between the technical and social actors are examined and how the technology is translated and defined by the actors (Tatnall 2009). However, in certain occasions, some actors have been given a central position to accentuate their importance.

Finally, where statistical data is used, it was never supposed to be within the scope of this study to analyse and interpret the data by performing a quantitative analysis. This data was collected from existing material, publications and readily available statistical data. This data was solely used to provide background data on numbers and or performance results, scores, male/female ratios and student numbers, proficiency of language and socio-economic data.

Paradigms of Naturalistic/Constructivist Methods

Although, as stated earlier, there are two major paradigms which form the basis of research methodology. These are the Qualitative and Quantitative

research approaches to human inquiry. However, this particular section will only deal with the qualitative aspects of the research and delve into the related paradigms of qualitative research methodology.

Guba and Lincoln (1981) list some seven paradigms, which may be applicable for getting at the truth. However, the literature indicates that these are not the exception nor will be the last ones developed to help on the field of human inquiry.

The research used a multi-method approach to a qualitative inquiry, which is the primary approach of this research. It adopted characteristics of a case study (Creswell 2003; Merriam 2009; Mutch & New Zealand Council for Educational Research. 2005; Yin 2009) which is best suited for this type of study, whereby; a particular school will be studied. As explained by Merriam (2009), a ‘case study is an in-depth description and analysis of a bounded system’. The bounded system in the context of a case study and the research would be the chosen school, which would be studied to understand the real-life phenomenon (Yin 2009) of the use and impact of ICTs on Mapuche students.

The multi-method approach utilised focused interviews (Yin 2009) and classroom observations, which enabled me to collect data passively and actively (Yin 2009). Observations provided a passive method of data collection and interviews provided a better insight into the dynamics of the school.

The Classroom Setting

Photographs of the classroom setting were captured while the students were not present (as agreed with the schools). In fact, no photo was taken to capture any students. Photos were also taken of the hardware (ICTs), some work completed by the students (no student name is visible on these). Also, images were captured of the schools’ surroundings and structure. Similarly, as

indicated earlier, none of the schools' images contain a name or logo that could identify either of the schools.

As indicated above, the targeted schools were purposefully selected to meet the pre-established criteria, whereby Mapuche students were the main ethnic composition of the school (Yin 2009) and expected to be over 90%. This was possible by targeting schools in the Araucania region, where the majority of the Mapuche people are concentrated.

Teachers and School Principals

Five teachers and their respective school Principal were interviewed. Data was captured by note-taking and in some occasions, voice recorder. The interviews typically lasted approximately 30 to 40 minutes.

Research Paradigm

The research is not linear, and it is necessary to investigate other non-human factors that are not thought or known to be actors within the research material. Using the concepts of ANT in the research gives human and non-humans a symmetrical treatment so that the associations that are created or exists between the technical and social actors are examined and how the technology is translated and defined by the actors (Tatnall 2009).

Finally, where statistical data is used, it was not within the scope of this study to analyse and interpret the data by performing a quantitative analysis. Statistical data has been and was collected from existing material, publications and readily available data. For example, data was available from a number of sources including Chile's Ministry of Education (MINEDUC) website and the Chilean National Institute of Statistics (INE) website. This data was only used to provide background data on ethnicity, performance results (students'), rating scores (school's), male/female ratios and student numbers.

Data Collection Methodology

The data collection method used was primarily qualitative and includes the following:

- Non participant classroom observations (Yin 2009).
- Interviews captured via note taking or voice recorder.
- Participants were asked a series of questions permitting the open-ended replies that were aimed to capture descriptive and narrative answers relating to their perspectives on ICT use and experiences, the challenges faced by the students (as described by teachers and Principal), as well as, challenges faced by the school Principal, the teachers and the school in general.
- The participants were informed of the purpose of the research and the form in which the interview was to be conducted (Opie et al. 2004; Yin 2009).
- Pseudonyms would be used to maintain confidentiality (Opie et al. 2004; Yin 2009).

Participation was voluntary (Yin 2009). Thus, the participants could refuse to answer any number of questions, stop the interview at any point and request to withdraw from the research even when the interview had already begun or taken place. If a participant chose to withdraw, the data collected would not be used.

Although, this approach is systematic, as much as the steps taken to collect the data, it must be noted that this was aimed to become the basis of the empirical evidence of the research.

Focus Groups and Individual Interviews

Unlike focus groups where the researcher provides a series of topics of discussion so that the research participants communicate between themselves and thus generate data (Bloor 2001; Gomm 2009; Kitzinger 1995; Yin 2009);

during the fieldwork data was gathered by observing the participants while they engaged with the technology during class and by conducting individual interviews which were composed of a series of prepared open ended questions that facilitated a discussion on the topic of ICTs at their school, the challenges of students and school. Bloor (2001) whilst explaining the selection process for a focus group indicates that interaction between the participants is a key feature. Although, the school may resemble a focus group with the similarities that are shared by the participants, that is, Mapuche students, rural school, low socio-economic stratification, language and parents' education level, this is where the similarities end for the purpose of the study. Although the questions are open-ended, discussions were encouraged, so that the data provided was as descriptive as possible, for triangulation purposes.

The researcher was able to determine the composition of the school by filtering the data provided by the Chilean Ministry of Education, for example, rural school, have introduced ICTs, majority of students are Mapuche and located in a predominantly Mapuche region. Is must be stated that permission was obtained to use this data. The data did not contain any student personal identification or indicator that would enable anyone to identify a student or group of students.

Following from the above, composition of the school population was paramount to ensure that the schools had a higher Mapuche school population than most other schools in the country. This would enable the gathering of, as much data as possible and which met the particular requirements of the thesis whilst on the field. This data would then facilitate a triangulation of the findings, to see any correlations or networks that are formed as a result of using ICTs in the classroom.

Focus groups require an amount of direction by the researcher (Bloor 2001) but unlike a focus group, the students in the classroom were only observed and the researcher did not provide any interaction or direction. Thus, as Bloor (2001) argues focus groups lack the ability to capture individual perspectives, norms and beliefs. The research circumvents this gap by not only observing

the students and teachers in the classroom environment but also by interviewing teachers, principals and a Mapuche educator. Whilst the researcher was a non-participant observant during classes, open-ended questions where used during the qualitative interviews (Gomm 2009) to facilitate a discussion.

Research Questions

A common and simplified characteristic of most research is to answer questions (www.ihmctan.edu 2012). However, as indicated by (Opie et al. 2004) research comprises a number of characteristics, none of which are definitive or exhaustive and which can include, the collection of data, a hypothesis, objectivity and results which can be generalised. With reference to the questions used in this thesis; although these are predetermined, which could classify this work as a structured approach, the data gathering which relied on interviews used an unstructured approach to allow flexibility by letting the participants expand and provide more information. The aim was not to quantify the data but to gather qualitative and descriptive details in their language, explore the issues faced by Mapuche students, school, teachers and Principals,

The Major Research Question:

1. How are ICTs being used in the classroom environment by the Mapuche students? and as such, are ICTs being used as a tool to improve their education outcomes and what have they experienced as a result?

Sub Questions:

The following sub questions have been formulated with an ANT approach and were expected to result in a more descriptive reply.

1. What challenges are experienced by the students?
2. What challenges are experienced by the teachers?

3. What challenges are experienced by the school?
4. In what context are ICTs perceived by teachers?
5. Are there any visible impacts on the student's Mapuche language?
6. What impacts are the aims proposed by the Chilean Ministry of Education having on the Mapuche students (relationship between policy and effect)?

Contribution to Knowledge

There is ample empirical data that deals with the anthropological spectrum of impacts to cultures, native societies, ethnic minorities and conquered civilisations. Amongst these impacts is the introduction of new values into the culture, threats to their language, loss of identity, increased knowledge, connectivity and speed of communication. However, with the advent and ubiquitous nature of Information and Communication Technologies (ICT), there have been changes to the manner in which most actors of western ('western' this term is being used to generally refer to developed countries) societies communicate, relate and interact. In addition to this, there is also the hidden yet permeating factor of ICT. The access to information can provide a degree of self-efficacy, bypassing human actors as the source of information and finding it online or through another ICT medium. For example, if we consider this premise and draw a parallel to the cultural beliefs of the Mapuche, whereby the Lonko (elder) is the source of information and wisdom. In addition, during the education of the Mapuche, the family plays a central role. Then consider that these bonds can and are likely to face challenges from an increased use and dependence of ICT as a source of information, both at schools and at home, as well as educational policies which assume a homogenous approach and do not consider, for example, cultural and language diversities which exist, as it does in Chile with the Mapuche.

With the above points in perspective, this study proposed to contribute to existing knowledge by expanding on the limited studies that have been carried

out on the impacts of ICTs on Mapuche students. The study investigated using aspects of Actor-Network Theory (ANT) to provide a level of understanding on how the Mapuche students can or have shaped the technology to meet their needs while it is used in the classroom, be it cultural, educational, work or other. The thesis also examines other actors that may be having an impact on Mapuche students such as poverty, language proficiency and socioeconomic factors, in order to also understand the challenges that are also being faced by the school.

As argued by Roy (2005) globalisation has been defined to have been occurring since 1492, at least by the well document discovery of the Americas, or when Manila was founded in 1571 as a Spanish *entrepôt* to link Asia and the Americas. In essence, the need for resources or commercial links induced worldwide connections. Given the impact that these connections had on the native Americans, the introduction of new ideas, culture, slavery, diseases, religion and languages; forced the natives to adopt, adapt or succumb to these intrusions. It can be argued that in today's globalisation context, the actors have evolved and so have the actants. But hitherto, if we juxtapose the earlier intrusions to the latter ones, specifically to the introduction of ICTs, the elders of the Mapuche, that is, the Machi, Lonko and the family who are in charge or maintaining and imparting the values of the Mapuche (Pepin 2002), may now find themselves in a position whereby the old held tradition of Obligatory Point of Passage (Fenwick & Edwards 2010) is being eroded by the ubiquitous nature of the introduced technologies. It may be possible that from the onset, there could be a parallelism between the old and the new coexisting and complementing each other. However, there needs to be further research to ascertain if there is a breaking point where the two cease to coexist or one of the actors ceases to exist in terms of relevance.

Notably, the Mapuche have struggled with what Pomering and White (2011) describe as the notion of shared imagery. On the one hand, there is the shared notion, as found in most primary school text books, that the Mapuche were

fierce warriors. However, these historical references often linked and restricted to the Colonial period. But the conflicts that ensued with the new republic, which resulted in more wars and dispossession, are a disconnect from the reality. Thus, as argued by Pomering and White (2011) in their description of shared notion of imagery and identity, there is a disconnect from the nation's shared notion of imagery and the reality of a marginalised Mapuche. With reference to marginalisation, Pomering and White (2011) assert that:

> 'New-world nations, such as the countries of North and South America, South Africa, New Zealand, and Australia, have typically become multicultural as a result of colonialism, and subsequent immigration flows, where an indigenous population, variously, occupies a marginalized space and identity in the modern nation.' (p.168)

Summary of Significance

Although the above statement by Pomering and White (2011) is significant, the aim of the research was not to formulate a comparative approach and triangulation of data from cultures that have been conquered in order for find a correlation with the Mapuche. Rather, this area of research is distinct and significant from two aspects. Firstly, there has been no study centred on Mapuche students and ICTs, which has utilised the concepts of ANT, thus by this I have managed to set the scope of this research. Otherwise, in order to be able to gather data and compare it across the various separate cultures using ANT would require the researcher to adopt the same data gathering approach (interviews and observations) used with the Mapuche. This would not only increase the scope but also the time and monetary burden of the research. Having said that, it is necessary at this point to emphasise that the research aimed to provide a much clearer understanding by expanding on the existing literature, not only on how the Mapuche students interpret, use and understand ICTs but also on how it also encroaches on their culture by trespassing the school boundaries. Secondly, by reviewing the available material on Mapuche students and ICTs it is evident that there is not enough empirical data that provides an understanding on the impacts of ICTs and their school performance. Data indicates that there is a marked difference between

urban and rural schools, between school with lower and higher number of students and those schools where Mapuche students form the majority of the school population, with the exception that there is also a lower number of Mapuche progressing to tertiary education, as compared to the general population. Thus, juxtaposing these two angles, the research proposed to construct a model that:

1. would enable an understanding of the competing forces that impact the Mapuche on their education;
2. apply the same model to include another catalyst, in this case ICTs;
3. provide a more detailed analysis of the Mapuche concept of learning and how ICTs are impacting their traditional learning structures;
4. analyse government educational initiatives to make ICTs more widely available to remote schools.

Aims

Over the last few years, the Chilean government has been allocating funds to improve education and one of the areas that has received increased importance has been the introduction, providing training and championing the use and uptake of ICTs in the classrooms. For example, the government's inception of Red de Enlaces in 1992, initially a pilot project in Santiago, but later extended to more regions within the country. It was mainly aimed to provide a connection between schools as well as incorporate ICTs in education (Ministerio de Educación de Chile 2008). Since 1992 to the present, there have been increases in the number of connected schools and computers per student, lessening the digital gap amongst teachers and shift in the perception of ICTs in the classroom and proficiency (ENLACES Centro de Educación y Tecnología del Ministerio de Educación 2009f). These aims appear to have had mixed results on their desired outcomes as this approach is generalist in as much as it only refers to the wider school population. By referring to the wider school population, the writer wishes to convey that this term is used to include the dominant ethnographic population, that is, Hispanic descent and

non-indigenous. By adopting this approach, there appears to be evidence indicating the changes and investment in education have still to prove universal in terms of desired outcomes. Further to the above, examination of statistical data provides a clearer understanding from the unsegmented digestion of student's performance, retention rates and comparative results. For example, if we juxtapose general results and compare these to the outcomes of those rural schools where the student population is predominantly Mapuche, the results would show differences between Mapuche students and the rest of the student population. This investigation proposed to identify those actors that are at play in the education of Mapuche students, including, teaching methods, classroom settings, classroom settings, ICTs, education policy. This approach is taken so that the actors at play are identified, as opposed to concentrating on one sole actor, that is the physical computer or laptop present in the classroom.

Limitations of the Study

The study has set its boundaries to only concentrate on two particular primary education level, rural schools in the south of Chile. Furthermore, the schools are comprised mainly of Mapuche students. In addition, considering that the Chilean education systems rates school performance under a generalised model, assuming that all school are in similar playing field. However, given that potentially rural schools may face different challenges such as students' socio-economic status, lack of ICT resources, remoteness and inadequate infrastructure, amongst others, means that contrary to Opie et al. 2004), the results of this thesis may not be able to be generalised unless further research is carried out.

A number of potential schools were examined by reviewing data found on the Ministry of Education's website (Chile's Ministry of Education and its website are also often referred to as MINEDUC). However, contacting the schools via email proved at times difficult, as responses were not often received. I can only infer that the emails sent to these school were ignored. On the other hand,

some schools responded once or twice but then did not respond to further emails, which contained some more in-depth questions. It is only assumed that these subsequent emails were also ignored, as it is not known if these schools were uncomfortable with answering some of the questions or taking part in the proposed fieldwork.

The repetitious format in which the lessons were delivered at both of the schools provided repetitive data in some cases. Even when different grades were observed, the only characteristic that was different between lessons, was the subject being taught, the seating arrangements or the way in which ICTs were being used, due to the lack of resources. This was evident at both of the schools visited.

Although, as indicated earlier, the study is limited to two school, there was scope for the study to transverse beyond these two schools. This could be possible if similarities were found with other schools, where the prerequisites I imposed on this thesis, could be met by other potential schools. For example, there are other rural primary schools in the south of Chile, which have a predominant number of Mapuche students, have some form of access to ICTs at the school, the school is not a high performer and/or are using ICTs to educate students. On the other hand, the same parameters could be adopted to research schools in the north of the country, where it may be possible to find schools with students that belong to any of the original inhabitants, for example, Aymara, Atacameño or a mixed school population, in terms of ethnicity.

There is limited material that examines the use of ICTs with a singular context centred on Mapuche students in a rural school and which has used ANT to look at the actors that may play a part while ICTs are in use. In this context, the research has gone into some uncharted territory and further from expanding on existing work, it strives to open new discussions on the education and use of ICTs where Mapuche students are concerned and where ANT can be used to facilitate this further.

Conclusion

The interest in the subject comes from my personal experience as a primary school student in Chile. As described above, studying at a rural school for a brief period and my recollection of certain aspects of the Mapuche history, as taught in the classroom while at primary school, which seemed to concentrate on the bravery of the Mapuche during their wars against the Spanish but left gaps with relation to the wars that were waged against the Mapuche, their loss of territory and displacement, once the nation became an independent republic.

The schools selected for this thesis were selected, not only as a result of meeting the requirements, namely, located in the Araucania region, primary education level, rural and comprised mainly by Mapuche students, but because the schools remained willing to respond to my questions and allowing me to visit. The selection of the schools was not an easy process, given that a number of schools contacted, initially via email did, not respond at all, while others responded once or twice but then did not respond to further emails. As stated earlier, these emails may have been ignored, or the school may not have been comfortable with bringing into the open, some of their challenges, even when anonymity was guaranteed. The latter is only an assumption, given that the schools never provided a reason for their lack of response. It must be noted that the schools selected are also located in one of the poorest regions in Chile and with particular emphasis on the Saavedra locality, where only about 5% of the students, progress to higher education.

The adoption of ANT in this thesis, tries to atomise the actors that may be relevant on the education of the Mapuche and it is an aspect that is hoped to provide a better understanding on educating Mapuche students when the use of ICTs is present. However, this may only be one characteristic of their education and in fact, other actors may need to be considered.

CHAPTER 5 - Literature Review

Introduction

This chapter defines and discusses Information and Communication Technologies (ICTs) and how these relate to education and their use. It also discusses aspects of identity and citizenship in order to understand the concept and its implications; followed by status and its multidimensional aspect. The chapter attempts to also identify and describe some of the actors that are considered later on as part of the Actor-Network Theory discussion.

Information and Communication Technologies

The terms information and communication technology (ICT) and information technology (IT) are often used interchangeably (Plomp 2003) as such, their descriptive meaning are the same. A more technical description is offered by Cubillo (1999) by describing it as a combination of technologies that can manipulate, transform, store and display.

In the context of education or industry in general, the meaning of ICT or IT can be the use of any or a combination of the following; computer hardware, software, scanners, digital cameras, networks, the Internet and audio-visual devices (Hilbert 2001).

The use of Information and Communication Technologies (ICT) in education has generated widespread interest as well as being attributed to have an important role in education (Borja 2004; ENLACES Centro de Educación y Tecnología del Ministerio de Educación 2009a, 2009b, 2009f; Fry 2002; Granger et al. 2002; Lan 2001; Newton 2003; Twining 2004), from which also the Internet is one of the most important and explosive means of information by which the transfer and access of information has been facilitated (Borja 2004; CEPAL 2000). However, with reference to educating Mapuche children, Quintriqueo and Torres (2013) indicate that historically this has been on a

system, content and outcomes based on an Occidental model. However, with reference to the Ecuadorian Intercultural and Bilingual Education experience Martinez (2014) argues that in some rural regions up to 70% of children attend a school in that only teaches in Spanish. Moreover, Martinez (2014) also indicates that some indigenous communities viewed the learning of a foreign language and computer science was more useful for their children to function in a globalised economy, as opposed to learning an indigenous language.

What is generally understood to be the Digital Divide? According to Molina (2003), Education-World (2009) and Gorski (2001) it is described as a gap or unequal access to ICTs which can be quantifiable and can include, for example, disadvantaged rural communities, some socio-economic groups, some ethnic and indigenous groups. Therefore, as argued by Pepin (2002) and Villalon et al. (2002) there is evidence to suggest that the Mapuche could well be affected by the Digital Divide based on their Ethnicity, socio-economic context and locality.

Hershey (2010) indicates that indigenous peoples are using digital technologies such as video conferencing, digitizing of documents and audio broadcast via the Internet. In addition, Hershey (2010) argues that these technologies are also being utilised by indigenous peoples to preserve and advance their culture, history, traditions and human right advocacy. In addition, Garrido, Martinez and Solano (2011) argue that the uptake of ICTs by indigenous peoples is centred on two tenets, that is, breaching the digital gap and the perception of ICTs as tools for rescuing, re-evaluation and preservation of their culture. On the other hand, Hepp (2009) poses a similar argument as those by Hershey (2010) and Garrido, Martinez and Solano (2011) but Hepp (2009) also points out some threats imposed by ICTs on indigenous communities. For example, increased inequality by limited access to ICTs, negative outcomes as a result of homogenous content and isolation if the virtual world is deemed or perceived to be more important than the real world (Hepp 2009).

In understanding how Mapuche students interact with ICTs, it is necessary to clarify a few facts on the subject of learning with ICTs. For example, Cuthell (2002) explains that students use their computer for purposes other than as an electronic typewriter. By using ICTs in their studies, students are able to develop learning strategies of their own, thus, allowing learners to interact with the material (Cuthell 2002). In addition, Pearce and Ainley (2002) on the subject of learning with IT and student motivation suggest that outcomes depend on a variety of factors including interactivity, well designed learning sequence and the willingness of the students to engage in it. In addition, as argued by Pearce and Ainley (2002) and Churach and Fisher (2001), ICTs also involve specific learning features that may be partially adopted by some students and in some cases regardless of the availability of physical resources.

As discussed above, it is evident that ICTs are more than just PC based technologies, and these have been used throughout the modern era as educational tools; and most often the technology is pervasive enough to not be noted or felt. On the other hand, the use of ICTs can have different outcomes dependant on the perspectives, usage and access to the technology (Cuthell 2002; Hilbert 2001). Developing nations need to have a concerted look at how teaching can be aided by ICTs, have a clear understanding of the required and best possible outcomes, how these can be achieved and whether these outcomes will reduce or breach the socio-economic gap. These are just some of the considerations. However, juxtaposing the above statements to what Freire (1999) has to say on the subject, he argues that:

> ‘regardless of what society we are in, in what world we find ourselves, it is impermissible to train engineers or stonemasons, physicians or nurses, dentists or machinists, educators or mechanics, farmers or philosophers, cattle farmers or biologist, without an understanding of our own selves as historical, political, social, and cultural beings-without a comprehension of how society works. And this will never be imparted by a supposedly purely technological training’, (p. 109).

In fact, what Freire (1999) puts across is the fact that education cannot be centred on the subject being imparted but rather has a greater scope in

integrating a more lateral understanding of the society in which this takes place.

Identity, Stereotypes and Prejudice

Chilean history, especially that which details the conflicts between the Mapuche and the Spanish, that is prior to the birth of the new republic; describe the Mapuche as brave and indomitable warriors. These descriptions have been taken from Spanish accounts of the time (Barros Arana 1999). It is these images that are most often hijacked, become part of the folklore and result in being included in Chilean history, forming part of the nationalism and identity that is used to convey a message of a brave and indomitable culture (Gobierno de Chile 2012). However, when examined closely, the narrative is found to contain stereotypes, racial misconceptions, prejudice and historical inaccuracies against the indigenous people, putting them in an unequal position, as compared to the rest of society (Godoy, Hoces & Roa 2006; Quintriqueo Millán & Torres Cuevas 2012). Having the previous preamble in mind, let us consider the following statement made by Friedman (1994) who expresses that, 'Colonists tend to develop strong cultural identity, primarily as a means of distinction'. The statement seems to overlook and assume that the original inhabitants by default, do not have a strong sense of cultural identity. However, it does provide some insight into how some perceptions of the indigenous people may be derived and shaped. Ironically, as described by Godoy, Hoces and Roa (2006) prominent Chilean historians (including Barros Arana referenced above) have tended to minimise the importance of the Mapuche throughout history and to use labels such as, savages, barbarians, enemies of the state and primitive. Whereas, the Spanish historian of the time, in reference to the Mapuche, produced numerous pages with accounts of heroism and virtues (Cruz 2010; Godoy, Hoces & Roa 2006).

Although, the notion of identity is often difficult to discern (Phelan 2017), White (2017) maintains that the imagined nationalism is maintained by institutions such as media, education system and art. As is the case with the Mapuche,

this imagery of bravado has been adopted when there is a need to display a sense of combatant mentality, for example, as exemplified by the most popular football team in the country, Colo Colo which takes its name from a Mapuche warrior (Blanco & Negro S.A. 2017) or the 'Movimiento Juvenil Lautaro', a left-wing, armed guerrilla group that was formed in 1982 to resist the Pinochet dictatorship, the name 'Lautaro' was taken from a Mapuche leader of the resistance against the Spanish and who is admired by Mapuche and non-Mapuche (Biblioteca Nacional de Chile 2017; Cruz 2010; Sauer 2014; Wikipedia contributors 2017a, 2017b). However, Godoy, Hoces and Roa (2006) argue that still, Chileans have not recognised the colour of their skin or accepted their mestizo roots and instead have adopted and or identified with a culture which is more occidental.

What is Citizenship?

According to Schugurensky (2010) there is no agreed-upon definition of citizenship. For example, he paraphrases the Archbishop of York, who once said that the main purpose of education is to produce citizens. Furthermore, he adds that Eleanor Roosevelt (1930) argued that the purpose of education was to produce good citizens. Therefore, Schugurensky (2010), explains that although the definition is not agreed-upon, it is a multidimensional concept for it is not defined what a citizen does or what is a citizen. But that as a result, the concept is dynamic because it is has changed throughout history, it is contextual and has different interpretations and applications in different societies. He goes on to say that the term is contested because in the same times and society, there can be a disagreement and dissimilarity on what citizenship is should or should be.

In explaining, the multidimensional aspect of the concept of citizenship, Schugurensky (2010) explains that it suggests at least four dimensions. That is, status, identity, civic virtues and agency.

Status

Schugurensky (2010) argues that while status refers to rights and duties, identity refers issues of belonging and meaning. Schugurensky (2010) maintains that the distinction of status and identity is particularly evident in multiethnic, multilingual, multicultural states. Thus, he argues that identity is entrenched in language, history, religion, values, traditions and culture. Therefore, it is evident that the Schugurensky (2010) approach is multidimensional. In explaining the differences between citizenship as status and identity, Schugurensky (2010) argues that this is seen in cases where a nation-state was built after a process of conquest and colonisation. This of course, entails the displacement, domination and elimination of the original inhabitants. Some examples of this could be seen by examining the history of the Spanish conquest of America. In particular the now Spanish speaking countries have, for centuries in some cases, excluded the local inhabitants and exemplified the argument of Schugurensky (2010), that is, the mismatch between status and identity.

An example of this was the recognition of the Guarani inhabitants, by the Paraguayan Supreme Court of Justice, by emitting a communiqué to all the judges in the country, stating the ‘indians were just as human beings as the rest of the inhabitants of the republic’ (Galeano 2004). Yet, this communiqué did not take place during the times of colonisation, or just after the birth of the republics, that is in the early 1800s. Rather, this took place in September 1957, almost five hundred years after the discovery of the American continent by Columbus, its subsequent conquest, the colonisation period and its subsequent liberation from the Spanish crown (Galeano 2004) and in a country where 95% of the population is mestizo (Central Intelligence Agency 2018).

With reference to citizenship and agency, Schugurensky (2010) explains that this correlation brings into play the idea of ‘citizens as social actors’ who have, as a result, the capacity to exert power.

With reference to Hobson and Lister (2002), it is also relevant to draw on their work titled Citizenship, in which, the historical sense of the concept of citizenship is described from its inception dating back to ancient Greece, which was mainly a gendered concept that excluded women, but was above all a political ideal, though to the 17th century in which it evolved into the bearer of rights and into the 20th century, emerging as a central political and theoretical concept. In addition, Hass (2001) explains that citizenship is a polemic concept given that its meaning and use are based on particular characteristics of historical, political and socio-cultural backgrounds. Similarly, Heater (2013) argues that defining citizenship is complex given that its characteristics originate from multiple sources. Thus, it can be seen that the concept is fluid, subjective and tied to the cultural influences and values at any given time.

With reference to citizenship education, Schugurensky (2010) explains the differences between multicultural and intercultural education. It is argued by Schugurensky (2010) that there are some overlaps between the two terms, however, the former is understood to include the knowing about other groups that coexist within the same confines, the latter is concerned with reciprocal recognition and impartial relations, (Schugurensky 2010). Furthermore, Sotomayor et al. (2015) indicate that with reference to language, status is also tied to the perceived status or prestige that an indigenous language may have or enjoy, as opposed to a language that has been accepted as standard. This is exacerbated due to the diminishing use or understanding of indigenous languages, as is the case of the Mapudungun by the Mapuche (Sotomayor et al. 2015).

Education and the Mapuche

Dewey (1958) argued that humans live in communities, sharing things in common and that communication is the facilitator to sharing those commonalities. With this in mind, it is understood that the Mapuche perceive themselves as auto-colonised and intervened (Forno & Rivera 2009), to which Llanqinao, Rebolledo and Briceño (2008) add that the connexion between the

Chilean and Mapuche is one of total submission, with a lack of recognition of their people, as distinct from the Chilean and thus also impacting their education, language and religious differences. Therefore, their commonalities and shared views, as Dewey (1958) defines them, have been impacted as a result of adopting and normalising those of the dominant culture. These would include their realities and subjectivities of their environment and customs. For example, through the contact, imposition or effect of laws, education, architecture, exclusion, discrimination and language, the Mapuche's commonalities have changed over time. Therefore, as Forno and Rivera (2009) argue, this creates counter-developments and tensions.

The Mapuche educated their children to be members of their society by doing certain tasks the adults themselves would have performed when they were young, these tasks occurred as part of the family's regular routine (Llanqinao, Rebolledo & Briceño 2008). Dewey (1958), back in 1958 had already argued, and to a certain extent, those words are far more accurate nowadays than in 1958. He pointed out that as civilization advances, the gap between the capabilities of the young and the concern of the adults expands. Thus, it can be argued that Mapuche students, exposed to ICTs, may it find it difficult to relate or find it meaningful to learn by imitating behaviours, or trades practiced by their ancestors that may now be seen as outdated. This may also be true if we consider that their learning would have involved a high level of verbal communication, as compared to a classroom setting which may have a variety of media such a ICTs, an enriched audio-visual content, a teacher in front of the class (chalk and talk), that takes place in an architectural setting more attuned with an urban setting and Chilean culture than to the surroundings of the Mapuche and thus giving continuity to a centralised model of their indigenous education (Forno & Rivera 2009).

Dewey (1958) argued that as societies become more complex, there is an increased need for formal and intentional teaching and learning, as well as, indicating that social groups sustain themselves by self-renewal (Dewey 1958). However, this argument implies a homogenous approach and fails to consider the differences that may exist within a society, for example the

Mapuche's current situation in Chile, whereby, a normalised and conquered self-view exists (Forno & Rivera 2009; Llanqinao, Rebolledo & Briceño 2008).

Continuing on with the traditional education of the Mapuche, Llanqinao, Rebolledo and Briceño (2008) provide a detailed description in the manner in which the Mapuche educated their children in which the family and community played leading roles and was centred on social relationships, relationship with nature and relationship with divinity. In fact, they indicate that:

> 'The concepts of building knowledge or "to learn by doing" took form in labor, social, cultural and productive actions that Mapuche people developed, in which the teaching – learning process involved different family members, where the main methodological aspect was centered in communication.', (Llanqinao, Rebolledo & Briceño 2008).

In addition, Llanqinao, Rebolledo and Briceño (2008) also maintain that the education and learning extended beyond the immediate family and included in a supportive model in which all families in the community took part in the development process of their relatives and neighbours and so, within the context of Mapuche traditional education, the family and the community are major actors. According to Llanqinao, Rebolledo and Briceño (2008), the education and development of the Mapuche was imparted though three main methodologies, which are labelled in Mapudungun and explained below. What is important in these methodologies is that the three involved verbal communications and no mention is made of a written language.

The Mapuche did not have a written language and the Mapudungun started to be captured phonetically after writing had arrived with the Spanish and to this day the same method persists. However, this at times results in some words written differently but sounding the same, for example, 'Ruca' and 'Ruka'. Both are written differently (with a 'c' or 'k') but sound the same and both are used to refer to the Mapuche hut. Another example is the 'Kultrun' or 'Cultrun' which is the Mapuche drum. In Spanish, the letters 'c' and 'k' have similar sounding when paired with consonants. However, in Mapudungun these are used simply in their phonetic form.

Table 5.1 - Mapuche Education Methods

Method Name	Meaning and Process
Pentukum	Protocol Mapuche greeting. Used for intellectual formation of children and young Mapuche. This method included the development of memory, speech ability and communication in general, as well as, virtues such as, caution, empathy, solidarity and respect. Teaching these took the form of visiting relatives and greeting them as requested and also conveying messages exactly as instructed.
Nutram	This is their word for conversations. Which is the most common method for their children's education. Oral communication is central to the Mapuche in keeping their historical legacy. This method was used to foster a harmonious living with the social, natural and divine environment. It also, emphasised, that by constant communication between family members and the young, there were no generational differences. Therefore, leading to an environment of trust whereby, parents were not only imparting values and knowledge but also listening to their children.
Gulam	Mapudungun word for 'advice' or 'teachings', depending on the context that it is used. The Mapuche acknowledged that their elders are wiser. They have lived more years and thus more experiences than the younger generations. Therefore, the elders played a vital role together with the family in advising the young Mapuche by reflecting on past experiences to formulate better decisions going forward, which would allow them to live better lives both collectively and individually.

Adapted from Llanqinao, Rebolledo and Briceño (2008)

In addition to the methods discussed by Llanqinao, Rebolledo and Briceño (2008), Quintriqueo and Torres (2013) provide a more comprehensive description on the construction and acquisition of the Mapuche's cultural knowledge. For example, they argue that the construction of knowledge is associated to three categories, namely; Learning Activities, Sociocultural Ceremonies and Objects of Knowledge (Quintriqueo & Torres 2013). Learning Activities comprise advise given by elders to children and adolescents, learning by doing, visiting each other, saluting (the Pentukum as described by

Llanqinao, Rebolledo and Briceño (2008) above) and observing of daily tasks (Quintriqueo & Torres 2013). The next category, Sociocultural Ceremonies, such as the Gijatum which is a thanksgiving ceremony, the Eluwun, which is a funeral ceremony, the Mafun for weddings and the Konchotun which is the name given to visits by friends (Quintriqueo & Torres 2013). Finally, Objects of Knowledge comprises both tangible and intangible objects which cover the social, natural and cultural aspects such as the immediate environment, spiritual forces, the Gunechen or creative force and dreams (Quintriqueo & Torres 2013).

Considering the above approach and methods used by the Mapuche to educate their children, there seems to a be difference if we compare these to the government's Intercultural Bilingual Education program, which was implemented to address the problems being faced by the indigenous people, such as poverty and marginalisation. This program, has by default, assumed a neutral socio-political framework, that is representative of the general and homogenous education system that is inserted and directed by the state (Forno & Rivera 2009) and which also contains the rules, structure, values and measures imposed by the Chilean state (Miller 2012). Therefore, this centralised approach bypasses and denies visibility to the local social processes which are integral to the dynamic culture and organisation as it serves only those aspects of indigenous education and culture that are pertinent and functional to the centralised content and which has been historically based on an occidental perspective, leaving a gap between the western and Mapuche context (Forno & Rivera 2009; Quilaqueo et al. 2014; Quintriqueo & Torres 2012). Furthermore and as discussed above, Llanqinao, Rebolledo and Briceño (2008) argue that in western children's education, the family plays a limited role, but this is even less prevalent in indigenous societies and thus, leading to cultural expressions and beliefs being impacted. This, they argue is due to their self-perception of being subordinated by the policies of the prevailing society (Llanqinao, Rebolledo & Briceño 2008). Moreover, Llanqinao, Rebolledo and Briceño (2008) refer to Bourdieu in their discussion of compounding actors which affect the Mapuche, whereby, education directed by the government restricts equal access, given that

indigenous people are located at the bottom end of the socio-economic stratum. Moreover, Dyson (2005) whilst referring to remote indigenous communities in Australia, argues that cultural considerations are required when introducing ICTS. For example, the content could be in a language that is not the first language of the student or the community (Dyson 2005; Kim, Miranda & Olaciregui 2008). Also, indigenous culture has a strong sense of sharing and community, based on group activities, support and spaces (Dyson 2005). Therefore, introducing ICTs and delivering education and training with an individual focus may not be appropriate, where communities have communal focus (Dyson 2005).

The literature also provides examples on how ICTs have been implemented/adopted by other communities around the world. For example, Jamtsho and Bullen (2007) explain the experience in Bhutan, where ICTs where introduced as part of a project to enhance the distance teacher education program, which is a course to prepare teachers. In this case, ICTs where to be mainly used by the teachers. However, Jamtsho and Bullen (2007) highlight that although there is always a potential for improvement, they argued that the country was faced challenges concerning difficulty of access, technical issues, lack of technical support and bandwidth. Some of these issues are also similar to those reported by Dyson (2005) whereby geographical distance and lack of infrastructure are an issue affecting remote indigenous communities in Australia and similarly in South Africa where affordability, lack of electricity and infrastructure all play a part in the general lack of ICT literacy (Ford & Botha 2010) and thus this appears to be a general trend as argued by Ashraf, Grunfeld and Quazi (2015) that:

> ‘A major obstacle to the deployment of ICTs in remote Indigenous communities has been the costs of establishing and maintaining reliable infrastructure’. (p. 2)

Structure as a Means of Hegemony

As discussed above, traditional Mapuche education places the family as an important actor, whereby communication is central across the three tenets

which include social relationship, relationship with nature and relationship with divinity (Llanqinao, Rebolledo & Briceño 2008; Quintriqueo & Torres 2013). However, as discussed by Forno and Rivera (2009) there are various actors that compound the problem, such as self-perception and a centralised approach. But also, another aspect of this discussion is raised by Forno and Rivera (2009) in which, education reforms and spending have also meant that the school's architectural infrastructure has been changed or repositioned, not only in the urban setting but also including rural schools. It is at this point that Forno and Rivera (2009) argue that this represents a continuity of the centralised model, whereby some of the new physical structures have more in common with an urban setting than those of rural schools, built using concrete and metal structures, negating the local surroundings, some even consisting of two levels and even a carpark. Ironically and in contrast to municipal schools, private or subsidised schools, Forno and Rivera (2009) point out that the latter have maintained their traditional aspect of using wood, single stories, rectangular in shape and only expand based on immediate necessities. Although, both structures may be different in their construction materials, dimensions or how these relate differently to the immediate rural environment, both characterise and symbolise the school as an appendage of the bureaucracy that is, the government and what it imposes on the individuals within this environment (Forno & Rivera 2009). The structure symbolises the centrality, what takes place in those structures, when, e.g. class times, breaks, go home, holiday breaks; and how to behave, e.g. greeting teachers, seating arrangements, class participation. Therefore, Forno and Rivera (2009) criticise the short term vision of structural/architectural changes, to the long terms gains that curriculum changes would most likely achieve.

Globalisation

Roy (2005) argues that globalisation has been defined to have been occurring since 1492, at least by the well documented discovery of the Americas, when Manila was founded in 1571 as a Spanish entrepôt to link Asia and the Americas was in essence an early form of globalisation due to the need for

resources or commercial links which induced these worldwide connections.

The Mapuche, as well as any culture that came into contact with another, for example, the Spanish conquistadors as they made their way across Central and South America, are facing a similar aspect of a second important conquest. Globalisation is another form of conquest which has been ubiquitous as it involves change (Cullingford & Gunn 2005) and, as most of the Mapuche students are having some access to ICTs at school, they are not entirely disconnected from the rest of the world and the events that are taking place. These changes can be taking place or being felt for example, in their language use and skills, socio-economic expectations, attire and cultural values. For example, Cullingford and Gunn (2005) argue that a clash of cultures is inevitable and the changes can be tangible and or non-tangible, horizontal or forward impacting.

In describing globalisation, Cullingford and Gunn (2005) include a number of attributes that are part of the term and the implied repercussions. For example, they argued that it can mean the threatening of the powers of the nation state, worldwide changes and most important, within the context of this investigation, the changes in technology and communication which would impact on the culture of nation states (Cullingford & Gunn 2005). In simplifying the implications of globalisation, Cullingford and Gunn (2005) imply that globalisation is concerned with change. However, Cullingford and Gunn (2005) further indicate that change can either be assimilated, modified or rejected by those groups or individuals faced by these changes. Further to the descriptions and impacts to globalisation, Cullingford and Gunn (2005) argue that changes are not in one direction only but can be multi directional and not necessarily stem from large powerful groups but also from small groups that have limited access to resources. Cullingford and Gunn (2005) maintain that in the current globalisation context, change is not the crux of the issue, but the speed of change that gives it its distinguishing characteristic.

Oliver (2005) reiterates that the transmission of cultural forms across time and space is not new. In this context, even nowadays, the movement of people

across borders, economic powers and political powers; are influencing factors in the dissemination of culture. For example, the discovery of America on the 12th of October 1492 (Chomsky & Dieterich 2004; Harvey 2002), is widely accepted as an important historical event, even though the fact that the term discovery is refuted by a great number of American inhabitants (Chomsky & Dieterich 2004). But beyond the movement of people across geographical boundaries and economic or political powers, Oliver (2005) argues that the diversity of cultural modalities and forms have now become commodities that can be traded or at least act as important hegemonic factors which can translate tangible objects being traded to maximise profits but in addition as a means of disseminating and reinforcing cultural influence. This we can see daily in the adoption of trends, fashion fads.

Democracy and Education

Going back to Dewey (1958, 2004) who argues that education is a necessity and a social function will facilitate to juxtapose the students' position in Chile. In 2006, 2010 and 2011, Chilean students protested, boycotted did not attend classes and, in many instances, occupied their places of study (Cabalin 2012). The main contention point was education for profit, as well as better public education, social justice and equal opportunities (Cabalin 2012). For example, Chile's tertiary education system is not free and has given rise to a number of private institutions that students can also opt to attend. However, given the economic realities of the country, education has become harder in terms of paying for education, as well as, the validity and quality of the education that some private institutions impart, and which was inherited from the educational model of the military dictatorship that ruled from 1973 to 1991 and which had implemented the first neoliberal experiment in the world (Cabalin 2012). According to statements and claims made by the students during the many protests that had taken place in the country, they claim to have had very little say in the educational system that affects them. Accordingly, Cabalin (2012) argues that the protests managed to shake the elitist democracy which was typified by low social participation and excluded most citizens from the political

system. At the moment, if we compare this situation to the description put forward by Schugurensky (2010) on ‘thin democracy’ and ‘thick democracy’, we can perhaps draw a parallel in the cause and effect of this phenomenon. If we look at the description by Schugurensky (2010) on ‘thin democracy’, which is characterised by passive citizenship and where marketing strategies are geared towards shaping the electoral perception, as opposed to thick democracy, which entails a more participatory approach, focused on societal wellbeing and human rights.

According to the statements made by the Chilean students, it was said that the country’s education system was in crisis and in support of their claims they would explain how it was harder for students from lower income families to enrol at university let alone find a loan to pay for their education. Along the same lines, Bivens and Taylor (2010) argue that higher education is in a state of rapid change and also in a state of crisis. They argue that a reduction of state support has resulted in educational institution relying and supporting a profit driven model. Moreover, Magendzo (2005) in his work related to the teaching of human rights education points out that teachers in Chile are part of an entrenched authoritarian culture and are lacking a critical approach to their work. Therefore, as Magendzo (2005) argues, the same teachers are:

> ‘an integral and functional part of it, reproducing inequities, social injustices, and various types of discrimination’, (p. 141)

Educational Criticism and the Mapuche

It is argued by Apple (2012) that the ‘holy trinity’ of power consist of the nexus between, race, gender and class. It is for this reason that this section has been titled as such and I have purposely replaced ‘race’ with the adjective ‘Mapuche’ and it is in this context that this chapter will examine the current literature and juxtapose it against the reality of the Mapuche students. With this mind, I will bring another actor to this holy trinity in an attempt to understand whether the introduction of ICTs in schools where Mapuche students attend can or facilitate the intended benefits that are often being extolled. Let us begin by reflecting

on the discussion by Apple (2012) whereby, it is indicated that those individuals who are economically advantaged are able to get economic returns twice as much as, those not on this stratification. For example, a comparison is made with black students who upon completion of school would not bring significative benefits. In addition to this, it is further argued that even if the discourse of inequality of school performance was removed and all schools were achieving similar results, evidence suggests that the outcomes would not be significant (Apple 2012). In addition to this data referenced by Apple (2012), he also adds that, contrary to the belief that many individuals accept the notion that schooling acts as an enabler to maximise mobility and the ability to live a better life, the reverse is true. For as argued by Apple (2012), if we lived in a meritocratic order, there would be a relationship between test scores and measure of adult success increasing over time. Where in fact, evidence shows that this is not the case (Apple 2012). In fact, he argues that evidence seems to suggest that there has been little consistent loosening of the ties between origins and realisations through schools (Apple 2012).

This argument begs the question, do ICTs have the power to equalise education and therefore, be an important actor in the social inclusion of Mapuche students? Unfortunately, there is little or no research involving the introduction of ICTs and Mapuche students. However, we can examine student's performance results to gives us an indication of their reality for these students in the greater framework of the education system in Chile.

Further to the above arguments put forward by Apple (2012), I also pose a similar question, whereby it is then asked, how much influence may the school also have in exacerbating the exclusion that Mapuche students face, both during the schooling years and after the schooling years are over. Primarily, Apple (2012) discusses and explains that the schooling system needs to be seen as a system of production and reproduction. However, Magendzo (2005) argues that teachers are not familiar, do not or rarely question the '*how'* and '*why'* of the education system (Giroux, Freire & McLaren 1988) and so a critical approach, as suggested by (Freire 1999; Freire & Faundez 1989) is far from a reality in Latin America (Magendzo 2005).

However, delving deeper into the role that schools have, it is important to consider that in the case of the Mapuche, social and ethnic minority are some of the aspects that need to be considered if we need to understand and analyse the current situation of Mapuche students. For example, Apple argues that placing attention on the production of technical knowledge sheds light on how schools facilitate to preserve a difference that lies at the core of the social division of labour, that is between mental and manual labour (Apple 2012).

This is an important foundation that is explained further, for example Apple (2012) explains that those students that are identified to be capable of producing significant quantities of 'technical/administrative knowledge,' are placed by means of the 'natural' process of the curriculum and the school's guidance program, into the 'mental dichotomy'. On the other hand, those that are rejected are due to and by the same inner workings of the curriculum and the school's program, are guided and reserved for the extraction of labour at a later stage in the form of services and or manual labour (Apple 2012). Here we begin to see, and if we remember the concept of capital and power, then it must be understood that culture, language and values of dominant groups are used to derive the content and initial learning experiences of students. Including those students from poor or minority groups and which are often found to dwell in the manual dichotomy (Apple 2012). In subsequent arguments, Apple (2012) takes the reader to examine the curriculum closer to understand the relationship of content and form. For example, what is the content of curriculum? What is in it? Are there any gaps? In the context form, does it require that the students learn as individuals? Or, are they required to interact with each other during lessons? Thus, individualisation versus group (Apple 2012).

Cabalin (2012) indicates that Chile's neoliberal policies only managed to increase the quantities of students but not the quality of education. Furthermore, the system has strengthened the social inequalities in education at all levels, that is, primary, secondary and higher education (Cabalin 2012). Thus, the argument that Apple (2012) posits with regards to the concept of mental dichotomy and manual labour and more specifically, capital and power;

in the case of Chile, it may be exacerbated by the fact that the county has one of the most segregated school systems among OECD members (Cabalin 2012) and so, the 'natural' process and the school's guidance program, as argued by Apple (2012), in the context of Chile is not required because according to Cabalin (2012) the current segregation means that:

> '*poor students are in schools with peers from the same socioeconomic background and with the same cultural capital.'*, (p. 222)

Meaning that segregation has already taken place and the inequalities will be reproduced for the entire life of the student. For example, 20% of students that attend tertiary education are from low socioeconomic groups (Cabalin 2012).

Technology and Social Inclusion

Social inclusion is one of the areas that Quintanilla, Mierzejewski and Rodrigo (2008) discuss in their final report in which it is argued that by sensitising the educational communities in the use of ICTs, it may impact the local and social development. Furthermore, Gardiner, as referenced by Aufderheide (2001), indicates that the problem with computers in the education sector, namely teaching students, lies not within the machine itself. Rather, it is the metaphor in our minds about the machine. For example, Gardiner as described in Aufderheide (2001) argues the major metaphors about the machines are for example, the computer as a source, the computer as a tutor, the computer as a prosthetic. In fact, these examples are all, as Gardiner calls it, the outside-in framework of teaching. Meaning that the computer is suited for content as opposed to context (Aufderheide 2001).

In the context of the digital divide, it is evident in the literature review that in different regions and countries around the world, for example, Chile, Thailand, Costa Rica, U.S.A. and Cambodia, there are or have been initiatives in place to bridge the digital divide that exists within their social contexts, as well as improving productivity in the education sector by implementing ICTs in innovate ways (Fry 2002). However, as described in the examples provided from the onset by Warschauer (2003), whereby a town in Ireland was the

recipient of a prize after winning (15 million Irish pounds at 1997 value) a proposal to create an 'Information Age Town', had not much to show for it three years later (Warschauer 2003). By contrast, the runners up which received a much lesser amount (1 million Irish pounds) had done a lot more with the lesser amount and where more successful in promoting social inclusion through the use of technology (Warschauer 2003). Thus, it is argued that introduction of ICTs need not only be concerned with the actual software and hardware components or specifically, the amount of money spent on equipment. Instead, as described by Warschauer (2003), the towns that had the lesser monetary prizes concentrated their efforts on including the various community groups in the planning process as well as spending more time in developing awareness and setting up training and processes.

Understandably, the above examples can be used to infer that there needs to be a wider consideration when it comes to ICTs and the introduction of this to a group or community. For example, Warschauer (2003) argues that, too often, there is too much focus on the hardware and software, yet the other actors, namely, human and social systems that must also change for technology and which can impinge on making a difference, are not given sufficient attention (Warschauer 2003). On the other hand, Fry (2002) indicates that there is a lack of productivity and a continuing rising cost in the education sector. The latter is based on the fact that teachers are hired from the labour market (Fry 2002). In fact, Fry (2002) argues that the two major cost to education stem from the physical infrastructure and personnel, both teaching and administrative. Furthermore, Fry (2002) proposes that an emphasis on learning on the field in natural settings and increase the use of ICT would deemphasise the need, to some extent the physical structure and to a lesser degree, the teacher centric. Thus, teachers would supervise and direct students to promote a challenging independent learning environment (Fry 2002). For example, research has indicated that in the case of Chile, the use of ICT has led to a more cooperative learning and student centric learning (Fry 2002).

Stepping back from the above examples, firstly, in attempting to describe the notion of the digital divide, Warschauer (2003) includes not only physical

access to the ICTs and connectivity but also additional resources that enable people to use the technology effectively. However, as indicated by Warschauer (2003) there is still a prevalent tendency to put emphasis on the physical components and availability and not giving too much thought to other actors such as content, language, education, literacy, community and social resources. In fact, due to this overemphasis on technology, Warschauer (2003) is critical on the notion of the digital divide by arguing that it provides a poor framework from which to use technology to promote social development since it excludes other factors that allow users to engage with the technology for important outcomes. With this in mind, Warschauer (2003) explains a shifting of focus from digital divide to a social inclusion framework and which rests on three main premises:

1. *'that a new information economy and network society have emerged',*
2. *'that ICT plays a critical role in all aspects of this new economy and society and'*
3. *'that access to ICT, broadly defined, can help determine the difference between marginalisation and inclusion in this new socioeconomic era.',*
   (Warschauer 2003, p. 12).

Following from the points above, Warschauer (2003) goes into a much deeper analysis between economy, society and technology. In a historical sense Warschauer (2003) indicates that there have been three industrial revolutions, see table below.

Table 5.2 - Three Industrial Revolutions

	First Industrial Revolution	**Second Industrial Revolution**	**Third Industrial Revolution**
Beginning	Late 18th century	Late 19th century	Mid-to-late 20th century
Key Technologies	Printing press, steam engine, machinery	Electricity, internal combustion, telegraph, telephone	Transistor, personal computers, telecommunication, Internet

	First Industrial Revolution	Second Industrial Revolution	Third Industrial Revolution
Archetypical Workplace	Workshop	Factory	Office
Organisation	Master apprentice-serf	Large vertical hierarchies	Horizontal networks

Adapted from Warschauer (2003, p. 13)

According to Castells (2000) who is also referenced in Warschauer (2003) 'informationalism' represents a third industrial revolution, here the distinction is made by arguing that we do not have an Internet economy but rather, an information economy. Further to the above concept, Castells (2000) as quoted in Warschauer (2003) identifies four distinguishing features that set it apart from the two previous industrial revolutions:

1. *'the driving role of science and technology for economic growth'*
2. *'a shift from material production to information processing'*
3. *'the emergence and expansion of new economic forms of networked industrial organisations'*
4. *'the rise of socioeconomic globalisation'*

(Warschauer 2003, p. 13).

In addition to the characteristics outlined above, Warschauer (2003) argues that the informational economy is associated with global economic stratification, both intra and inter-countries. However, further to the three Industrial Revolutions outlined by Warschauer (2003), we are now on the midst of a fourth Industrial Revolution, also referred to as the 'digital revolution' (Schäfer 2018) which is building on the third and is distinguished by the fusion of technologies and thus the lines between the physical, digital and biological are becoming unclear and which also affect governments, skills and labour, business and economies alike (Schwab 2015, 2016). In addition, Schwab (2015) differentiates this fourth revolution from the previous ones by pointing out that unlike the previous; speed, not related to one area and impacting and innovating entire systems are the major differences that sets it apart.

Social Capital vs. Capital

Why has the word Capital been adopted to juxtapose with a word which is usually understood to denote sharing, communal, societal, collective and public? Hasn't capital, in most developing nations, been associated with the opposite? But what is Capital, how is it defined in the literature? According to Lin, Cook and Burt (2008), the concept of capital can be attributed to Karl Marx (1818-1883) who argued that 'the mode of production based on private property and on the hands of the bourgeoisie' (Marx & Kamenka 1983) generated a surplus value, it is this surplus that we come to know as capital (Lin, Cook & Burt 2008). However, this definition is much more complex in nature, as Lin, Cook and Burt (2008) explain. For example, the cyclical concept of a capital economy affords the definition of capital a two-fold meaning depending on where it is found, adopting Marx's definition, it can be said that it is the surplus value captured by the capitalist and on the other, it can represent an investment with expected profits (Lin, Cook and Burt (2008). Furthermore and in summing the definition of capital by Marx, Lin, Cook and Burt (2008) describe Marx's theory as explaining the exploitative nature of social relations between two classes.

However, the theory of capital is not confined only to Marx and has been the subject of theory and study ever since it was originally tackled by Marx (Marx & Kamenka 1983), which can also be referred to as the Classical Theory (Lin, Cook and Burt (2008) and deals with capital on the structural level, that is classes. This is of one the elements that Apple (2012), identifies in what he refer to, as the holy trinity of power.

Subsequently, the theory of capital has undergone further adjustments and additions and has given way to the Neocapital Theories (Lin, Cook and Burt (2008). However, Lin, Cook and Burt (2008) point out that the basic elements of the Classical Theory have remained in the new theories. For example, Lin's description can be seen by the theory of Human Capital by Becker and Schultz as found in Lin, Cook and Burt (2008), which deals with capital on the individual

level and explains capital as the accumulation of surplus value by the labourer (Lin, Cook & Burt 2008). Following on, Lin, Cook and Burt (2008) also show that Cultural Capital, as advocated by Bourdieu, tackles the subject from and individual/class paradigm. Whereby, capital is represented as the internalisation or recognition of dominant values.
Lin (1999, 2008).

Warschauer (2003) Indicates that social capital arises as a result of a number of social sciences considering the role of the interpersonal relations in human and social development. For example, Warschauer (2003) cites Bourdieu's work titled 'The forms of capital' (Bourdieu 1986; Forni, Siles & Barreiro 2004) and Coleman's journal article published in 1988, titled 'Social capital in the creation of human capital' (Coleman 1988).

In addition, Szreter (2000) expands on the meaning by explaining that the term is concurrently an economic and social concept and so it bring together the concepts of sociology and political economy into one encompassing term. For example, Szreter (2000) argues that social capital flows from the capability of mutually respecting and trusting associations that allow a group to pursue its common goals more effectively than would otherwise be possible (Szreter 2000).

From this description, Szreter (2000) indicates that social capital is dependent on the qualitative aspects of the set of relationships of a social group and that it cannot be reduced or simplified to the simple possessions or attributes of an individual. Moreover, social capital cannot be produced without a set of mutually trusting social relationships (Bourdieu 1986; Forni, Siles & Barreiro 2004; Szreter 2000; Wikipedia Contributors 2013).

Therefore, Social Capital is distinct from Human Capital, which is described by Quayle, Robinson and McEachern (1994) as the knowledge and skills obtained over time through education, experience and or on-the-job training and which can increase the ability to produce. The latter definition is solely concerned with the individual and its ability to produce. Whereas, the various

ramifications of the social sciences tend to agree on the fact that social networks have value and can lead to better life experiences/conditions to the wider community (Forni, Siles & Barreiro 2004; Wikipedia Contributors 2013). Lin (1999, 2008) defines social capital 'as resources embedded in a social structure which are accessed and/or mobilized in purposive actions'. Further to this, Warschauer (2003) indicates that social capital can be derived from the interpersonal relations that people have in their families and communities. For example, Warschauer (2003) cites Lin to indicate that these relations can provide social credentials, influence, information and reinforcement. An example of social credentials can be interpreted in the point view that the elder holds a position of respect within the Mapuche community. The same can be said for influence that can be excerpted by a *Lonko* or a *Machi* within a Mapuche tribe or commune. On the other hand, information can include advice on crops, weather patterns or soil types. With reference to reinforcements, including group, personal or emotional support in times of crisis or need. Warschauer (2003) mentions an important factor to social capital, referred to as 'Norms', which relates to the general expectations of the groups around the individual and provides an important example, whereby, a child benefits significantly if he or she attends a school where everyone is likely to attend college (Warschauer 2003).

Following the above statement, two types of social capital are explained, one of these is, bonding social capital and the other is bridging social capital (Warschauer 2003). The former relates to the ties that are shared by close-knit, inward-looking social networks, such as among family members, a church group or an ethnic fraternal organisation. The latter refers to the ties that are formed with those from other social circles. According to, Warschauer (2003), bridging social capital is an important factor for social and economic development, since it provides links to other sources of information and support. Furthermore, Granovetter (1973) examined social networks and the ties that bind these, namely, the strength of the interpersonal ties, i.e. strong, weak or absent; whereby, the strength of the ties imply causality. On the other hand, Actor-Network Theory adopts the approach where all actors are treated

equally, agnostically, with a generalised symmetry and free association (Callon 1986; Tanev 2014; Tatnall 2011).

In examining the relationship between the Internet and social capital, Warschauer (2003) asks what is the relationship between these. One can agree that social capital is an important factor to gaining access to computers and thus, the Internet (Warschauer 2003). However, and unless the person is knowledgeable and fully conversant with the technology, most would rely on a support group to help them with the decisions to acquire a computer. Therefore, the decision-making relies to some extent on social capital. On the other hand, using the Internet or a computer application can be learned by observing a more adept user or by asking someone with better knowledge (Warschauer 2003) about the application.

In addition to the question posed above, another question is proposed by Warschauer (2003), in which it is asked whether using the Internet extends people's social capital. According to Warschauer (2003), the answer can be assumed to be 'yes', given that the Internet provides opportunities for communication and association with a large number of people.

So far, empirical studies suggest that the Internet can promote social capital (Warschauer 2003). However, there are counter arguments, which need to be considered in examining the intersection of social capital and the use of ICTs (Warschauer 2003). For example, face-to-face communication is far superior in content and support when compared to online interactions. Warschauer (2003) also describes how online interaction tends to bring out the worst of people. For example, abuse, bullying and flaming are all the results of negative use of ICTs that cannot increase or foster social capital. Furthermore, an increased use of the Internet can result in a decrease in social contact. For example, a person may spend more time connected online with a small group of friends than connected to the community in face-to-face communication.

Warschauer (2003) argues that technology is socially embedded. And so, the provision of ICT needs to include social purpose, social context and social

organisation. Whereby, its provision cannot de-emphasise the value of community participation and mobilisation. Rather, it should concentrate on reaching people as opposed to reaching numbers.

On the other hand, Hulbert, Beggs and Haines (2008) argue that there is a resurgent emphasis on the underclass and so questions have been asked to ascertain what role network structures play in maintaining poverty. For example, Hulbert, Beggs and Haines (2008) cite Granovetter (1985), who discusses the 'structure and dynamics of social isolation and its relationship to poverty'. In addition, Hulbert, Beggs and Haines (2008) also make reference to Wilson (1987, 1991) who expands on the subject by arguing that poor populations are socially isolated. Meaning that this would exclude them from accessing network structures that would facilitate the access to jobs that would otherwise help them alleviate and or escape poverty. And so, to summarise Hulbert, Beggs and Haines (2008) mention Wacquant and Wilson who argue that social isolations reflects the lack of social capital.

The Nexus Between Social Capital and Actor-Network Theory

In order to explore the networks that are formed in the school environment, I opted to approach the data collection and analysis of the interactions between the actors in the classroom and school environment, including ICTs, from two different camps. Firstly, the classroom observations would be expected to expose the networks that are formed in the classroom when ICTs are being used, as well as bring to the fore the social capital that is apparent within the school environment. On the other hand, the thesis also identifies those actors that play a part in the lives of the Mapuche students and which are beyond the school environment. The reasons for this approach can be found by examining the notion which according to Bourdieu's notion of social capital, is the capacity to exercise power and control (Postone, LiPuma & Calhoun 1993) and the differential distribution of capital within the classroom. It is at this point that the concept of Actor-Network Theory (ANT) is then juxtaposed to examine and

treat each of the actors on an equal footing. Initially, ANT facilitates the identification of the actors and the networks which are formed within the classroom and from that point onwards, observations proved beneficial to see how the actors exert power and interact. I aimed to consider the classroom and the interactions within it using Bourdieu's concept of *habitus* (Postone, LiPuma & Calhoun 1993) and Latour's ANT (Latour & Ebooks Corporation. 2005), whereby, it is concerned with the research of the mechanics of power occurring through the construction and maintenance of networks made up of human and non-human actors (Tatnall 2011). The latter is also of importance when considering the actors that are beyond the school environment.

As the research is concerned with the introduction of ICTs as it impacts on Mapuche students, the reader must first consider that Chile's educational policies concerning ICTs in the classroom and in particular, the introduction of computers at the primary level of schooling, started as part of the national program to enhance the quality and equity of education (Alvarez 1995). But as Alvarez (1995) describes, the education system in Chile underwent a radical change in the eighties. That is, decentralised, public schools no longer under the care of the state and transferred to the domain of the municipalities.

The research becomes more significant as it can be seen without too deep an analysis, that the level of social capital, be it symbolic by means of locality or by school performance can be significant. It has been argued in the past that the introduction of ICTs in the classroom has only been a partial measure as the introduction of ICTs have not looked at or included deeper reforms (Dakich 2005). However, as described by Alvarez (1995) and Hinostroza, Guzmán & Isaacs (2002) Chile's schools have been going through great changes, at the curricular, structural, finance, evaluation and training levels. It is in this context that ANT also identifies the external actors in relation to the school and then compares this with the current literature and the aims of the Chilean Educational Reform.

Considering the above assertions, I also consider the following statement by Latour (1996) who argues that 'a technological project is a fiction, since at the

outset it does not exit, and there is no way it can exist yet because it is in the project phase', (Latour 1996) . And so, I propose that the implementation of ICTs in schools in Chile and specially in schools where the majority of students are Mapuche, is still in its infancy and the expected outcomes are never realised since it is always, as argued by Latour (1996) in the project phase. It is here that there is disconnect and the failure to realise that the project, although past inception, has never been realised and finalised. Whereas, the sponsors of the project may consider it as done and delivered and the shortcomings, which may be experienced as a result, could be mitigated by reactive measures after the fact (Latour 1996) .

Conclusion

In this chapter, I have strived to describe and explain the areas that form the basis of this thesis which assist in understanding the actors that are explored further later on this thesis. For example, the concept of identity, stereotypes and prejudice are explained due to the impact these can have on a culture, minority groups and in the case of this thesis, the Mapuche. Citizenship and status are also explored, given that, what is understood and accepted by these two concepts can have lasting impact if the Mapuche are experiencing a dilution of their culture either by adaption, tacit imposition or adoption of the values imparted by the state through the educational context of schools. This not only includes the curriculum content but also the physical structures, government policies, technology, social inclusion and social capital.

With reference to the Mapuche, there is insufficient data that has also included an ANT centric approach to identify important actors that may be impinging on the education of the Mapuche. There is data that provides a view of the current situation of the education, performance, language, economic situation and poverty. But, each of these pieces, or actors, have an intrinsic value when examined individually but are equalised from an ANT perspective and thus make it easier to understand the complexity of the networks that are formed.

CHAPTER 6 – The Escuela Basica School 1

Introduction

During October 2010, I visited to a couple of rural schools in the Araucania region of Chile. These schools were comprised mainly Mapuche students. The first school visited, was the Escuela Basica School 1, located in the community of Galvarino, which is approximately, 67 kilometres from Temuco (Temuco is the regional capital province of Cautin and the Araucania region).

The following account is a set of interviews, classroom observations and general observations which took place at the first school I visited, that is, the Escuela Basica School 1. I have written the following sequence of events, exactly in the order that these took place.

Travelling to the School

Via an email, the school Principal Elvira Rubilar provided me with the details on how to get to the school. I was instructed to catch an inter-regional bus, which left from Temuco's bus terminal at around 0700 hrs (I was staying at Temuco, the main city of the region). I was instructed that the bus would travel in a northerly direction via 'CholChol' (CholChol is a small commune outside Temuco). I was supposed to get off on a section of the highway at a stop named 'La Puntilla'. At this location, I had to get on a blue van that would be waiting, and which arrived at this location at around 0800 hrs to 0815 hrs. This (blue) bus picked up the teachers and students who would arrive at this spot, coming from different locations. This van would then transport them on their final journey to the school.

Unfortunately, the bus I got on at the bus terminal in Temuco, which was an old machine that gave me no confidence on its roadworthiness, had some mechanical problems and could not be started and only after some fiddling in the engine compartment by the driver, it seemed that we were ready to leave.

Finally, and to cut the story short, the bus had to be pushed to get the engine started and needless to say, I was late and missed the rendezvous with the blue van.

When I got off at ‘La Puntilla’, as instructed, I could see that I was in the middle of a rural area. Ahead, I could see a dirt road that ended on the main highway and that led in an easterly direction. The dirt road was about 100 meters from the stop where I got off and I could see some houses in the distance along this road. I walked towards the dirt road and followed it to then approach one of the small houses, where I asked an old man if he knew the location of the school. He indicated that I had to follow the road I was on and I would find the school. He did not mention distance or anything that would help me in finding the school, thus, I assumed it would not be far. I started walking in an easterly direction and soon after, it started to rain. Fortunately, I was prepared for the wet and cold conditions expected on that latitude of the country by wearing appropriate attire. However, it seemed that the journey had not commenced well from the time that the bus broke down. I just hoped that I would be able to get to the school soon.

After a while, I came to a fork on the road. There were no houses or any signs which could show directions. I took a chance and veered left to where the road started to climb. I thought, at least from a high position, I would be able to see something. Fortunately, after a few minutes of walking in the new direction and once I had reached the top of the climb, I was able to see a few houses on top of a small hill. So, I headed towards them. As I got closer, I saw a small white van parked near the houses. As I got nearer, I saw a sign with the school’s name. The houses, as I found out later, were actually the classrooms and the white van, which I saw in the distance, was painted blue on the bottom half (refer to Figure 6.1). I thought that this may be the blue van that I was supposed to catch. However, I was puzzled, as I was instructed to look out for a blue van, as opposed to a white van.

Figure 6.1 - The School's 'Blue' Van

When I was nearing the buildings, a female came out from one of the buildings. I introduced myself. She introduced herself as the school Principal. She indicated that the van had been waiting for me. Somehow, she appeared to be annoyed that I was not on time to meet with the van. I explained the mechanical ordeal with the bus at the terminal and how I managed to get there on foot, albeit, I walked for just over an hour. I also pointed to the white van and asked, if that was the van that I was expected to catch. She replied that it was. I indicated that she had mentioned a blue van in her instructions email instructions and verbally when I confirmed my visit via telephone (refer Appendix 4). That seemed to change her perspective and showed surprised that I had walked four kilometres to get to the school. Once we got past this small misunderstanding, she turned out to be a very pleasant person, who was extremely eager to help and answer the questions that I put to her.

The School Surroundings and Infrastructure

Once we finished with the introductions and me describing in more detail the nature of my work, as well as, the intention to carry out some data collection at the school; the Principal proceeded to give me a tour of the school, which was comprised of three main buildings. Their structure had wooden exterior and interior walls, tin roofs painted in a shade of green and a light shade of beige colour was painted on the exterior walls. All the classrooms had windows, at least on one side of the room, and a wood heater. There was no playground as such, only a dirt area where the students could play (refer Figure 6.2).

Figure 6.2 – Playground

The buildings' structure and shape were similar to the type of school buildings and also some houses that you would see around the region (refer Figure 6.3), for example, rectangular with a tin roof, wood panel walls and chimney.

Figure 6.3 – Typical Construction of the School

There were three classrooms in total, two with concrete floors and one with wooden floors. None of the classrooms were adjoining to each other. Each of the classrooms were separate buildings, with the exception of a middle larger structure that contained a small office, a small classroom, storage room and the school's toilets. This last building had sustained damage as a result of the earthquake that struck on the 27th of February 2010 and which registered as an 8.8 on the Richter scale. As a result, the toilets were damaged and only one toilet was in a usable state and was being shared by all the students. It must be noted that the school, as with most properties in the area, was not connected to any sewage system, due to its rural location. The school Principal was quick to point out that since the earthquake, they had been waiting for the repairs to take place. However, these repairs had not yet been carried out by the local authorities.

History of the School and Its Challenges

The Interview with the School Principal

During course of the morning, a meeting was held with the school Principal. The meeting was informal and took place during a walk through the school grounds and the classrooms. It was during this time that I asked a number of open questions to facilitate a qualitative response.

Question: Tell me about the school, what category does it fall under, that is, Public or Private?

> **Answer (Principal):** The Escuela Basica School 1 is a private-subsidised school. This means that the students do not have to pay monthly or yearly fees as these are covered by the government subsidies. The school was established in 1982 and it is located 14 kilometres from the commune of Huampomallin.
>
> The lack of employment in this rural location has meant an exodus towards the centres of employment. Usually, the regional capital, Temuco or Santiago, the Chilean capital. Thus, the majority live with either their grandparents, aunts/uncles or other family members. These families are not often properly constituted and have issues of their own, which in turn, for the students, tends to generate problems of coexistence with teachers/students and or other people in general, adaptability and affection. Also, over 90% of the students are at what we consider at risk (refer Table 6.1).

The above response was similar to what was sighted in the document that described the school history and its present challenges. The document indicated that the majority of the students come from families who live in extreme poverty, who subsist on mono-agriculture and/or state subsides.

According to literature that had initially been shown to me and which was later provided to peruse, the data indicated that about 50% of students at the school

did not live with their parents. The document also contained more personal details, none of which were recorded, except the figures that appear in Table 1. With reference to the document I had sighted, the figures that are shown below depict the percentage of vulnerability of the students over a five-year period. These figures are related to the school and were used, as indicated by the Principal, to provide food rations to the students. The food rations are part of the government's program administered by the 'Junta Nacional de Auxilio Escolar y Becas' or JUNAEB for short (in English: National Council of School Support and Scholarships) in which students classified at risk are provide with food supplements, ranging from breakfast, morning tea, lunch, snacks and dinner (Junta Nacional de Auxilio Escolar y Becas 2017c). Therefore, the data presented in Table 6.1 is also an indicator for the government to provide the students with the necessary nutrition which is not being provided at the home.

Table 6.1 - Student's Vulnerability Index (%)

	2006	2007	2008	2009	2010
Vulnerability Index (%)	76.2	86.4	97.8	97.8	98.3

Adapted from an internal school document (Escuela Basica SM 2010).

Question: What are some of your other challenges?

Answer (Principal): In addition to the economic issues and fragmented families, the rural location impacts negatively the attendance of the students, thus, the school provides transport for the students, to pick up and drop off at the nearest regional bus stop. However, during Winter, it is a challenge to maintain average attendance. The students travel from two to twelve kilometres to reach the school, with an average of five kilometres.

Question: What happens after grade eight?

Answer (Principal): The students who finish grade eight need to continue onto their secondary education somewhere else. Either, CholChol or Temuco. But, it is predominantly Temuco, where students

have to enrol at a boarding school, due to its distance from their commune.

Question: How many students are currently enrolled?

Answer (Principal): At the moment, the school has 54[1] enrolled students.

Question: Are ICTs used in the Classroom?

Answer (Principal): We have a number of PCs in the classroom, although, there could be one that is not working. Apparently, it is infected.

We try to encourage that the teachers integrate ICTs in their lessons. Teachers source the material from many places and also from the MINEDUC. We have also Internet access, this is all part of the government's initiative to have all schools connected with equal access to the Internet.

At this point the interview is ended as I was told that she had other commitments to attend to.

Classroom Size

The Principal provided me with an overview of the school indicating that the school had 54 students, of which only two were not Mapuche. These two non-Mapuche students were the siblings of one of the teachers. The school had students from grade one to grade eight. The students were allocated to one room for the entire semester. This means that the students do not change rooms at the end of each period. Thus, the entire day is spent in the one room. In retrospect, this was similar to what I had experienced whilst in Primary school when I was living in Chile, where the entire school year was spent in the one room.

[1] Although, at a later point, I sighted a document showing 58 students enrolled at the school and which is reproduced below in Table 6.2 depicting the classroom sizes/breakdown. I did not ask or make a comment about this discrepancy to the Principal.

The school had three teachers to cater for the 54 students, whereby, combined grades were allocated to the available teachers. It must be noted that the school had only one Mapuche Teacher, she was a female Teacher who taught Grades 4, 5 and 6. The two other teachers were non-indigenous.

Table 6.2 provides the number of students enrolled at the school as at the 30 April 2010 and breaks these figures down by grade and classroom, therefore, we can see that the rooms have combined grades. This table also provides a projected enrolment for the following year, that is 2011. The projected enrolment was based on what the school envisaged would be the number of students progressing through to higher grades. However, there is a projected reduction in the number of students (from 2010 to 2011) as we can see below. I was not provided with a reason for this reduction.

Table 6.2 - Class Size Breakdown

Enrolments per Grade and Grades per Room, as at 30 Apr 2010			Projected Enrolments for 2011	
Grades	**Classroom**	**Number of Students**	**Classroom**	**Number of Students**
1	1	9	1	5
2		7		7
3		8		7
4	1	6	1	8
5		5		6
6		8		5
7	1	6	1	8
8		9		6
Total	**3**	**58**	**3**	**52**

Adopted from the school's enrolment records sighted (Escuela Basica SM 2010).

Classroom Layout

During the tour of the premises, I noticed that the three classrooms had computers in them. Two rooms had two PCs and one had only one PC. In two of the classrooms, the PCs were located to the back of the room, whereas in the classroom that housed the Grades 7 and 8, the PC was located on the left side of the room. There was also a printer available in this room (refer Figure

6.4). There was no computer laboratory or dedicated room for this purpose, as each of the rooms had one to two PCs.

The classrooms' layout was pretty much traditional, whereby, a blackboard or whiteboard was placed at the front of the room, the Teacher's table was either to the front right, the front left side of the room or the front middle of the room. There seemed to be no consistency with the location of the Teacher's desk (refer Figure 6.4). There was material posted on the walls of the rooms, such as maps or information posters. All of these items were in Spanish, in fact, I was not able to see any material in any of the rooms that was in a language other than Spanish. The only exception was a calendar, on the wall of the Grades 7 and 8 classroom and which contained, a picture that used the Mapuche flag's main symbol (refer to Figure 6.5 where the calendar has been circled to identify its location). Also, refer to Appendix 1 to view the flag, its main symbol and its meaning. The calendar sighted was the type that is usually given out by business to their customers and used to promote their business and products.

Figure 6.4 - Grades 7 and 8 Room

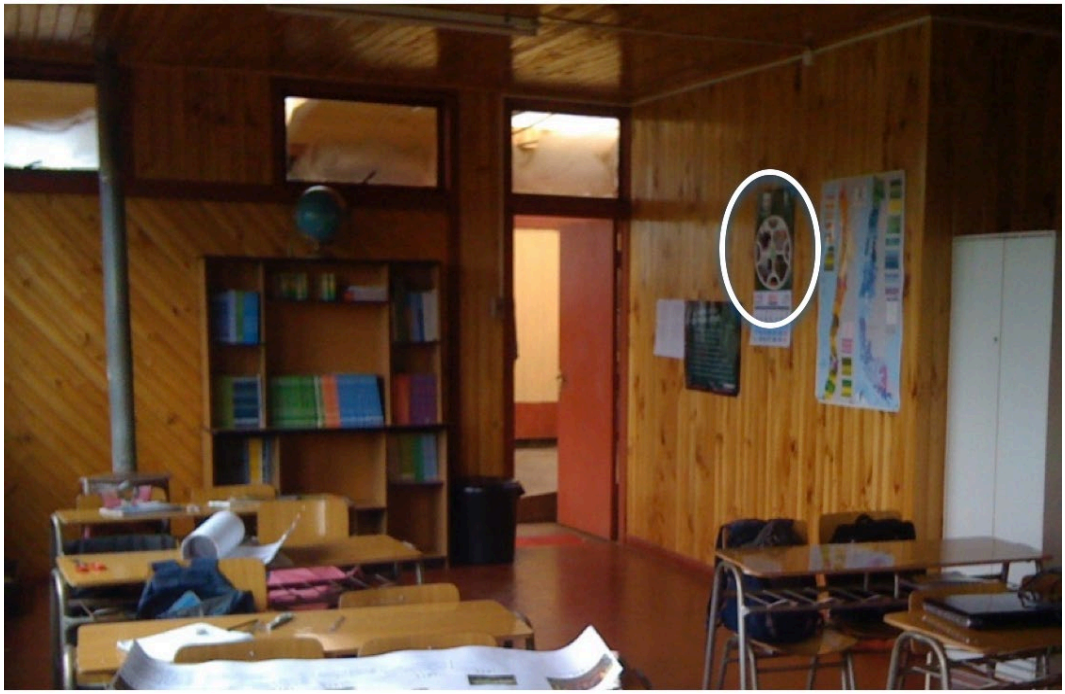


Figure 6.5 – Calendar

All the rooms had a log burning heater at the back of the room. Which would be assumed that the heaters were mainly used during Winter months. In Figure 6.5 the heater is located to the left of the bookshelf and so, it would be assumed that students seating closer to the heater would be warner when it was used in Winter.

The students used desks which were shared between two students. The chairs and tables were made of metal frames with wooden rests and seating. These appeared near new and were well maintained. The rooms were clean and orderly and seemed to have adequate natural and artificial light. However, none of the lights were turned on while the class was in progress. As a result, those sitting closers to the windows, had better light and some parts for the room did have darks spots and shadows, depending on the natural light coming from the outside. As seen in the pictures above, some desks were in darker spots than others and this was evident from their distance to the windows and electric lights not being turned on. I can only assume that electricity was an expensive overhead for the school. Both of the Figures (6.4 and 6.5) were taken some minutes apart (no flash was used) and the light difference is notable in both photographs.

Teaching with ICT

Introduction to the First Lesson

As part of the classroom observations, I requested to sit at the back of the classroom to witness how the class progressed and with emphasis on taking notes to capture relevant data whilst ICTs were being used during the lesson. The Principal took me to a classroom, where the Teacher had three grades in the one room, these were Grades 4, 5 and 6. I was introduced to the Teacher and students. The Principal gave a brief overview of my work. I also provided more details on the reason for my visit. I explained what I was going to be doing during the lessons, that is, observing how the lessons are conducted, so that I could explain on my work, how a typical lesson takes place in the school. I emphasised that I was particularly interested in how the students used ICTs during the lesson. Therefore, I would be observing this and taking notes. Finally, I indicated that at no time I would identify the teacher(s) or students by name. If photographs were taken of the school or equipment, no student would be captured in these images. I emphasised that I was not interested in identifying or singling out teachers or students. Finally, to make the experience as non-invasive as possible, I would sit quietly at the back of the room and so the focus remained on the Teacher during the lesson.

The latter explanation had already been provided to the school prior to my visit and thus, the staff where aware of my visit, purpose and approach to data collection, whereby, privacy would be maintained. They were agreeable to this and so they allowed me to visit the school.

The Teacher, Classroom and Lesson

The Teacher in charge of this class was named Iris, she indicated that she was a Mapuche Teacher. She was of indigenous descent, the same as the majority of the students in her class.

The class contained a total of 16 students in the room (refer Figure 6.6). Students ranged from Grade 4 to grade 6. The grade 4 students sat next to

the window and on the left side of the room (same side as the Teacher's location). The students shared desks, as these were tables designed to be used by two students. Each student had their own individual chair. The Grades 5 and 6 students sat together and were mixed. It appeared that the seating arrangement of this group was based on stablished friendships, as it was observed that during breaks that most of the students remained and played with the same groups. However, this was not explored further, and it is only an assumption.

The classroom is laid out in the classical manner, that is, blackboard at the front, Teacher sitting at the front. In this case, the Teacher sat at the front-left of the class and students sat in rows. In this classroom, six students sit in the front row, four students sit in the middle row and six, sit at the back of the room. There is a wood-fired heater at the back and two PCs are also at the back of the room, on the right side towards the back, the connection hardware is located, and the cabling appears exposed (refer Figure 6.7). The room feels cold (to me) and the heater is not on.

The Classroom Layout – Grades 4 to 6

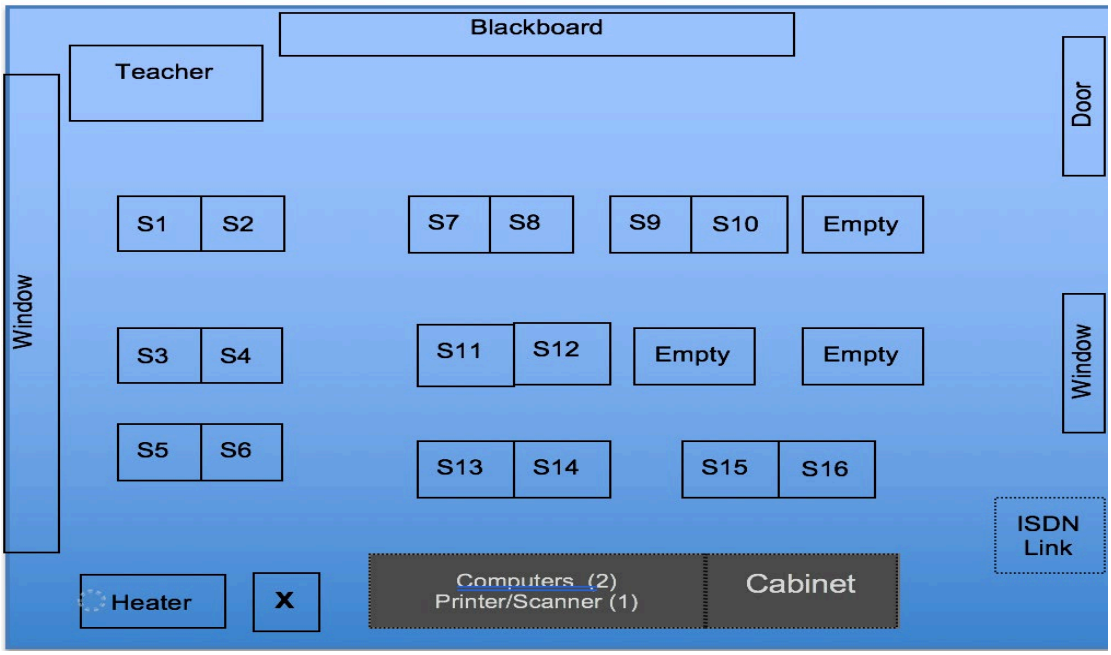


Figure 6.6 – Grades 4, 5 and 6 Classroom Arrangement

Note: I noticed three empty seats while the observations took place in this classroom. I can only assume that the three students were absent at this time. According to school records (see above), this class had 19 students.

Legend:

S	Students' seating position (from 1 to 16, as present during the lesson). S1 to S6 denotes the seating positions of the students from Grade 4. Grades 5 and 6 were seating in mixed positions S7 to S16.
X	My location while observing. It must be noted that in the observations performed in the other classroom, I always positioned myself at the back of the class and away from direct view of the students.

Figure 6.7 – Switch and Cabling

The lesson being taught was about the universe and the planets, as well as, natural sciences. As the Teacher progresses with the class, she explains that the following part of the lesson in an open text question/answer format. She writes questions on the blackboard and points out which questions are for Grades 4, 5 and 6 respectively. Thus, the blackboard ends up with a series of questions, each of which is marked to identify those applicable to each of the grades. The students appear comfortable with this approach and proceed as instructed, to copy these questions on their exercise books and then start to answer the questions.

The class is a bit noisy, as the students tend to talk during class. Three male students sitting at the front (refer Figure 6.6 above: S7, S8, S9) appear to be copying the answer from a female student (S12) sitting behind them in the second row. The female student does not seem perturbed by this and continues to answer the questions. In addition, there are some disagreements as to what the answer should be for a particular question and so this argument is being had between S7 and S8.

While some student from either Grade 5 or 6 are having difficulty answering the questions and or locating the answers in their textbooks. It is at this time that a couple of the students having difficulties, become aware of my presence and turn around to look at me, while I take notes and observe the proceedings. Perhaps, this is because they may have felt self-conscious about the fact that they were having difficulty with their answers. I do not make eye contact, so that they do not feel any pressure or that I have noticed their difficulties.

The students from the lower grade, who sat by the windows (Grade 4), work diligently and quietly. Although, they still talk during class, these students appear better behaved and do not seem to talk as much as the older students. For example, once the Teacher starts asking question to either Grade 5 or 6; the Grade 4 students, engage in talking amongst themselves. When this occurs, the class appears disorganised or disinterested on the subject being taught. The reason for this is not clear but I can only infer that this behaviour may stem the fact that the focus is on a subject relevant to Grades 5 and 6 and so, the Grade 4 students lose focus. Another, likely reason may be the lack of control by the Teacher, given the number of student or a combination of these or other factors that have being normalised over time.

After some time has elapsed, the Teacher starts asking the students what they have answered to the first questions on the board. While some of the students answer the questions, other students talk amongst themselves. I can hear that those talking are not discussing the subject of the lesson. The class becomes noisy and begins to look disorganised again. Shortly afterwards, the Teacher

calls a small 5-minute break and the students take the time to go to the toilets then return to the classroom.

The Use of ICTs During a Lesson

When the exercise of answering the questions was completed, the Teacher proceeds to the back of the classroom and switches on, one of the computers. She leaves the machine to boot up and goes back to the front of the classroom. She then starts asking questions about the solar system to students S1 to S6 (lower grades). These students, in contrast to the higher grades, are very attentive and eager to answer the questions. Most raise their hands to give a response. During this time, some of higher-grade students are talking amongst themselves, while others are reading their textbooks.

I did note that while the Grade 4 students provided their responses, some of these students turned their heads to take a brief look at me sitting at the back, as if I had captured their correct answers.

The Teacher finishes with the set of questions and indicates that she is happy with the answers provided by the 4th graders. She then proceeds to write more questions on the blackboard for the Grade 4 students. When she finishes, she goes back to the PC she switched on. She loads a CD and performs some sort of a set up. While she does this, students chatter amongst themselves. It particularly caught my attention to see students S2 and S5 perusing a cartoon magazine.

The Teacher finishes setting up the CD and has loaded a lesson on the solar system. I ask the teacher about the origin of this material. The Teacher indicates that this is supplied by the MINEDUC.

I decide to take a photograph of the introduction screen of this application, as it appeared on the screen. The main screen of the application appears to indicate that it is an astronomy lesson or related to our Solar system as it depicts a picture of an eclipse (refer Figure 6.8). The same application was

used during the lessons involving the planets in the Solar system and simulating a Lunar eclipse.

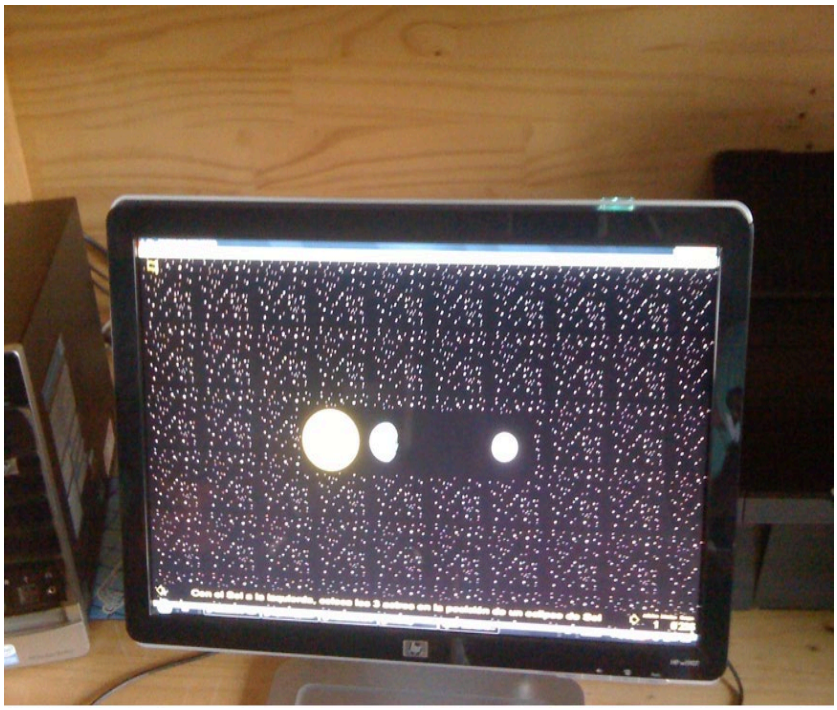


Figure 6.8 – Astronomy Software

The Aim of the Exercise

The Teacher tells the students that they will have the chance to work on the PC and attempt to complete the exercises that she has set up on the PC.
She asks the Grades 4 and 5 students to go to the PC and work in groups to solve a problem. All of the Grade 4 students raise their hands to volunteer or be the first group. Although, this was not necessary, as per the Teacher's instructions, which required the students to sort themselves in groups of three to solve a problem using the PC.

The Teacher explains that the lesson on the PC is about the solar system. The sun is clearly seen as the main object on the screen and it is labelled as the Sun (in Spanish: Sol). The planets on the screen are not in the order that these are in terms of distance from the Sun. Therefore, aim of the exercise is to use the mouse, click and drag the planets into the correct order/position, from closest to furthest from the Sun.

Most of the students sorted themselves into groups two or three. Although, the teacher had instructed the students to work in groups, I do not recall her saying how many students per group. However, it seemed that that students were used to this and they formed into groups with no direction at all from the teacher. Thus, two to three students would share the one PC to work on getting the correct answer. This was somewhat difficult, as only one student could sit down at any one time and take command of the mouse to click and drag an icon into the correct position. Since there were no instructions on how the students could take turns or share the tasks, the students make their own rules on how to complete the exercise. The first group that was observed, was from the Grade 5, it had a girl sitting on the chair and in control of the mouse. She was dragging planets into position, while a second student pointed out, on the screen the position where it should be placed in relation to the Sun. The third student limited himself to providing verbal cues. Once the planets were in place. The program indicated that the exercise was completed. The program was reset, and the next group took their turn. The rest of the students gathered around to watch. In total, there are ten students gathered around one PC.

The second group, unlike the first one, proceeded to take turns with the mouse. However, they all cooperated with each other, by indicating the correct order. After the second group was done. The following groups continued with the exercise. However, this time it was easier for them as they had already seen the correct order by observing the previous group complete their exercise. All the students observed from Grade 5 appeared comfortable and adept in using the mouse. All the students from this group were right-handed. The mouse was set up for right handed users and I do not know how a student would have used the mouse in this case. I did not ask the Teacher how she would deal with this situation, if it arose.

Once the Grade 5 class had completed their work, it was the turn of the Grade 4 students. While this is happening, the Teacher is conducting a lesson on the blackboard for the Grade 6 students.

While observing the Grade 4 students work on the PC, it was evident that they had difficulty in handling the mouse. It was observed that it was a challenge to move the mouse accurately around the screen, as well as, clicking and dragging an icon into position. Some of the students knew the correct position of some of the planets. But in most cases, the older students were directing the younger ones as to the correct position of the planets. It seemed that for the younger students, this was more of an exercise in getting adept on using the mouse, as much as, getting to learn the correct position of the planets on the solar system. Within the Grade 4 students, they all shared the mouse and the same difficulty in using the mouse was noted.

Towards the end of the exercise by the Grade 4 students, some of the Grade 5 students had lost interest and had started to talk amongst themselves, while a couple had returned to their desks. Once all of the Grade 4 students had completed their task, they told the Teacher and she instructs them to return to their desks. Shortly after, the lesson is ended (end of the period) and the students have a break, it is 10.15 hrs and a morning break (15 minutes) is given to the students. However, some older students (from Grade 5 and 6, six in total) have gone back to the PC at the back, apparently, to continue trying out the same exercise. But the Teacher urges them to leave the room and have a break, which they do and leave the room.

Initial Brief Interview with the Teacher

After the students had gone on a break, I decided to ask the Teacher some question on what I had observed.

Question: I notice only one PC being used in your classroom, is there a reason for this?

> **Answer (Teacher):** As you saw, there is a problem with the number of students using one PC. To make matters worse, the other PC has been having issues and it seems that it has been infected. It runs slow and so, we prefer to limit its use.

Question: How do you find using ICTs in your classroom?

Answer (Teacher): It is useful, and the students want to get involved. However, in the school we've had issues with the PCs. For example, one has been infected by a virus of some sort and has not been used for four months. Another PC has been having connection issues. In fact, it has not been able to connect to the Internet. I cannot recall how long this has been an issue. I have one that runs slow and seems be also infected. Also, we have one PC which is not connected to the Internet. But this is intended, at least, to preserve one machine from getting infected.

Question: How do you connect to the Internet?

Answer (Teacher): We have a Wi-Fi connection; the PCs and connection are part of the 'Enlaces' program. Having Wi-Fi enables us to connect our notebooks and access the Internet. However, we have issues in getting computer problems fixed (she means hardware problems).

Question: What sort of issues, can you explain?

Answer (Teacher): The school PCs are maintained by people from the 'Enlaces' program[2]. But as I said, we've had machines not working for a while now. They (the 'Enlaces' support people) used to visit the school once a month. Now, they have not been around for over three months.

Question: Apart from computer issues, do you have any other challenges?

Answer (Teacher): As you saw during the class, it can get noisy and students lose interest. Having three grades in the one classroom tends to slow the teaching/learning process. Students get distracted and most often, we struggle to cover all the material and students will fall behind. Having few PCs has the same effect, as some exercises can take longer in getting everyone to have a chance to have a go with the PC. You saw this during the lesson.

[2] These are university students who perform a support role, as well as, getting hands-on experience.

Question: What did you mean by ‘struggle to cover all the material’?

> **Answer (Teacher):** What I meant is that we (Teachers) also fall behind in trying to meet the curriculum expectations by the set dates and we find that we, on many occasions have to rush through some portions of the curriculum. We all have the same problem here.

The interview is finished by the Teacher, who indicated that she needed to load another program on the PC and get it ready for the next lesson.

Create an Eclipse Using a PC

Once the students had returned from their break and were seated on their desks, the Teacher proceeded to explain the next part of the lesson. She was going to continue with the same theme, the Solar System. It would also involve a question/answer exercise and then one simple exercise on the PC.

Similarly, to the previous lesson, she began by writing question on the blackboard and marked them to indicate which where applicable to each of the grades. In general, these were simple questions about the Moon, the Sun, the Earth and, as well as asking, what an eclipse was.

The students, this time, were quick to get on with the lesson, wrote the questions quickly and started to find the answers in their textbooks. However, during this latter part, the older students tended to talk amongst them once again. The Grade 4 students were generally quiet. The Teacher sat on her desk and left the students to get on with their work.

After a few minutes had passed, the Teacher observed the students and assumed that most had already finished. Which was probably correct, judging by the increasing chatter in the classroom.

The Teacher starts by asking for the answers, the students raise their hands and most provide correct answers, others provide answers but lack enough details and the Teacher adds the rest of the information. After a while, three

female students from the higher grades seem to have taken control and grab all the attention. They consistently provide the correct answers and continue to do so for the rest of the remaining questions. Once this part of the lesson was completed, it was time for the PC exercise. Again, this only involved the Grades 4 and 5. I can only assume that the Grade 6 students would have another opportunity during other lessons. The current set up, that is one PC, seemed not to lend itself to have different exercises targeted at different levels of understanding/knowledge by using one PC only during the same lesson.

The Teacher gave similar instructions as before; the students had to work in groups, this time it was not to solve a problem but to move an icon on the screen (the Moon behind the Earth), to create a lunar eclipse. She indicated that it was helpful to move it slowly to simulate and see the different stages of the eclipse on the screen. There was no right or wrong answer.

Again, the Grade 5 students took their turn. This time, however, the females of this group took a more active role. They positioned themselves first on the PC and one of them started to move the Moon icon around to recreate on the screen a Lunar eclipse, the other students were watching and commenting. The next girl sat down next and proceeded to do the same. She was also very adept with the mouse and knew what she needed to do. This was a much simpler exercise and appeared to lend itself for every one of the students to have a turn.

Once all of the Grade 5 students had completed this, it was time for the Grade 4 students. Unlike the previous exercise, they had less difficulty in moving the moon icon around the screen. The icons were bigger in comparison to those on the Solar System exercise (refer Figure 6.8, where the main screen of the application is the same as the screen that was being used for this exercise). They each took a turn, some longer that others, but only because they kept on moving the icon back and forth to see the different shades that of the eclipse.

Although the exercise was simple compared to the previous, it seemed to be designed to see the different stages of the eclipse. There were no words

displayed on the screen to discuss the stages of a Lunar eclipse, so that the students could get a better understanding. Nor were there any further instructions by the Teacher. She was focused on the Grade 6 students and thus, the Grades 4 and 5 were left to fend for themselves. Thus, it seems that the only lessons learned by these students was to move and drag the Moon icon across the screen to observe the shadows/progression of the eclipse. I can only assume that it may have also been interesting for those students who may have never seen a lunar eclipse before.

The Discovery of America Lesson

The Grades 4 to 6 were observed for a third time during a lesson in which ICTs were going to be used. During this lesson, as the Teacher explained, she was going to be talking about the discovery of America[3]. She warns the students from Grades 5 to 6, to put attention to what she is going to be talking about, as they will have to complete an exercise on the PCs that require knowledge on the discovery of America.

The Lesson About Columbus' Discovery

She starts lesson by giving a few facts about the time of Columbus. She indicates that during this time, many people thought that the earth was flat, that travelling over the horizon would mean falling over the edge. She proceeds to explain how Columbus did not believe this and approached the King and Queen of Spain to ask them to finance the trip on the idea that he could find a shorter westerly route to India. At this point, the pauses and asks the classroom to name the three ships that Columbus used to sail to America. All of students raise their hands, she picks a student at random, who then gives the correct answer (the three caravels were named the 'Pinta', the 'Niña' and the 'Santa Maria'). She continues with the lesson talking about the place that

[3] In most of South America, the name 'America' or 'Americas' is used to refer to the whole of the American continent. As opposed to the use of the name, to only refer to the United States of America. The latter use of the name is seen, by some Latin Americans, as insulting as it has taken away the name to only mean or refer to one country alone and negates the use of it to the rest of the countries in the continent to the south of the Rio Grande.

Columbus departed from and the total number of trips he made. Finally, she makes another pause and ask one final question, (turns out be two questions in one). She asks, on what date was land sighted, which is the 'date that we consider as the date our continent was discovered and who sighted land first?'. Not all the students put their hands up. She picks one student with the hand for the date, who then gets the year wrong. She picks another who gets it right (that is, 12 October 1492). None of the students knew the name of the sailor credited with first sighting land. Therefore, she mentions that the person's name was Rodrigo de Triana.

Once she had completed her part, she proceeded to the back of the room, turned both PCs[4] on (including the machine that had not been used in previous lesson, which supposedly was infected). She runs a program on both machines and both were ready to be used, both had the same screen (initial program screen). She then proceeded to give instructions to the students. She indicated that they could work in groups. The program was about the same subject, that is, the discovery of America. There were many questions (10 in total) that the students were required to complete, using a true or false answer (radio button next or below each question). Once all the questions were answered, the students were to click a completion button on the screen to complete the exercise. Once the completion button was clicked, they would be given a score based on their performance. The program would then highlight the questions with the wrong answer, so that the students could identify where they had gone wrong. The program did allow for changes to the answer, but it did not allow to change the answers, once the completion button had been clicked. Once a group had completed reviewing their scores and performance, they were expected to refresh the program, so that the next lot of students could begin their turn in tackling the questions. Finally, the Teacher suggests that they work in groups of two. Once the instructions were understood, the students moved themselves to the back of the class and grab a PC and the Teacher concentrated on working with the lower grade students.

[4] Both PCs had a floppy and CD ROM, one is fitted with external speakers. Operating system on these machines is Windows XP.

Initially, there was a preference for the PC in better working order, this was evident by the first two groups hassling to get on that particular PC first. For the purposes of this observation and given that the PCs were not labelled or numbered, I will proceed to refer to this working PC as ‘PC1’ and the other, supposedly infected PC, as ‘PC2’.

Given that the students were working in groups of two, this time both students shared the same sit (that is, two sitting on one chair at the same time). I was not able to notice any hierarchy being displayed around who would be in charge of the mouse to click on the true or false answers. This seemed, very much like a team effort and no discord was noted within the two initial groups.

It was evident that more care and discussion was taken around each of the questions on the screen. Since the PCs were close to where I was seated, I could see that some of the questions being displayed were part of the lesson that the Teacher had imparted earlier. It gave me the impression that the Teacher had prepared the lesson well to coordinate with the program now being used by the students.

The two students seating on PC1 completed their exercise first and proceeded to click on the complete button. The program responded quickly and gave them a score based on the number of correct questions, this group managed to get most answers correct and only a couple of questions were highlighted and which they reviewed and acknowledged. Once they were done, they reset the program. What this appear to do was generate a new set of questions. The program was better designed, so that the next group of students could not just proceed to answer the same questions as the previous group.

The students on PC2, having noticed that those on PC1 had already completed their exercise, started to complain about their PC being slow. I did pay attention to the PC2 and could see the long delays between selecting an answer and continuing with the next set of questions, usually about two to three questions per screen. One of the students on PC2 commented ‘this PC has too many viruses’. The next two students sit down on PC1. However, I decided to

continue watching the progress on PC2. The machine appeared to freeze at times, perhaps by the incessant clicking on the mouse by the student, who may have thought that this would speed things up. By the time that they had completed their exercise (clicked on the complete button), I could see that the students on PC1 were already progressing well. After PC2 came back with the scores, the students had done rather well. One wrong answer, which they reviewed quickly, pressed the reset button and left the machine for the next group.

At this point and given that those on PC1 had not yet finished, there was hesitation for the next group to sit on PC2. There was a bit of noise and a bit of pushing going on by some students urging those in front to sit on PC2. The Teacher, who was continuing with a lesson for the Grade 4 students, picked up on this and gave an order for the next group to take PC2. Two more students moved forward and sat in front of PC2 and got started. I must add, that again, I did not hear, from this group, any arguments around who would use the mouse. They proceeded in the same fashion as the previous two students, only this time, they were immediately complaining about the performance on PC2.

I continued watching the students tackling the exercise, it was evident that nobody wanted to use PC2 but had to if the PC was vacant. I was not concerned with the scores the students were getting. These seemed satisfactory. I was more interested on their use of the technology to complete a task or tasks. However, there were two groups who got perfect scores, one had used PC1 and the other PC2. On both occasions, the two students cheered and seemed very happy to have gotten all correct answers.

In summary, this lesson where ICTs were used, appeared to be better prepared. The contents of the lesson by the Teacher did correlate with questions on the PCs. The students had retained the information and were able to provide, in most occasions, the correct answers.

The students had expectation in terms of performance of the PCs. This was evident by their complaining and reluctance to use PC2. Despite, PC2 not performing (as PC1), the students were still eager to use the technology.

The students had no issues in moving around the screens or clicking on the answers (true or false). They seemed very adept on the use of this type of program and the mouse. They were very coordinated in using the mouse. I could not detect that these students hesitated to interact with the technology, as it was seen with the Grade 4 students.

The Grades 7 and 8 Students

The next lesson that was observed where ICTs were going to be used was the classroom that had the Grades 7 and 8. For the Grade 8 students, this would be their last year at the school. Once they pass this grade, they progress to secondary school and as indicated earlier by the Principal, most likely would enrol at a boarding school in CholChol or Temuco due to the distance from their commune.

Grades 7 & 8 Teacher – The Interview

Prior to commencing the lesson, I interviewed the Teacher, whose name was Eugenia. The following are the questions put to her and the subsequent responses.

Question: Can you tell me what type of ICT equipment is available for use with the Grades 7 and 8 students?

> **Answer (Teacher):** At the moment, we have a PC with Windows XP (HP Compaq, with floppy and DC ROM), this machine is too old and is not connected to the Internet. We also have a printer (band/ribbon), a projector[5], a screen to project unto, a radio cassette player, a laptop (HP with AMD chipset, CD ROM and Windows Vista) and a set of

[5] I did not see the projector in the classroom or any other room in the school.

speakers that we can set up with the laptop or the PC. The laptop is can connect to the Internet.

Question: How are these items used in the classroom?

Answer (Teacher): Most of the time the PC and laptop are used. The PC is mainly used by students to access material on folders, print some material and read some lessons that are stored in folders that have been created for this purpose. They know where they have to navigate to in the PC. The laptop is also used to watch videos and the like. It is easier with the laptop, as we can place it in the middle of the room and the students can sit closer to watch. The students share the laptop to access the Internet or can also ask for permission to use a PC in another classroom.

We have not used the radio cassette much at all and the projector is also rarely used. It is easier to get lessons and material that can be used and displayed on the PC or laptop. I prepare most of my work for the lessons on the laptop and store material for the students in the folders in the PC.

Question: How do the students react or respond when using ICTs during a lesson?

Answer (Teacher): They seem to like it. It is better to give the students a richer and varied approach to learning and gives them more confidence, for example, in having to go for themselves and find the information. They enjoy using the PC. Most don't have one at home and so, here is the only chance to do so. Also, I must add, I have three students that have their own laptops[6].

[6] I only recall seeing one laptop on a desk that belonged to a student who sat at the front of the class and who later used it during class.

Question: Did their parents buy them the laptops?

Answer (Teacher): No, these were 'regalos' (as she referred to in Spanish, meaning 'gifts' in English). These were given by the JUNAEB based on their academic performance.

Question: And how do they use the laptops in the classroom? What do they use them for?

Answer (Teacher): They can copy from the folders in the PC and take the material home, whereas other students need to print some of it, or copy what they can on their exercise books. Also, they can write and hand over work to me in digital format. These are easier for me to correct. They seem to have made good use of the laptops.

Question: And what do you think is the impact on those students who don't have a laptop?

Answer (Teacher): Well, some will always struggle, but we hope that getting a laptop through high grades will motivate students to do better. We have two and possible three who are likely to benefit from the JUNAEB program for next year's Grade 8. Other than that, yes, I think that there is an impact because those with the laptops can hand in better quality work, as they have more time at home to continue with their work on the laptops. The other students have to share the PCs to write on the folders but most of the time, their work is handwritten.

Question: Can you tell me about the students' situation, that is, family, socially?

Answer (Teacher): Most of the students live with grandparents or single mothers. Some of their guardians cannot read or write, some have not finished basic education and only some have finished secondary education, but this is a small number.

Question: Do the student speak their native language?

Answer (Teacher): No, very few speak Mapudungun. In fact, students seem somewhat ashamed to speak their native language. The

Mapuche traditions are being lost. These are only observed during celebrations, some of which take place once a year, while other take place every four years.

Question: What is your lesson about today?

Answer (Teacher): The subject is Chilean History.

Question: How is the lesson structured or, how will you use ICTs?

Answer (Teacher): I will start in the traditional format, where I will talk about particular events of our history, then I will run a lesson provided by EDUCARCHILE, this is on their website. The students will watch and listen to the rest of the lesson on the laptop.

The interview is ended as the students are back from a break and the class had to start soon.

The Lesson – History of Chile Using ICT

Once all the students are seated[7], the Teacher goes over the subject of today's lesson. Then she proceeds to go over the material, most of this material has been memorised, as she paces between the rows of desks as she is imparting the lesson. After some minutes of this, she approaches the laptop (which was on) and opens a folder, where apparently the class material is located. She continues to talk about the history of Chile, while she is performing this task on the laptop. Once the file is opened, she continues to read cues from the screen.

Once she finished talking about Chile's history, she pointed to two students and asks them to go to the laptop and open the Internet browser. One of the students takes the mouse and immediately clicks on Firefox (the open-source web browser by Mozilla). There was no hesitation on the student's part to perform this action. Once the browser loaded, the Teacher instructs the

[7] I counted thirteen students in the class. However, according to enrolment records sighted, there should have been fifteen students in this class. I can only assume these students were absent on the day.

student to go to the EDUCARCHILE site. It must be noted that the other student who was picked by the Teacher, was standing next to the other student in command of the mouse. The site was saved as a favourite, as the student did not type the address and just clicked on the top ribbon.

At this point, the machine starts to automatically go through software updates. I noted a Windows update and a JAVA update but there were other updates taking place that I could not clearly see from my position. After approximately, five minutes, the machine rebooted and goes back to the start-up/log in screen. The student logs in and the main windows home screen is once again displayed. It seems that the machine did not have a password, or everyone did have access to the machine, as the student was able log in. Also, the student appeared comfortable with the process of updating the machine.

Once again, the student proceeds to the EDUCARCHILE site, she opens a program that the Teacher instructed her to open. The student then starts the program. Apparently, it is an audio-visual material, as the students complained that they could not hear anything. The student pauses the program and without instruction, student walks out of the room and comes back in about minute or so with another set of speakers. Probably sourced from another classroom. He installs removes the non-working speakers and connects the other ones. The student was quite adept at changing the speakers and seemed that this had been done before.

The lesson is restarted, the students come closer to watch and listen to the lesson being played on the laptop. After some minutes, the audio-visual ends and the program displays a screen with text. The Teacher asks one of the students to read the text on the screen aloud, so that everyone can hear. This student happens to be almost at the back of the group but has not approached the location of the laptop to be closer. Thus, the student complains that he is having difficulty in reading the text on the screen. The ‘letters are too small’, he adds. The Teacher tells him to get closer to the laptop, which he does and continues until the Teacher, using the trackpad on the laptop, moves to the next screen and asks another student to continue reading. At this point, she

reprimands two students who have written something on a piece of paper, which she takes away. I personally could not see the actual text, nor did I ask later about this incident.

The lesson continues with students taking turn to read the material, whilst the Teacher has gone to the whiteboard, where she writes incomplete sentences related to the lesson. I notice that the two students that had the piece of paper confiscated by the Teacher, are now chatting and not paying too much attention to what is being read. The Teacher does not pick up on this. Soon after the lesson on the laptop concludes. The students tell the Teacher that it has finished. The Teacher asks the student to retake their positions for the next part of the lesson.

The Teacher tells the students that they will need to fill in the gaps on the sentences she has written on the board. The answers were provided by the material she went through early in the class and the lesson on the laptop. So, she hopes that they had payed attention. She starts picking students to go to the board and complete a part of the sentence. These students are helped by the rest of the class who give clues to the correct words to complete the sentences. And so, it continues until the sentences are complete to the satisfaction of the Teacher. However, for some unknown reason, the two students who were reprimanded earlier did not get picked. I was expecting that the Teacher would have done this to drive home the necessity to pay attention during class. Notwithstanding, these two students did participate in giving clues to those in front.

There is still some time left for this period, thus, the Teacher approached the laptop and attempts to run a program. It is in fact a video saved on the laptop. The video has issues in getting started, it appears that either the machine or the video has frozen. After some seconds, the machine displays a message (which I cannot read). The Teacher indicates that the machine has no ‘capacity’ to run this program. She closes the screen message and the video is not played. However, she seems to be in control of the machine once again (not frozen). Therefore, she goes back to the previous screens that the

students were reading from (MINEDUC site). She continues to read the text from these screens. However, she pauses every now and then to provide some extra information or comments, to reinforce the material. Once she completes reading the screens, she indicates that the lesson is over. She asks a student 'come over and shut down the laptop'. She gets ups and gives an overview of the next lesson (apparently, the next day's lesson).

The student who was asked to shut down the laptop knows exactly what to do. She closes the browser and any other program running and proceeds to shut down the laptop. Once this is done, she disconnects the speakers and tells the student who picked these to return them. Which he does.
The lesson is over.

In summary, this lesson ran into a few issues given that the machine had gone into a software upgrade, then the speakers did not work, and another set was sourced from another room.

It was interesting to see the Teacher giving the students command of the laptop during the software update, loading the lesson (via the browser) and shutting down the laptop. The students seemed comfortable with this and appeared adept in the use and understanding of the technology.

As with the other lessons observed thus far, this lesson was also in Spanish. Midway through the lesson, some students were required to read from the screen on the laptop. This was followed by an exercise, which required the students to fill the missing words on the board. This particular part of lesson seemed (to me) as a test of memory that was reinforced with the use of ICTs. It must be mentioned that the Teacher was prepared for the lesson, as the sentences she wrote on the board related to the material she covered earlier and to that which was being viewed on the laptop.

Finally, I did not ask what the final video was about. This the video which did not run on the laptop. However, it seemed that there was an issue with either the software, hardware or both.

Grades 1, 2 and 3

The next observation that took place, involved the Grades 1 to 3 classroom. According to school enrolment records sighted, there were 24 students in this class. However, at the time of data collection, only 21 students were present. The Teacher's name was Leonor. The room in which she taught was similar to the other rooms, neither the heater nor the lights were on during my observation.

The room contained a PC (HP Compaq), a printer/scanner (Epson Laser) and some printing paper was available for use (refer Figure 6.9). There was also a TV and a DVD player on an adjacent desk (refer to 6.10).

Figure 6.9 - Computer Equipment

Interview – The First Graders' Teacher

Question: Do you use ICTs during class and how?

Answer (Teacher): I do not use too much ICTs to teach my students. I have a TV and DVD player that I use to show documentaries or other education material suitable for the general age group.

Question: Where do you get this material (DVDs) from?

Answer (Teacher): These are provided by the government.

Question: In which language is this material?

Answer (Teacher): Always in Spanish.

Question: Referring back to my first question, do you use a PC or laptop to teach your students? You only mentioned the TV and DVD.

Answer (Teacher): Yes, the PC, I have one in the class. I also use the printer to sometimes print exercises for the kids. Things like join the dots (in numerical order), to pictures to colour in and so on*.

*Refer Figures 6.11 to 6.13 where the some of the work completed by the students is shown.

Question: But, do the students have any interaction with the PC?

Answer (Teacher): Very little. I have the largest class and cannot devote too much time on the basics. Most of the time, I give them similar exercises in which they take turns to play moving the mouse around the screen.

Question: What is the next lesson about and will you be using ICTs?

Answer (Teacher): I will be covering culture – Chilean culture. Followed by comprehension. For this, I will not use the computer or TV.

The interview terminates, as the Teacher had to prepare for the class to start.

ICT in the Classroom – TV, DV, Computer and Printer

Figure 6.10 provides a pictorial view of the equipment that was available in the classroom for the Grades 1, 2 and 3 and which was used during lessons. However, the TV was not used during the lessons I observed.

Figure 6.10 – Grades 1, 2 and 3 – ICTs Available to the Students

The Lesson on Culture and Comprehension

The Teacher tells starts the lesson by telling students that today, they will learn about the Chilean culture. She proceeds to the blackboard and writes 'Cultura Chilena'. The students listen attentively as she explains and gives them examples what customs can be. For example, a type of dress worn by women or hat worn by men, a greeting, a dance and so on. Apparently, this lesson involves all the three grades as she does not mention that there will be separate exercise for each of the grades. She then asks the students, what they do after school.

The students raise their hands and provide answers such as; read, eat, rest, play, gather wood. She then tells them that unlike customs, these are everyday actions or chores and do not necessarily represent a custom.

The Teacher goes through a series of traditional Chilean customs, such as the national dance, the Chilean version of a rodeo, a country horse race (a horse race between two riders, riding bareback and barefooted, the race is on a straight-line course, as opposed to a circuit). Some students also give some examples, of what I later learned, were in reference to the traditional Mapuche dance. As such, one student added 'Choike' and another mentioned the 'Choike Purun'[8].

Once the Teacher had talked about customs and the students seemed to understand this, she asked them to draw a typical 'Fiesta traditional Chilena' (in English: 'Traditional Chilean festivity'). She gives the students some pointers and indicates that a traditional 'fiesta' can be similar to those during the Independence Day celebration, dancing the 'cueca' (Chile's national dance) or drinking wine or chicha. It is customary during the national day celebrations to drink a glass of red wine and eat an 'empanada' which is a type of meat pie. Chicha is a fermented drink which is also drunk during these festivities.

The students spend a reasonable time with their drawings. However, some do not finish them, as the Teacher gives them another exercise. She first tells them that they can complete the drawing at home and colour it. This will be part of their homework.

As part the new exercise, the Teacher tells them that they will need to identify technical objects. To do this, they need to first draw and old object, animal and so on. Then they will have to draw the new object that replaced the old. She starts off with an example, she draws an old wash basin, then draws a washing machine. She then draws a horse, then a car.

She asks them if they understand what is needed. The students assert that they do in unison and get on with the task. Again, this involved the three

[8] To clarify this further I asked the teacher, once the class was over, about the meaning of these words. She indicated that 'Choike' is the name of a traditional Mapuche dance. The word 'Purun' in Mapudungun means 'dance'. Hence, Choike Purun or the Choike dance.

grades. During this exercise, some students chat amongst themselves. It sounds that they are getting ideas from each other.

The Teacher asks if the students have finished. They are almost done. She gives them a few more minutes to complete the exercise. In the meantime, the Teacher proceeds to a cabinet/shelf located at the back of the classroom. She picks a few exercise books and start handing them out. I realise that these books belong to the students, as she is reading the names on the cover and proceeds to put it on the desk of the respective student. These exercise books were only for the Grade 1 students. The Grade 2 and 3 students do not get one.

The students have completed their drawing. The Teacher walks around the room checking their drawings and giving them positive feedback and collects their work and puts it on her desk. She then directs her attention to the Grade 1 students, those that have received their exercise books. She tells them to continue, where they left off last time. She tells them to raise their hands if they need help of get stuck. She also points to the wall where there A4 sheets with numbers from 0 to 9 and the alphabet and tells them to remember those. While the Grade 1 students continue with their work.

In the meantime, the Teacher addresses the Grade 2 and 3 students. She starts by giving them some writing exercises first, which require the use of verbs in their different tenses (e.g. past, present, future). She writes the verbs on the blackboard. She then proceeds to write some math exercised on the board. She then tells them that they must also complete these exercises once they have finished with the verbs. She tells them that she will collect this for correction. The students get on with their work.

The Teacher proceeds to checks on the Grade 1 students, who are busy with their work. I can see that they are, not only completing exercises that require basic knowledge of numbers, but they also colour some of the pictures on the

book. The Teacher spends some the rest of the time with the Grade 1 students by walking around and checking their progress.

The period is almost finished, the Teacher approaches me and starts a conversation and tells me, that this is how the class usually progresses. She tells me how difficult it is to teach three levels at once. She adds that she needs to make certain lessons almost generic, so that all grades can have an input and benefit somehow. We are suddenly interrupted by a student, I think he may have been from Grade 2. He asks the Teacher about the PC and wants to know about the different 'parts' of the machine. The Teacher smiles at me and proceeds to name the different components, such as the mouse, which 'you know what it does', she adds. Then she starts with the talking about the DVD drive and mentions that before, machines only had floppy drives. She then shows the cables and connections to the modem and explains that these are necessary to connect to the Internet. The talk is then interrupted as the period ends.

Exercises Completed by Students from Grade 1

Figures 6.11, 6.12 and 6.13 were seen hanging on the walls of the classroom. These were the work completed by the smaller grades and was displayed to show their proficiency and quality of the work. These pieces ranged from alphabetical exercises to numerical exercises.

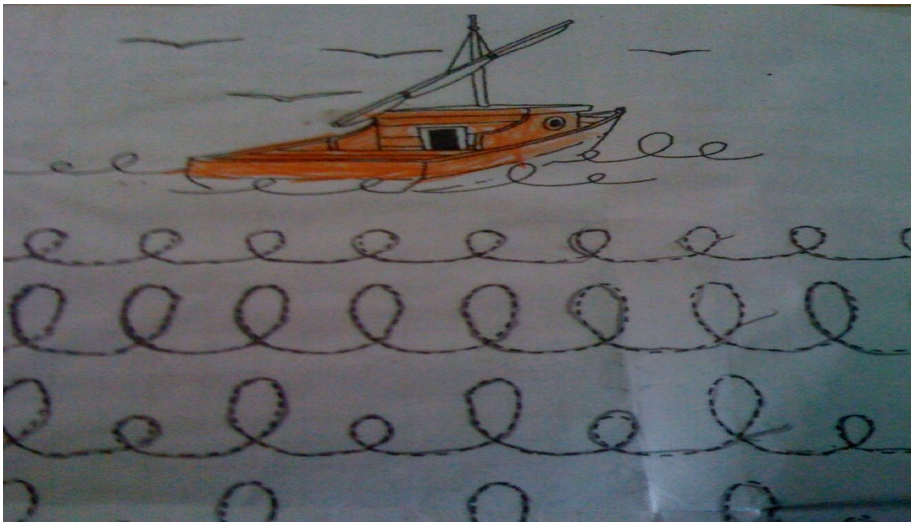


Figure 6.11 - The Waves - Letters L and E (lower case)

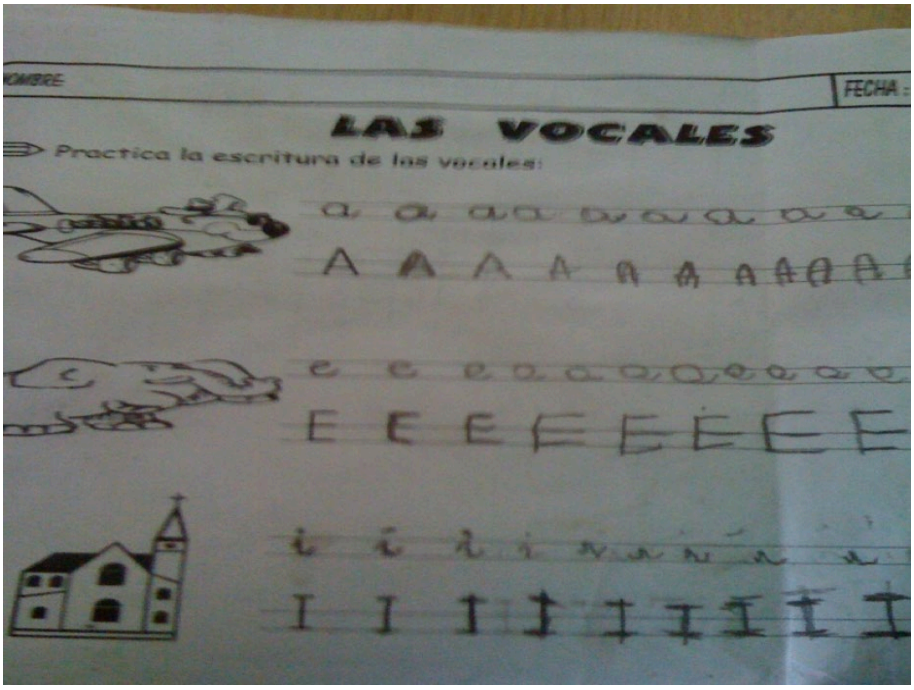


Figure 6.12 - The Vowels

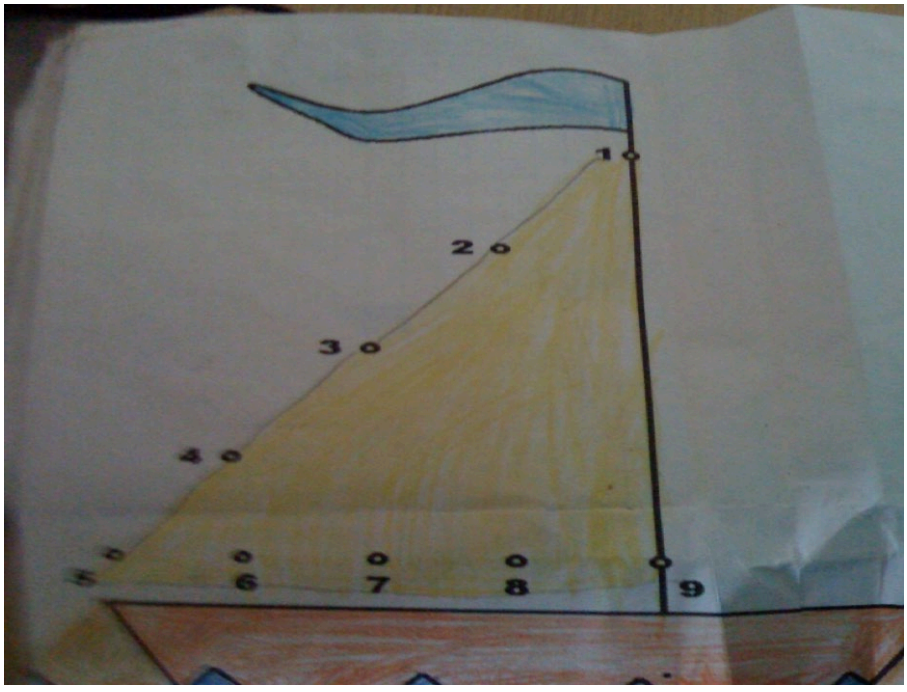


Figure 6.13 - The Numbers Game

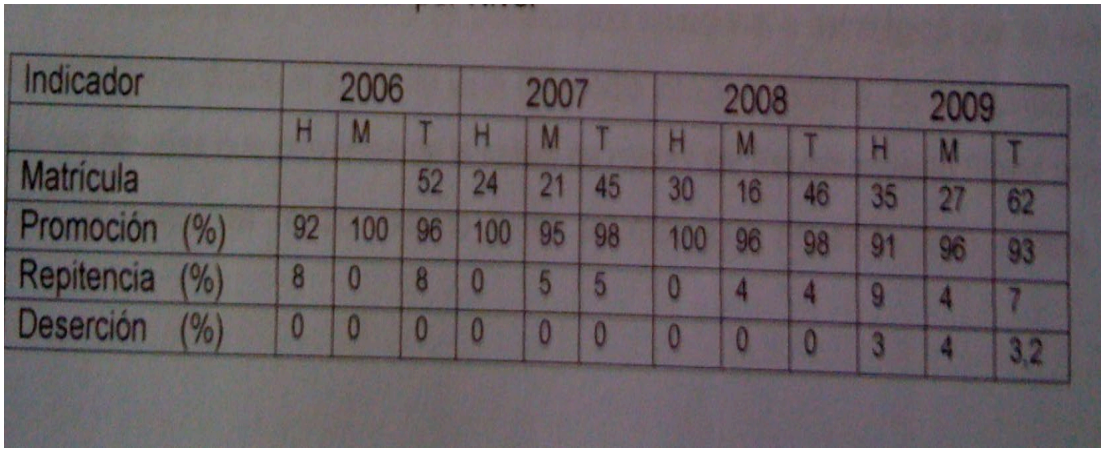
Results Prior to 2010

Amongst the documents I was shown or provided by the Principal for me to examine, I was able to find some historical performance results kept by the

school and which covered from 2006 to 2009. I was allowed to take a photograph of this document as it had not sensitive or personal data. This data is shown below in Figure 1.14 which contains this data in Spanish, so let me first explain/translate the labels in this figure, the labels are as follows:

- Indicador = Indicator
- Matricula = Enrolment
- Promocion (%) = Promotion or Pass Rate (%)
- Repitencia (%) = Repeaters, Did Not Pass (%)
- Desercion = Desertion (%)
- H = Men
- M = Women
- T = Total

As shown below, the school fluctuates in terms of enrolment (Matricula) numbers over the periods shown below. However, the school appears to always have more Males (H) than Female (M) students. The values that represent the Pass rates (Promocion) indicate that over this four-year period, 2009 had the lowest pass rate at 93% (T), whilst 2007 and 2008 both had a pass rate of 98% and during which the Males had a 100% pass rate. Those students that need to repeat a grade due to poor performance are represented in row ‘Repitencia’. There is insufficient data to spot a trend, as both the Males and Females have had to repeat a grade. However, from 2006 to 2008 either Males or Females repeated a grade but not both Males and Females. The exception to this was 2009 where both Males and Females were represented in this area. Finally, the only year that shows that some students deserted is in 2009 (Males and Females). Of the four years represented, 2009 appears to indicate some issues in performance.



Indicador	2006			2007			2008			2009		
	H	M	T	H	M	T	H	M	T	H	M	T
Matrícula			52	24	21	45	30	16	46	35	27	62
Promoción (%)	92	100	96	100	95	98	100	96	98	91	96	93
Repitencia (%)	8	0	8	0	5	5	0	4	4	9	4	7
Deserción (%)	0	0	0	0	0	0	0	0	0	3	4	3,2

Figure 6.14 Performance Prior to 2010

Results as at End of 2010

According to performance results obtained from the Ministerio de Educación (2010a) as at the end of 2010, the school's students scored an average of 5.5 (out of 7), lower than the average score for all primary level schools (Urban and Rural) at 5.63 (Ministerio de Educación 2010a). A total of 53 students progressed to the next level, 1 failed to pass and 4 were removed from the school (Ministerio de Educación 2010b). As matter of interest, the lowest performing school (primary level) in the country that year, obtained a score of 4.2, it was a rural school located in the north of the country and had only 1 student enrolled, whereas the highest score in the country, 6.95 out of 7 was obtained by a rural school with 2 students enrolled (Ministerio de Educación 2010a). In fact, the top ten highest performing schools were all rural schools, however, six of these schools had from 1 to 5 students enrolled and the rest from 6 to 12 students enrolled (Ministerio de Educación 2010a).

Result as at 2016

According to the (Agencia de Calidad de la Educación 2016) the school did not test enough students (Grades 4 and 6) to derive sufficient data and results related to the performance of the students compared to the rest of the country. However, at the school level, those tested from Grade 4 scored and average of 5.6 (out of 7) in Reading and Comprehension and 5.0 (out of 7) in

Mathematics. On the other hand, those tested from Grade 6 scored and average of 4 (out of 7) in Reading and Comprehension and 3.2 (out of 7) in Mathematics which is a fail mark.

Current School Data

As indicated above, the observations, data gathering and interviews that were carried out at this school took place in 2010. However, the following table provides the current number of enrolled students and teachers at the school as at 2018 (Ministerio de Educación 2018a). Compared to 2010 figures, there has been a decrease in the number of students at the school, from 58 in 2010 as seen in Table 6.2 above, to 30 those seen in table 6.3.

Table 6.3 – Teacher and Student Numbers

Teacher/Students	Quantity
Number of Teachers	5
Number of Enrolled Students	30
Average Number of Students per Grade	4

Adapted from Ministerio de Educación (2018a)

With particular emphasis on performance, Chile's Ministry of Education conducts an evaluation program known in Spanish as 'Sistema Nacional De Evaluación del Desempeño' (or 'National Performance Evaluation System' in English) (Ministerio de Educación 2018c). The data obtained in this evaluation system, which is displayed in Table 6.4, captures information related to the below areas and carries a weighting value (%) as indicated below:

- Average of previous results in the SIMCE testing, thus, 'E' = Effectiveness (37%).
- Average variation from previous SIMCE results, thus, 'V' = Variation (28%).

- Incorporation of education innovations, thus, ‘I’ = Initiative (6%).
- Adequate running of the establishment, trained teachers, thus, ‘O’ = Operations (2%).
- Accessibility, equality and retention of students, thus, ‘A’ = Access (22%).
- Participation of teacher, parents and guardians, thus, ‘INT’ = Integration (5%).

Adopted and translated from Ministerio de Educación (2018c)

Table 6.4 - National Performance Evaluation System (NPES)

Results NPES per Period	**E**	**V**	**I**	**O**	**A**	**INT**
Points 2010-2011	45.63	44.74	50.31	100	92.56	55.90
Points 2012-2013	43.04	46.54	72.98	86.00	90.84	70.30
Points 2014-2015	51.99	63.77	68.53	90.00	95.61	71.20
Points 2016-2017	63.27	48.63	81.27	92.59	95.52	77.80

Adopted and from Ministerio de Educación (2018c).

As seen above, the SIMCE (E) results of the school, compared to previous years, have been increasing since 2010-2011. However, the SIMCE result/variations (V) have been almost constant with some variation, i.e. from 63.77 to 48.63 points in the 2014-2015 and 2016-2017 periods. In terms of adoption of education innovations (I), the school sits on 81.27 points, compared to 50.31 during the 2010-2011 period. With reference to operations (O), the school has maintained relatively high points. In the areas of accessibility, equality and retention of students (A), the school has also achieved high scores, however, as seen above Table 6.2 above, the school had 58 students in 2010, as compared to 30 students as seen in Table 6.3

above. Finally, the school has made some improvements in the integration and participation (INT) of teachers and parents and guardians. For example, the figure jumped from 55.90 (2010-2011) points to 70.30 in 2012-2013 and remained in the mid 70s during the 2016-2017 period.

Conclusion

I did not see any material (e.g. textbooks, software) being used that were written in the Mapuche language. Nor was there any class conducted in a language other than Spanish. For example, the material used in the PCs was in Spanish, as sourced from the MINEDUC website.

Although the school's students were almost all Mapuche, there was no program to teach lessons in their language. The reason being (at the time) that the school did not have a qualified teacher in their language. However, it is not known if there were any concrete plans to do so in the future.

I did not hear any students communicating in their indigenous language. Except on one occasion, where two students out on the school yard were using Mapudungun words, but not entire sentences. I noticed this while I was outside, getting ready to make a telephone call on my mobile to a number in Santiago. At the time, I had an iPhone 4, which caught the attention of some students. Although, iPhones were rare in Chile due to its price. It was perhaps possible to see some in Santiago, but in fact, I did not see any. In a rural location, this would have been most unusual. Anyway, what caught my attention was the fact that a couple of the older students recognised the phone and called it a 'tush', which is how they pronounced it. Obviously, they meant 'touch', which seemed to indicate that they had either seen an advertisement or heard about this type of phone being called or marketed as a 'touch' phone. That is, using the word 'touch' in English.

The students started making comments about the phone and when I finished with the call. They asked if they could see it. Which I showed to them. However,

the Principal, who was with me, told them not to bother me and that they should go and play.

Another, peculiar thing that caught my attention during the class, was the fact that, when students read their textbooks, even when searching for the answers to their exercises, they tended to so aloud or in a murmur, so this sometimes sounded like a chant. It seemed that this is how they had been taught to read and that over time, this manner of reading was still practised. In addition, lessons seemed to be rushed and monotonous, given that the school had combined grades in the classroom, especially those in Grades 1, 2 and 3. The monotony was noted as the lesson format was very similar across the exercises and subjects and the fact that the students were spending the whole year in the one room with one teacher imparting a number of curriculum subjects.

In summary, the school was challenged in many fronts. For example, the state of the building facilities and ICT equipment, the level of poverty of the students and their families, lack of ICT equipment per student/classroom, the number of students per teacher, the mixed grades. Also, from a Mapuche perspective, there was no program in place to teach the Mapuche language or culture. The school was somehow always playing catch up, to make sure that the curriculum material was covered to the best of their capacity for a given year. Perhaps, this may be one of the reasons that at the end of 2010, the school scored 5.5 which is lower than the average score for all primary level schools (Urban and Rural) at 5.63 (Ministerio de Educación 2010a). Also, the recent number of students, as compared to the those enrolled in 2010 has dropped. There is no data that gives an indication to the reasons behind this decline in numbers but if the school does not maintain numbers, it could lead to loss of teachers and funding.

CHAPTER 7 - The Escuela Basica School 2

Introduction

This chapter is an account of the next school that was visited in the Araucania region. The school was closer to the coast, compared to the previous school which was inland. This chapter provides an account of the interviews and observations that took place at the Escuela Basica School 2 school in the Puerto Saavedra commune. During the interviews and observations, a number of challenges were described and or identified and thus, this chapter also describes the challenges faced by the school and teachers. As indicated during the interviews, some of the challenges extend beyond the school environment. These were described and understood by the Principal and teachers to be important and at times, have the potential to have negative effects on the students and which would continue to perpetuate the current situation faced by the Mapuche.

The interviews carried out at this school, as compared to the previous school provided a more detailed description of the social challenges faced at the school, whereby, this was understood to be an area that needed to be addressed to then be able to provide better outcomes for the students.

Travelling to the School

The school is located about 8 kilometres inland from Puerto Saavedra, a small coastal commune of the Araucania region. Puerto Saavedra is about 90 kilometres from Temuco (the capital of the province). I was staying at Temuco, therefore, to get to the school, I had to catch an inter-commune bus, Again, this was an early start, as the journey would take almost two hours to just get to Puerto Saavedra. Similarly, the bus was and old bus, only this time, the driver was speeding for most of the trip, which made it a bit harrowing. On the positive side, the scenery was in some places spectacular. On the other hand, when going past some small hamlets, I could notice the poverty, judging by

the construction and state of some of the houses. Some houses looked like these had been built with disparate pieces of material and others looked in a state of disrepair.

Once I arrived in Puerto Saavedra, at around 0800 hrs, it was a foggy and cold morning (refer Figure 7.1). To get to the school, I had to find a taxi to take me on the next leg of the journey. The last bus stop was outside a small supermarket and given, that there was practically no one around and of course, no taxis. I went into the supermarket and asked the attendant behind the counter where I could find a taxi rank. He looked puzzled and gave a telephone number that I needed to call to get a taxi. The number was the mobile phone number of the taxi driver. You were supposed to call the driver directly, if you needed a taxi because place was too small to have a taxi service, similar to what you would find in bigger cities. He pointed to a payphone close to the counter, which I could use. For some reason, the salesperson did not appear to be very friendly.

I called the number and managed to get through. Shortly after, a car, which had no markings of a taxi, except for a taxi sign on the passenger's sun visor turned up. I got in and we set off on the journey. The road we travelled, was just a dirt road, bumpy and with pot holes. It seemed that it was more suited for an off-road vehicle (four-wheel drive) and not the small car that I was in.

Figure 7.1 – A View of Puerto Saavedra and Bus Terminal

The School Structure and its Surroundings

Finally, we drove into a dirt driveway and in the distance, I could see some buildings. This was the school. When I got off the car, I noticed one main central building, which was mainly made of wood, with unpainted tin roof (refer Figures 7.2 and 7.3), there was also a large sign hanging over middle of the corridor with the school's number and name, along with the municipality's coat of arms on one side and the school insignia on the opposite side and a caption on the bottom that read (in Spanish) 'Municipal Schools, Better Education' (the name and number of the school have been blurred in Figure 7.2 to maintain anonymity). In the middle of the building there was a part that was made of concrete, I later learned that this housed the toilets. The paint on the exterior walls of the school seemed worn and appeared to need some recoating, and compared to the school visited earlier, this school looked older. However, the outside grounds seemed well kept, clean and bigger that the Escuela Basica School 1. In general, the physical structure of the school was typical of the schools in the region (refer Figures 7.2 and 7.3), that is, construction material and shape. I also noticed outside a tall long pole, which as I was told later, was a microwave antenna and their link to the Internet (refer Figure 7.4).

At the end of the corridor, towards the west side (refer Figure 7.5), there was a small room that served as the school kitchen, where meals were prepared for the students. I did see two people cooking meals in this kitchen, when later I was taken to this place. The kitchen looked basic where I observed large pots on the stove. Apparently, pasta with tuna was being prepared that day. No pictures were taken inside the kitchen.

The school front was covered by a roofed concrete corridor so that during rainy days, the students could move around without getting wet (refer Figures 7.2, 7.5 and 7.6). The classrooms where all along this corridor. The window frames on the outside of the classrooms, as well as the doors were painted red (refer Figure 7.6). There was not much difference in construction and

structure between this and the previous school visited. However, the grounds outside of this school seemed more orderly and bigger than the previous school. I was able to see a playground with some grass that contained monkey bars, a wooden climbing structure with a net, a metal parallel bar and a swing. I also noticed that most of the trees had their trunks painted white (refer Figure 7.7).

Figure 7.2 – The School Front

Figure 7.3 – Typical Building

Figure 7.4 – Antenna

Figure 7.5 – Corridor (facing West) and Washing Area Outside Toilets

Figure 7.6 – Corridor (facing East) and Other Classrooms

Figure 7.7 – Playground

An Initial Interview with the Principal

I was met by the Principal, Mrs Elvira Aguilar, at the front of the school. After the introductions, she invited me to her office to discuss my visit and so that she could give me more information on the school.

After I gave her details of my intended work and what I needed in terms of data collection, she was more than happy for me to observe some lessons and interview the teachers. In fact, she had already notified them that I was coming to do this. She seemed very cooperative.

The School – A Brief History

The following is an account by the Principal on the school's history and situation.

> **Principal**: The school, as it is known now that is, Escuela Basica School 2, is 29 years old (as at 2010). It became a state school in 1981 and adopted the current name (I was not given the previous name nor the reason why it became state school). 'I have been at this school for the last 11 years', she adds. The school population is made up of 95% Mapuche students. There are 63 students ranging from pre-kinder to Grade 8. As well as, five teachers in total. She also adds, 'Three teachers teach basic education, one teaches the pre-kinder students and we have a special needs teacher/psychologist'. There is also an intercultural bilingual educator. He is a local Mapuche person engaged to teach the language and customs of the Mapuche. He is supported by one of the teachers.

We are briefly interrupted, she then continues:

> We have combined classes, that is, 1 teacher teaches Grades 1, 2 and 3 in the one room. 1 teacher has Grades 4, 5 and 6. Grades 7 and 8 is covered by one teacher. The special needs teacher supports all the

other teachers and spends time individually with students that need special attention and extra help. This help can be education related or related to any other issue that could be impacting of hindering the student. Some children have family problems, and these can be translated into behavioural problems in the school environment and affect their progress and or, that of others.

The students come from various Mapuche communes from around this area, for example, Naupe, Chanua, Ralico and Llifoco. These communes are rural communes. In most cases, these are subsistence farmers and as a result, most of the students come from families with limited resources, who also rely on government help or subsidies. The people who live on this side of the Mapuche territory are known as the 'Lafkenche', meaning, sea or coast people in Mapudungun. The students get to school on the buses that have been provided by the municipality.

The majority of the students' parents do not have basic education completed. In fact, there is no parent who has a professional qualification. However, most of the kids aspire and tell us that they want a professional qualification.

Also, some of the students are in the care of their grandparents, this is due to their parents having to move to the bigger cities to find work. The school provides lunches to about 50% of the students. In some cases, we have noted that this has been the only meal these students have had throughout the day.

The teaching schedule is based on 38 hours per week, of which, two are dedicated to the Mapudungun language. However, attendance is only voluntary, and the parents can opt for their child not to attend this lesson. But we have to offer it, as the school has over 50% indigenous students.

The Principal then offers to take me around the school for a tour of the premises and to continue with the interview while we inspect the premises. By this time the classrooms were empty, and the students were having a small break. She starts by mentioning that they have six classrooms, including one library/computer room and a lunchroom.

The first classroom we entered, seemed a bit disorganised, some of the desks were placed against the walls. She then explained that the school had adopted the traditional Mapuche custom of seeing each other's face. It came from the traditional Mapuche custom of meeting in a 'Ruca' - the traditional Mapuche house or hut (refer Figures 7.8 and 7.9), which has almost no corners, being mainly circular and so everyone can meet, sit and talk face-to-face. Therefore, the students can see each other's actions and faces throughout the lesson, as well as, talk face-to-face. The teacher is also seated in the same manner as the students and so everyone is equal.

The Ruca

The below Figures show the Ruca (traditional Mapuche hut) that had been built on the school grounds.

Figure 7.8 – Ruca – Exterior View

Figure 7.9 – Inside the Ruca

As we continued to visit each of the classrooms, I observed that each of the classrooms had wood panelled walls, wooden floors and a wood burning heater. I saw an old television in one of the classrooms but did not see any computers (PCs) in any of the classrooms. However, I did see a laptop on a desk in one of the classrooms, this laptop was turned on. The biggest classroom, in terms of dimensions, was equipped with an NEC projector and screen and a digital board. This room was used as a multimedia room, assembly hall and the eating area where lunches were served.

The library/computer room, was equipped with four PCs, which I was assured, were all in working order. These were HP machines with DVD ROM, standard keyboard and mouse. There was also a printer in the room. This was an Epson Multifunction CX7300 printer. Also, I was shown some of the materials that the student had access to, these were educational DVDs and CDs to be used on the PCs (refer Figure 7.10). I counted 10 of these items. There were also more than 10 reams of printing paper stacked around the room. In this room, I could also see some typical Mapuche musical instruments hanging on the wall and another on top of a shelf. Those hanging were the ‘trutuca', which is a wind instrument consisting of a bamboo like reed and a horn at one end. The other was the ‘cultrun’, which is a wooden drum and is mostly used during ceremonies (refer Figure 7.11 and Appendix 1).

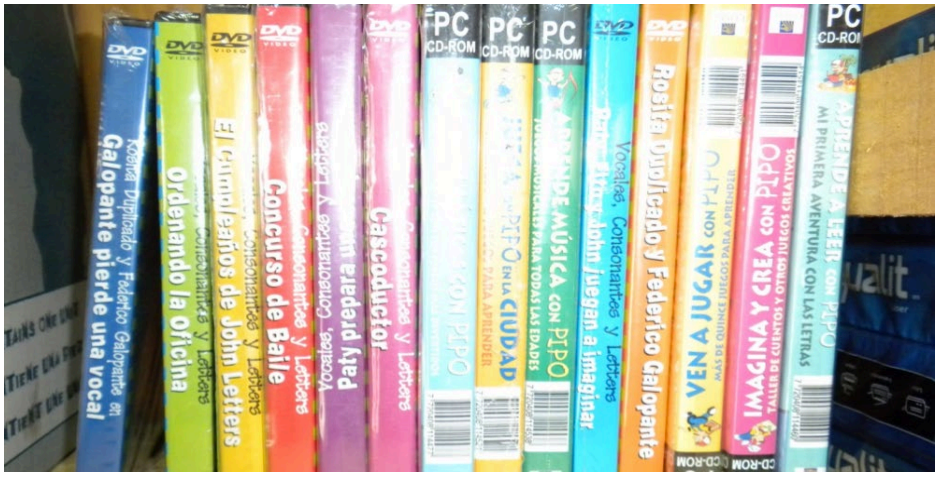


Figure 7.10 – Educational Software

Figure 7.11 – Trutruca – Mapuche Wind Instrument

The Principal then asks me if I want to spend some time with the intercultural educator. She indicates that he can explain more on the initiative to teach Mapudungun and about the Mapuche customs. I agree and proceed towards an adjacent room. There I meet Mr. Juan.

The Interview with the Mapuche Educator

It must be noted that this interview started in an office/room. Then it continued outside and around the school grounds, as I was shown the way in which the school grounds had been set up, as well as, some Mapuche artefacts and trees

significant to the Mapuche. The following is an account by the Mapuche educator, Mr Juan.

> Mr Juan introduces himself and describes his role, which is similar to what the Principal had told me earlier. He proceeded to add that he had always lived in the area, as did many of his ancestors. He claimed that he descended from the early Mapuche families and leaders that inhabited the region prior to the Spanish arrival. He added that he had been trained and recognised to teach about the Mapuche culture. The vision of the school was to 'rescue', teach and maintain not only the Mapuche language, but also the customs and beliefs. He indicates that this is his main role and that enjoys doing it. He then tells me why he has used the word 'rescue'. He said that the Mapudungun is being lost, none of the students are fluent speakers and most of the parents also do not speak much of the language. Those who do understand and speak it are mostly an exception. So, as we have moved into a century where there is access to a lot of information, I see the kids talk about computers. Some of the kids have their own laptops. I hear talk of internet and so on. But little about Mapuche culture. What I mean is, that the kids absorb these things, but it is not traditional values or culture, these things are imported. Mr Juan then added that was talk also within the government and the media about rights for the homosexuals. This I see as an aberration and is one of the many things that changes the values and culture of people.

I did not ask Mr Juan, which rights he was referring to with regards to homosexuals or why he considered this group of people an aberration. However, and oddly enough, the school lists its religion and values as evangelical. Which would be at odds for a municipal school or any government school in a secular country to proselytise.

> Mr Juan then proceeds to explain the Mapuche beliefs in creation. He explains that the Mapuche have used symbolism to depict this. For example, creation is symbolised by four beings or symbols. These signify and old man, old woman, young man and a young woman. We

also believe in hell and heaven. Our belief of creation includes the creation of the man and the woman. Not just the man and then the woman created from the man, as in the catholic religion, where the woman came from a rib of the man. In the catholic religion, you have the 'holy trinity', that is, the father, son and the holy ghost. In this trinity, there is no woman. So, our creation is equal for both. We use the same symbol to refer to the seasons, for agricultural purposes and so on. But the meaning is always the same, the circle of new life to old and then new again. The points which separate these symbols are also used to note points in the land, that is north, south, east west, as well as dawn and dusk. These also represent the four elements of water, air, fire and earth. There are various manners in which these symbols are depicted (refer Appendix 1). Sometimes, it is painted on the 'cultrun' (drum) used by the 'Machi' in the ceremonies (the 'Machi' is the name given to their healer/priestess, they are always female). The drum acts the communication conduit between god and the Mapuche.

At the school, we have adopted the Mapuche custom of meetings, as you probably have seen, the classrooms have the desks organised in circle (refer Figure 7.15). This is central to the Mapuche, we communicate face-to-face. We have started to talk more about the Mapuche culture in the lessons, the teachers try to include themes and examples that include or have a Mapuche relevance. We have also allocated two hours per week to teach the language, but this proves difficult, as the students can only practice it at school, if the parents do not speak the language. Also, to give relevance to this program, every tree planted around the school, is a tree that has a significance to the Mapuche. I will show later around to see what we have done in this area.

At this point, I interrupt and ask a question.

Question: The fact that some parents don't appear to speak the language is challenge, what other challenges do you see or face at the school?

Mr Juan replies: The level of poverty is high around this region, for example, 80% of the students come from families that have a high index of poverty. There is also a lot of alcoholism in the region and around Saavedra, alcohol is easily available, the government seems unable to control the distribution and sale of it. Many young Mapuche men are affected by alcohol. I can give also an example of how alcohol is affecting even those that have some ability to generate income. For example, not long ago, the government wanted to help those in Puerto Saavedra that owned small fishing boats. So, these fishermen benefited with new outboard motors that the government made available to them free of charge. But guess what? Most of these men kept the old motors and soon after, they sold the new ones. They spent the money on some essential items, but mostly on alcohol. They are still using the old motors. However, you can find them most the time in the bars in Puerto Saavedra instead of fishing.

The Mapuche that live around here, usually own a plot of land of about five hectares or less. But many do not work the land as it does not produce enough to have a decent living. He added that the personally believed, that those who still owned land, were rich, in the sense that they still had an attachment to their land, they did not have to rely on anyone, except their hard work. As opposed to many that move to the cities, work for a boss, for pay that may be a bit more than if working the land, but in comparison, were still low wages. This also impacted the families, which meant that these were separated, in this case, the kids are usually left behind. I have also seen that land is being wasted. The owners have left to work in the city and their plot is being wasted. These Mapuche do not realise the wealth that they have.

Fortunately, the community was not seriously affected by the earthquake in February. At this point Mr Juan decides to take me around the school grounds to continue with the conversation.

Once in the school yard, Mr Juan starts by pointing to the trees within the school and around the perimeter (refer Figures 7.12 and 7.13). He adds:

> Mr Juan: that each and every one of the trees planted in the school, are all trees that are part of the Mapuche culture, are significant and some also have medicinal purposes. He starts pointing and naming the trees by their traditional names. As we walk around the perimeter of the school, he continues to explain the significance and properties of each of the trees. The we proceed the east side of the school, he tells me the previous year, with the help of the students, a Ruca was built, so that the students could learn about the construction of the Ruca, what the position of the beams mean, which direction it faces and so forth. When it was completed, we also had a few meetings inside (I notice that one of the sides of the Ruca is crumbling). Mr Juan tells me that as it is made of wooden beams and covered with reeds, fires need to be constantly lit inside, the smoke and soot eventually seal the Ruca and makes it reasonably waterproof. The reeds also may need replacing in some cases. He explains that the door of the Ruca is always on the east side. He points to the east and shows me a totem erected a few meters away from the door. This is also on the east, to where he said, the new sun and new life comes from (refer Figure 7,14). He also shows me a type of agricultural tool that was on the floor inside the Ruca. This tool, he adds, has been used by the Mapuche to prepare the soil for planting seeds (refer Figure 7.15).

Figure 7.12 – Mapuche Medicinal Tree – Quintral

Figure 7.13 – Mapuche Sacred Trees – Canelo

Figure 7.14 – Totem

Figure 7.15 – Agricultural Tool

Mr Juan continues: As part of our cultural awareness, we recently celebrated the ‘We Tripanto’, this is the Mapuche new year, we celebrated this on the 24 of June’. However, it is usually celebrated from the 21 of June and the eve of the new year is on the night of the 23rd June. He proceeded to add that some parents commented that this event was ‘stupid and unnecessary’. ‘Anyway, we will have the next We Tripantu on the

> 24th June 2011. We have also started to have 'Pichitragun', which is the word for '*small meeting'*. Then he indicated that they had the first 'Pichitragun' last year and these have continued to take place. During these meetings, the children are encouraged to discuss problems and find solutions, working harmoniously together. This is to teach the students cooperation and respect for each other. Everyone is encouraged to provide input in the discussions.

The interview is ended, Mr Juan has to continue with his work in his office.

The Special Needs Teacher

The next interview was with the Special Needs teacher. Her name was Carmen. This was a short but fruitful interview in that it provided some valuable information on her motivation, her role and the challenges being faced by the school and the students.

After the formal introduction, I ask Carmen to describe her role.

> Carmen starts by explaining that the school has great number of students from families with limited resources, some children living with grandparents only, family problems such as alcoholism and violence in some extreme cases. However, she indicates the biggest problem is poverty and the stigma that it carries. She adds that this can impact the children's self-worth and confidence. We have kids who receive lunches at school, given that this may be the only meal of the day. Can you imagine this, in a rural area? She asks, then continues. Children should not be suffering these problems and lacking nutrition at such an important developmental stage of their lives. This is the purpose of my role, I have to make sure that the children we have identified to be at risk, get an equal chance. I help from a psychological perspective and

also from a pedagogical perspective. For example, we've had kids who had issues adapting and socialising, they presented with antagonistic behaviours and would be fighting with other students constantly. For us, it is not an option to just reprimand the student to in the end, expel the student. This would not solve the problem. Where is that child going to go? She asks. This is the closest municipal school they have close to them. Therefore, we apply different strategies to help the students. We have for example, different educational programs/strategies to teach about the environment, alcohol and drug use prevention and healthy life style. In addition, we also have workshops, in the big room, for parents, as well as integration activities.

I come from Temuco. I could easily work in an urban school in the city, earning more money. However, I cannot see myself doing that. These are my children and they need all the help they can get. I can speak for most, if not all the teachers here. We are here to teach these children, give them an education and to have an equal chance. For this, we try hard, so that they finish primary school and are prepared to continue and finish secondary schooling and beyond.

Carmen explains that her position is possible, because the school, not being private, can access the various government programs and initiatives that enables it to hire a *special needs* teacher. 'I'm a qualified educator and psychologist', she adds. This school gives me job satisfaction. We have lots of challenges, but these are counteracted when we see the positive impact we can have on these students.

Question: How do you know that you have made a positive impact? How do you measure this?

Answer (Carmen): From the educational point, we can measure their performance by their marks and the quality of the work they hand. There are various transversal points that we can check to verify that the student will meet the required standard to be promoted to the next grade. On the other hand, if the student is having other issues or

problems, which are usually, due to factors external to the school, then it requires a more careful approach. You need to understand that you will at times have to engage with parents or guardians that have been in a similar cycle and may see you as an intrusion and the whole exercise can fail. To make sure we are all fighting for the same cause, we have constant communications with their parents and engage with them constantly to make sure that they are as interested in the education of their children as we are. Of course, this is sometimes not easy, especially when the kid lives with the grandparents or other family member. But we try to also get them involved. Anyway, once we identify that a child is at risk, I start to have face-to-face lessons with the child, during which I apply various techniques to re program the child to behave in manner that is expected, so that the child can function in the school. For example, I may give them a purpose, or ask them about their ambitions. Then I can make them focus on how to achieve these. So, I try to take them away from the incorrect frame of mind that has been normalised and gets them in trouble. The progress we can measure and often also translates to better marks in the classroom and better behaviours.

The interview is ended.

The Lesson in Which Everyone Can See Each Other

The classroom observation that took place involved the Grades 4, 5 and 6. Given that the desks where arranged facing in towards the middle of the room, it was difficult for me to sit in a spot where I would remain away from the constant view of some of the students. I fact, I could sit (refer Figure 7.16) next to the teacher (Maria), as this desk was empty and apparently had been allocated to me (I sat alone). The desks are designed to accommodate two students. However, some students would sit on their own. The teacher does not share her desk, as she has a laptop, bag and papers on it and which take most of the desk space.

The room was well lit with natural light, it had wood panelled walls and a heater. It also had polished wood floor and it seemed clean. There was a wooden white board at the back of the room that had a hole through it. There was a blackboard at the front but there were some desks along this wall. The teacher sat at the front side of the room with the back towards the blackboard. The desks are close to the walls before the students enter the room (refer Figure 7.16).

I did not have the chance to ask too many questions to the teacher prior to the lesson, thus, the subject of the lesson was unclear to me at the beginning. The number of students is this class is not too big, by comparison to the previous school observed. I counted 13 students in this class.

Figure 7.16 – Seating Arrangement

Once the students entered the room, arranged the tables away from the walls to resemble a circle and sat down; the teacher begins the lesson and indicates that this is a continuation from the previous lesson (most probable the previous day). She is speaking in Spanish. The teacher has a laptop in front of her and uses it to read material related to the lesson. As I seat close to her, I can see her scrolling through a word document containing the material. This document is used as cue cards during the lesson. I gather that the subject of the lesson is about reading and comprehension.

During the course of the lesson, I notice that no work is done by the teacher on the blackboard. If she was to use the blackboard, some students would have to turn their heads towards the direction of the blackboard and the row of desks against the blackboard would need to have been removed. Thus, I can only assume that the teacher does not use the blackboard regularly.

The teacher reads passages from her laptop and continues to talk. Then she dictates a few sentences which she had instructed the students to copy in their exercise book.

What strikes me in this lesson, thus far is in the fact, the way in which it is delivered. It appears very generic and I cannot discern what part of the lesson is intended for each of the grades in this room since the composition of the class is from Grades 4 to 6. I can only assume that it is my lack of experience in this type or manner of teaching.

Once the teacher finishes her dictation, she instructs the students to write their interpretation of the sentences. They are encouraged to discuss this with the other students in the room. The room gets a bit noisy. The teacher also takes part in this discussion, as students near her engage with her in this discussion. At this point I wondered if the students near her, where in a better position and also advantaged in some way by seating close to her.

I must add that during this discussion, I could not discern, which students were from the lower grades or higher grades. I can only assume that some of those seating together may have been from the same Grade. However, what was striking, was the fact that most of the students were using Mapudungun words in their conversations regularly.

After a while, the teacher asks for the students' attention and she then proceeds to ask questions around the class about the student's understanding about the passage. This exercise continues until everyone has had a chance to go over the material. It appears that the answers are very much the same. The teacher gives her feedback and adds further comments on what the

students have provided. It appears that the exercise was well understood by the students.

Following this exercise, the teacher indicates that she wants the Grade 4 students to refer to their textbook (she provides a chapter and page reference). The students are to read from the book and complete an exercise on their own. I can now see who the Grade 4 students are in the room. They are not all seating together and are dispersed throughout the room.

The teacher then continues with the rest of the class (the Grade 5 and 6 students). For the next part of the lesson, she indicates that there is an exercise that requires them to work individually. They must read from their textbooks (again, a reference is provided), complete the exercises on the book by describing in their own words what the writer is trying to convey and then provide their comments on what they think about the subject of the text. She clearly states that she wants the two parts separated. That is, paragraphs describing the meaning of the text on a different heading to those containing their opinions on the subject. The students get on with their task. However, some students talk amongst themselves. The teacher does not seem to pay attention to those students talking.

While the students are working on their exercises, the teacher turns to me and starts some small talk. She asks me if the class is what I expected. It is difficult for me to provide an answer, as I had gone into the class with no expectations apart from observing the dynamics of the lesson, how she was using the laptop and the students' interactions, especially in the seating arrangement, which I had not seen or experienced before. In any case, I replied that I had never been in a classroom where the whole class sat in a circle, this was new to me. Also, it was interesting to have heard most students using their native language.

She asks me if this is something that has been done in Australia.

> I replied that from my own personal experience, I had never seen this done. I added that I had never been to a school where students used

their native language or sat in a circle. Although, I added, that in Australia there must be outback schools where students speak their aboriginal language but was not sure where.

She reiterates that:

> ‘The seats are arranged in this manner to integrate Mapuche customs into the lives of the students’.

I then asked, what about the non-indigenous students? Has there been any issues with them or their parents?

> **Answer (Teacher):** She replied that the majority of the students are Mapuche. Besides, teaching about the Mapuche to other students fosters a sense of inclusion and understanding about other cultures. But no, we have had no issues with the non-indigenous kids or their parents on this. Although, I must add that in the beginning, some Mapuche parents did not see why this was important. Initially, they did not seem to be too interested.

Our conversation is interrupted by a student asking a question and does not continue as the teacher gets involved with the students until the period finishes. The students are encouraged to complete any outstanding work at home and be ready to discuss it the next day.

Grades 7 and 8 Lesson

The next observation took place during a lesson for the Grades 7 and 8.
The teacher (Elena), conducted a mathematics class for 11 students. The room was set up with the desks in a circle facing inwards and I was seated close to the teacher, but outside the circle. The room is similar to the previous classroom however, in this room, the teacher had access to the blackboard, that is, there were no desks against the blackboard.

The Lesson

The teacher initiated the lesson and added that she wished that everyone had brought their texts, as they would be needing it. She started by recapping some earlier material for the lower Grade 7 students. Once she had finished doing this, she instructed the Grade 8 students to open their textbooks. The teacher provided a page reference. She asked the students to start working one the exercises that were on this book. The teacher gave the students 30 minutes to get these exercises done. The students got on with their tasks.

The teacher then continued with the Grade 7 students. This time she conducted the lesson by writing exercises on the blackboard and explaining these to the students. There was also some input from the students on the subject being taught. The parallel lesson that was in progress, did not appear to bother the Grade 8 students, who were busy with their work. However, some of the students who were sharing desks appeared to be discussing each other's work. Again, and similar to the previous lesson, students were including Mapudungun in their sentences. Additionally, by this time, I had already noted students on the school playground using words from their indigenous language.

One thing that caught my attention in this lesson and that was not evident until the teacher got up to use the blackboard, was the fact that no student sat with their backs to the blackboard or in a location within the circle that would not allow a clear view of the blackboard. Although the room was set up with the desks in a circle, the students were seated in a manner that resembled a semi-circle. Figure 7.17 depicts the seating position of the teacher with relation to the blackboard and the X marks the approximate location of the students' desks.

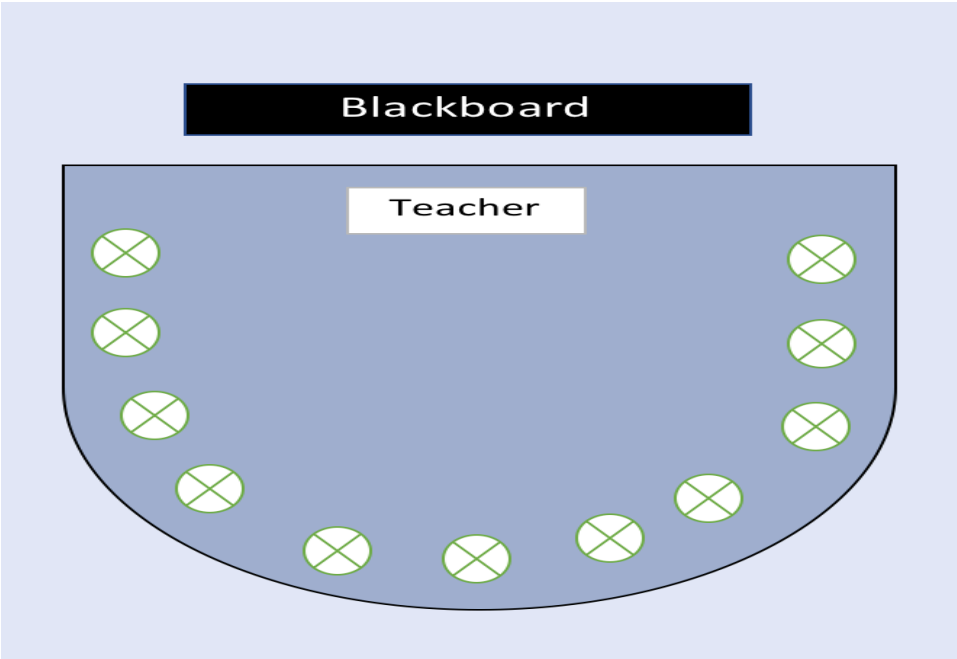


Figure 7.17 – Semi-Circle Seating

The teacher then started to make references to the Grade 7 textbook which the students started to also read while the teacher continued on the blackboard. For this entire lesson, the teacher was referring to the respective textbooks (for the Grades 7 and 8, there were two separate textbooks that she used, however, I was not able to see and confirm whether she was using a teacher's version of these) and some hand-written notes. I did not see a laptop in this room nor one being used by the teacher. She was solely relying on the traditional method of textbook, chalk and talk. The only thing that was different in this lesson was the desk placed in a circle. However, given the teachers teaching style, the students appeared to have arranged themselves in a position that would enable them to see the blackboard and so they were seated in a semi-circle. Also, in this room, there was no visible equipment that would suggest that ICTs could be used or where used, e.g. projector, Wi-Fi connection, router or digital board.

Before the class ended, the teacher asked the Grade 8 students to hand in their work for correction and were given a printed page with some exercises on it for homework. The Grade 7 students had been given some homework to do from their text books. The period ends the students leave for a break.

Second Interview with the Principal

A second interview with the Principal was held, given that I had some additional questions that I needed to have clarified. Basically, it was not entirely clear how ICTs were being used in this school, given that I had not seen much of these being used in the classrooms.

Question: I have not seen ICTs being used by the students in the classrooms, thus far. Is there a reason for this?

> **Answer (Principal):** The classrooms do not have facilities for these. Because we have 6 rooms and not enough computers, we can only give access to computers in the library, as you saw before. The access is limited, what I mean, the students have limited access and they need to have time allocated on these machines. It is not ideal, it is not enough time and would probably benefit the students if we had more PCs in each of the classrooms.
>
> I need to add that we have at the school, 5 students who have their own laptops. They obtained these as part of the government's scholarships. Their marks/performance is taken into consideration from Grades 4, 5 and 6. The students can then choose from a range of laptops or PCs. These include a year's free technical service and support and warranty.
>
> You may not have seen students using their laptops, but there are occasions in which those students, who have one, have brought them to school and use them to connect to the Internet and or do exercises to hand in work. But we do not force them to bring the machines to school. It is up to the student to use it. There are also instances where students pair up with those students who have a laptop and do group work, which requires a report or submission that is printed. We provide the printing paper. Sometimes, we exhibit some of these work on the classroom walls, the Library or the main board at the front of the school.

Other times, this is hand-written, and we also provide the paper for the students to create posters and so on.

Question: I have seen that a teacher has used a laptop. Has the school any guidelines on teachers using ICTs?

Answer (Principal): There are no guidelines about this at the school. Teachers at this school have their own laptops. They use them mostly for administrative purposes and to prepare the lessons. I do use mine or the office PC for mostly administrative work. I find that it has made my work somewhat easier, as I can email or contact other schools or municipal representatives a lot quicker. We have documents that are printed but we also have these on my laptop and the PC, which makes it easy to access.

The teachers use their laptops for preparing lessons, printing homework or tests that the students need to complete. They have all been trained in the use of ICTs, which was part of a government initiative.

Question: I saw a Television in one of the rooms. Is this used and if so what for?

Answer (Principal): Yes, there is an old television. We have a DVD player that we connect and use to show educational DVDs to the students from time to time, but in reality, that is it. Rarely, they get to watch a documentary on TV. There is no useful content that would be shown during school hours. The DVD player is mainly used in the big multimedia room, where everyone can watch at the same time. The lower grades do get to watch a reasonable amount of the DVDs, as these are suited for the younger students. I showed you some of these in the library before. We are always trying to expand library material.

Question: With regards to the digital gap. Do you think that the school is affected by the digital gap? If so, how does the school deal with this?

Answer (Principal): The government has provided PCs and connectivity for most schools in the country. But as you can see, in our

school, we have four PCs with connection. We also have some students that have benefited from a scholarship to received laptops. So, this is not enough and if this is an element of the digital gap, then this school, and I would imagine many other rural school, are then affected by the digital gap. But I'm not sure if just having more PCs or laptops is a solution. At the school, we have students with bigger problems. These are mainly as a result of the economic situation that affects this region. For us, these are real problems that matter to us. What use is a laptop or more computers if the child has not been fed? She adds. Therefore, we deal with these problems first and then worry if we have enough machines or not.

We are trying to integrate, when possible, the parents to take part in workshops, training and transparency of the school's teaching, so that the education of the child is not just as important to us only. These are the gaps that we have in the region. Lack of education of the older generations which we are trying to end by making sure our kids complete secondary school and proceed as far as they possibly can.

Results as at End of 2010

According to performance results obtained from the Ministerio de Educación (2010a) as at the end of 2010, the school's students scored an average of 5.79 (out of 7), 53 students progressed to the next level, 1 failed to pass and 14 were removed from the school (Ministerio de Educación 2010b). The score was slightly higher than Escuela Basica School 1's students and higher than the average score for all primary level schools (Urban and Rural) at 5.63 (Ministerio de Educación 2010a). Also, no reason is given for the removal of the students from the school.

Some Improvements - 2013 to 2015

During the period of 2013 to 2015, the school was able to show progress and as the SIMCE 2015 (Facultad de Economía y Negocios - Universidad del Desarrollo 2016) results demonstrated for this period (2013 to 2015), out of the top twenty schools showing the most improvements in terms of student performance, the school was ranked on the 16th spot. The school managed to jump from 5432 to 5422 out of 7431 schools. Thus the school jumped 10 places nationally (Facultad de Economía y Negocios - Universidad del Desarrollo 2016).

Current School Data

The observations, data gathering and interviews that were carried out at this school also took place in 2010. However, the following data as seen in Table 7.1, represent the current number of students enrolled at the school and number of teachers as at 2018 (Ministerio de Educación 2018b). The number of students enrolled at the school in 2010, as indicated by the Principal, were 63 students and 5 teachers. Compared to the figures below, this indicates that there has been a decrease in the number of students at the school, from 63 in 2010 to 51 as seen in table 7.1. However, there has been an increase in the number of teachers, to double the number of 2010.

Table 7.1 – Teacher and Student Numbers

Teacher/Students	Quantity
Number of Teachers	10
Number of Enrolled Students	51
Average Number of Students per Grade	5

Adapted from Ministerio de Educación (2018b)

Performance results obtained by the 'Sistema Nacional De Evaluación del Desempeño' (in English, 'National Performance Evaluation System') (Ministerio de Educación 2018d) are displayed in Table 7.2. The survey captures information related to the below areas and carries a weighting value (%) as indicated below:

- Average of previous results in the SIMCE testing, thus, 'E' = Effectiveness (37%).
- Average variation from previous SIMCE results, thus, 'V' = Variation (28%).
- Incorporation of education innovations, thus, 'I' = Initiative (6%).
- Adequate running of the establishment, trained teachers, thus, 'O' = Operations (2%).
- Accessibility, equality and retention of students, thus, 'A' = Access (22%).
- Participation of teacher, parents and guardians, thus, 'INT' = Integration (5%).

As adopted and from Ministerio de Educación (2018d)

Table 7.2 - National Performance Evaluation System (NPES)

Results NPES per Period	**E**	**V**	**I**	**O**	**A**	**INT**
Points 2010-2011	34.94	44.74	76.69	100	95.08	85.40
Points 2012-2013	32.84	46.50	76.11	100	95.47	52.40
Points 2014-2015	33.87	65.06	78.93	87.46	97.19	66.20
Points 2016-2017	28.15	48.63	87.25	92.59	97.24	76.40

Adopted and translated from Ministerio de Educación (2018d).

As seen above, the SIMCE (E) results of the school, compared to previous years, have decreased since 2010-2011 and the school remains as a low

performing school in terms of students' results. The SIMCE result/variations (V) have been almost constant with some variations, i.e. from 44.74 in 2010-2011 to 48.63 in the 2016-2017 period. In terms of adoption of education innovations (I), the school sits on 81.25 points. With reference to operating the school (O), it has maintained relatively high points. In the areas of accessibility, equality and retention of students (A), the school has also achieved high scores. Finally, the school has been fluctuating in the area of integration and participation (INT) of teachers, parents and guardians. For example, the highest figure was reached in 2010-2011 with 85.40 and the lowest in the following period (2012-2013) with 52.40 points and currently seating on 76.40 points.

Conclusion

My first impression of this school, as compared to the previous school I visited, was that this school was bigger in terms of the school grounds. It was also visible that this school had a playground and it resembled a school as opposed to a house converted into a school. However, the school buildings/structure shared a semblance to the Escuela Basica School 1.

What was different in this school, was the fact that there was a program to integrate the Mapuche culture in the education and curriculum at this school. This was evident from the fact that they had a Mapuche elder/educator who was tasked with exposing the children to the Mapuche culture. The school went as far as planting within the school grounds, only trees and plants that are significant to the Mapuche, for either religious or medicinal purposes. They had also built a traditional Mapuche hut and arranged the desks in the classroom in a circle facing in, which is typically how the Mapuche conduct their conversations.

Similar issues, as those affecting the children of the Escuela Basica School 1, were also found in this school. For example, the levels of poverty, risk, education levels of the parents, fragmented families and distance. The school

also faced challenges in trying to meet the curriculum material, so that the students meet the minimum standards to progress to the next grade.

Computers were not seen being used by the students in this school and the classrooms did not have computers inside, with the exception of an old television in one of the rooms and a laptop being used by a teacher in a classroom. At first this lack of technology appeared to contrast with the previous school visited. These were located in the school library and students had to book time to use them. However, it was clear that the school placed more emphasis on the teaching and well-being of the students, as this was synthetised by the answers provided by the Special-Needs Teacher and by the Principal when she added ‘What use is a laptop or more computers if the child has not been fed?’

Currently the school has maintained a low performance standard as seen in Table 7.2 above, where SIMCE results and variation are displayed (columns E and V respectively) and as compared to the results obtained by the Escuela Basica School 1 (Table 6.4 above). However the results provided by the Ministerio de Educación (2010a) and Ministerio de Educación (2010b) are better than the average considering that these are out of a possible 7. The school has had a decrease in the number of students but is has double the number of teachers, compared to 2010. Therefore, it would be interesting what the survey will show in the coming years.

Chapter 8 – The Actors

Introduction

This chapter examines the data gathered from an ANT perspective. To do this, I first considered the networks and actors in an ideal world, which in this case, would be a Mapuche centric approach, as it would occur in their society without external or foreign actors influencing the course of their history, these appeared later and had a great impact of their culture and lives.

I then start to break this network and atomise it further to be able to concentrate on the school and its networks and actors. In agreement with the ANT approach, the actors and networks that have been identified, are relevant to the context of this thesis and thus, provide a holistic view of the networks, actors, and their inter-relationships. In this manner, the chapter goes through the actors that are found to play a part on the lives of the Mapuche students, and so, some of the actors identified include culture, language, education, citizenship, exclusion and curriculum. These were identified during the data collection, which included observations, interviews and the literature review.

Actor-Network Theory and the Mapuche

Law and Hassard (1999) use the term semiotics in describing the early days of ANT. In fact, ANT was described as a ruthless application of semiotics' (Law & Hassard 1999). Thus, in this metaphor, it is suggested that symbolic structures that are present in the Euclidean sense of three-dimensional space (Penrose 2005), are then brought into the theory of ANT and can be juxtaposed to the Mapuche cosmology and sense of spatiality in their culture and how connections are present, made and established throughout the schooling years of Mapuche children. However, in keeping with ANT this included humans and non-humans (Tatnall 2011). I have used this description since it is hard to portray this visually on paper and imagine dimensional approach.

Since the discovery of America and the contact with the Spanish, the inhabitants of the continent and in particular, the Mapuche have experienced a number of impacts to their culture and its survival. The conquistadors brought with them a new language, different ideals and human behaviour, horses, weapons, a new culture, religion, diseases and a literate foundation which translated to a body of knowledge not available or unknown to the natives (Diamond 2005). These impositions, by force or otherwise, meant that the natives had to adopt, adapt or succumb to these intrusions. It can be argued that in today's globalisation context, the factors have evolved and so have the actors. But if we juxtapose the earlier intrusions to the latter ones, specifically to the introduction of ICTs, then the Mapuche would be facing challenges to their cultural structure, the imparting and acquisition of knowledge, language and cultural values. For example, in their traditional setting, where families and elders play a central role in the teaching of their children; the Mapuche elders may be in a position that the old held tradition that could be categorised as an Obligatory Point of Passage (Fenwick & Edwards 2010) is being eroded by the ubiquitous nature of the technologies, the ease by students may access information via a search engine or acquired from the curriculum subjects taught at the school and which may not have any Mapuche context at all. On the other hand, it may be possible that from the onset, there could be a parallelism between the old and the new coexisting and complementing each other. However, it seems that the latter not the case in Chile, as we will examine below.

Let us now briefly examine the reason(s), as explained by the government in Chile, why the introduction of ICTs was paramount to delivering a more equitable education. But first we turn our attention to the interrelation that is often attributed to ICTs, in this case, development and equitable education. It must be understood that ICTs also comprise new visions for exchanges of information across borders, both real and imaginary, and the unique creation of new human relationships (Roy 2005) and so these new human relations may be at the expense of severing the ties with old customs and adopting a relationship with non-human actors that can fill that void and provide a wider body of knowledge. However, what this may also mean is that the new source

of knowledge is most likely to be based and influenced by the hegemony exercised by the society or technology from which it is derived. It is not uncommon, as found during the observation for students to refer to the Internet by its name in English, refer to an iPhone using the English word 'touch', to refer to a 'touch phone'. English words creep into the daily lexicon of students by implicit means such as objects, Internet, advertisement or other material such as the software sighted at the Escuela Basica School 2 school. Below in Figures 8.1 and 8.2, it can be seen that the name 'PC CD ROM' and 'DVD' is still retained on the spine of the software cases. But most peculiar is what was noticed on the spine of these software cases, where the subject of the contents uses a mix of Spanish and English words. As circled in Figure 8.2, the word 'Letters' has been used instead of 'Letras', which would be its direct Spanish translation. I'm not sure why this is so, as I did not have to opportunity to watch lessons in these CDs/DVDs. But it is this constant appearance of words and images that eventually become normalised and accepted. For example, I also heard students and teachers use the term 'PC' (in Spanish) to refer to a computer, as opposed to 'computadora' or 'computador' (respectively, the female and male genre of the word). Therefore, the students and teachers absorb these new words to become part of their vocabulary. However, these new objects with their manner of imparting knowledge may also contain within them other objects presented by means of audio-visual means that bring new or foreign concepts to the students. For example, the lessons are not in a format that some of the elders may have been exposed to, or even the parents of the children, considering that these media were not around when most of them attended primary school. It can be argued positively that the students have now a richer and more engaging manner of learning, as compared to their parents. However, it is the content, with its language, symbol, physical features of the presenters (if this is the case), sounds and locality that can bring changes based on a homogenous model without considering the cultural difference of the Mapuche. Thus, as argued by Becerra Peña (2011) the dominant society may still be transmitting messages, which are received by Mapuche students and which in turn perpetuate the discrimination and undervaluing of the Mapuche by the lack of self-identity that it fosters. To this, Freire (1999) argues that education cannot be centred on the subject being

imparted but rather has a greater scope in integrating a more lateral understanding of the society in which this takes place. In the case of the material sighted, the some of the classroom observations and in particular the Escuela Basica School 1, this was not evident.

Figure 8.1 – Software Case

Figure 8.2 – 'Letters' as Opposed to 'Letras'

Mapuche Model – Traditional

The following network as depicted in Figure 8.3, represents the immediate actors that would have been present in a traditional Mapuche setting. It is assumed that this setting would be a typical structure found prior and during the colonisation of the southern cone of the continent. The community would have played an important role which could shape the roles of the leaders,

elders (lonko, machi), the family, its extended members and the children. This community structure would have been similar across the various communities that inhabited the Araucania region prior to the Spanish arrival and which endured the birth of the new republics, to eventually suffer fragmentation, exclusion, discrimination, dispossession and poverty. This is evident nowadays by the fact that the Araucania region one of the poorest regions in the country (Valenzuela, Toro & Rojo-Mendoza 2017) and the communes of Saavedra, Cholchol, Galvarino and Freire have a rate of poverty of about 60% and with just over 67% of this group living in rural areas (Cerda 2009; Valenzuela, Toro & Rojo-Mendoza 2017).

Within each of the actors depicted below in Figure 8.3, a set of characteristics would have been found, which to this day persist to some extent. Thus, within the Mapuche Community, we find traditions, cosmology, language, beliefs, knowledge, protection, location and support. The Elders carry respect, knowledge, language skills, teaching and authority. The family comprises protection, Ruca (hut), food, continuity, beliefs, teaching, authority and sharing. The children on the other hand, would have respect, learning, protection, customs and play. Of course, these characteristics are not exhaustive and many more could be identified, but these give us an idea of the actors at play.

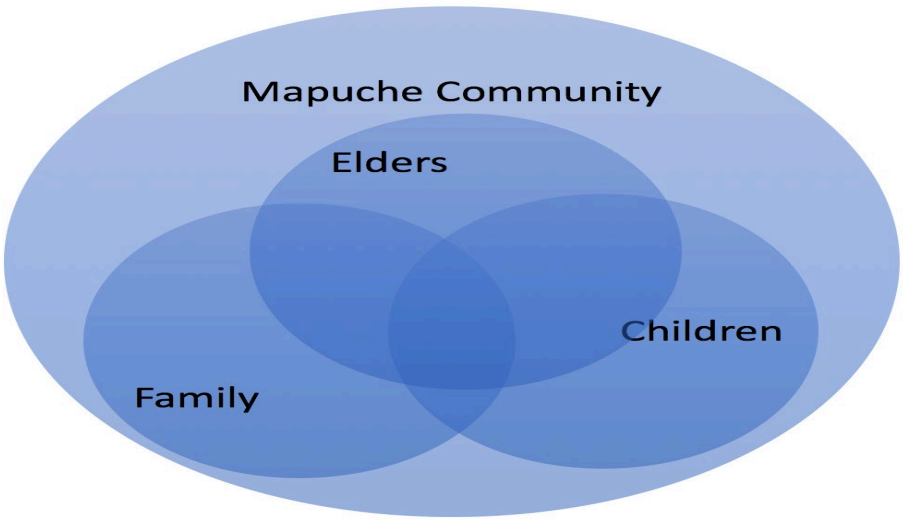


Figure 8.3 – Traditional Mapuche Culture

The community carries with it a set of rules, behaviours and beliefs that are obeyed, observed, performed, imposed and respected by each of the members of the community. The actors depicted above are all interrelated under the tenets of their community in which the elders, family and children are connected in the process of passing down and acquiring knowledge, sharing, learning, taking part in customary events and maintaining the respect of the elders in the community. Their community's customs and knowledge are based on their cosmology and would also entail traditional teaching methods.

However, in a modern-day context, where the Mapuche communities are fragmented and where customs and language are being lost (Ministerio de Desarrollo Social - Subsecretaría de Evaluación Social 2017) then the above network would no longer be entirely relevant. At least, based on the observations and feedback during the school visits, it was evident that the traditional community makeup was under threat and fragmented, and language proficiency was minimal. For example, the main source of knowledge for the students at both of the schools visited was within the school environment, in some cases with the aid of software applications used for self-paced learning and via search engines using the computers available at the school. In addition, the teachers would impart knowledge, based on the curriculum, and in particular, at the Escuela Basica School 1, where no evidence was visible of a Mapuche centric content education. This meant that the retention of knowledge was based on both memorising the chalk and talk lessons and by doing exercises on a computer. Evidently, the Escuela Basica School 1's observations demonstrated a lack of Mapuche context in the lessons, even when the number of Mapuche students required the school to have a program of study that included Mapuche references and bilingual teaching.

On the other hand, the Escuela Basica School 2 school, had implemented a pedagogical approach that included a Mapuche educator, traditions and cosmology. Thus, the school was more inclusive of the Mapuche culture and so, some of the actors in Figure 8.3 above are not all entirely relevant.

Therefore, these actors manifest themselves via proxies or in a diffused state. For example, the school and teachers were at times fulfilling the role of the family, especially with those students considered at risk, as well as active participants in the inclusion of Mapuche centric customs. The Mapuche educator was bringing in the Mapuche cosmology into context, thus taking on the role of elders and/or also family members to impart knowledge and to some degree bringing some exposure to the Mapuche culture. In addition, I also make the comparison of school itself to represented a micro community, given that the trees planted around the school, which are significant to the Mapuche culture, the traditional hut or Ruca that was erected on the school grounds, the totem pole and other artefacts that were available and visible and which contrasted to the physical structure of the school, were all put there with the thought of reinforcing and teaching the Mapuche culture to the students. In this context and using Fenwick and Edwards (2010) definition of obligatory point of passage, it can be argued that there could be two obligatory points of passage, the school itself, that imparts the knowledge based on the principles, structure and curriculum set out by the Ministry of Education and on the other flank, the Mapuche educator, who imparts the knowledge of the Mapuche culture, albeit following guidelines set out by the Ministry and school. For example, the students are not required to remember tasks or stories that they will need to repeat to other members of their community to prove to them their knowledge and prowess.

What is important, as obtained from the interviews at the Escuela Basica School 2 school, was the fact that some of the traditional customs of the Mapuche were being celebrated, meaning that students did not have to rely just on their communities to take part in these. In fact, given that some parents thought it was ‘stupid’ or ‘pointless’ to celebrate the Mapuche new year, this appears to suggest that some parents may not be active members of their Mapuche community and so, some students might not have been able to have experienced or take part in these events, other than at the school.

Although, the teaching was similar in approach to most schools in Chile, that is, a teacher conducting the lesson; the seating layout in the classrooms at the Escuela Basica School 2 school was similar to that of a Mapuche meeting. The students and teacher sat in a circle, where almost everyone can see their faces. In fact, the Mapuche huts or Ruca are constructed in a circular shape, as seen earlier, so that everyone sits in a circle. This gives a sense of equality to all members taking part in the gathering. At the school, the approach is novel but not perfect, as they still have to contend with other factors that impinge on their students. These range from exclusion, lack of resources, fragmented families and discrimination by a system that encompasses a homogenous, top down approach and using material that does not seem to include Mapuche content. Although, the Escuela Basica School 2 school has gone to great efforts to do so.

A Proposed Model – Mapuche Cosmology Centric

The following network, as depicted in Figure 8.4 and as argued by Tatnall (2009) gives both the humans and non-humans a symmetrical treatment, meaning that ANT equalises all actors. However, in this approach, I have chosen to have the Mapuche cosmology as a centric actor which under a Mapuche centric network would be exerting power over the other actors. All other actors would be interrelated via this central actor, which would also act as an Obligatory Point of Passage (OPP), so that actions and outcomes from the rest of the actors in this model are shaped with the Mapuche cosmology in mind. The model strives to place the Mapuche as the owners and masters of their own destiny, as opposed to imposing or examining their journey with the eyes of a dominant society. Too often, there have been studies and or other fact-finding missions that strive to examine the issues being faced by the Mapuche. However, the Mapuche may well be saying, ‘here is another study looking to solve our problems, but who gives us the power to solve our own problems?’. This was very much on the back of my mind during the interviews and observations that I did not want to be seen as another person studying a novel subject, and instead identify the human and non-human actors (Tatnall 2009) that are present as a result of and beyond the physical introduction of

ICTs to bring them to the fore, as none can be treated as individuals in a cosmos made up of many actors interacting with each other in one way of another.

It must be understood, that all the below actors would also have other actors which would impinge on their actions and outcomes depending on the translation and diffusion by the actors. For example: government policies, social capital, poverty and prejudice. These actors are not mentioned in this model as I have only tried to simplify the network and isolate those actors that are thought to be immediate to the schools visited. Also, the below network does not have any directional connectors to depict the relationship between the various actors. This was done purposely to make the Mapuche Culture to this network. However, it is assumed that these actors would have live and constant interactions with each other but within a Mapuche context.

This method was adopted so that it fits better at a pilot approach in identifying, reshaping, implementing and re-evaluating the education of the Mapuche. This model does not assume a top down homogenous approach and would be more in tune with Osorio and Nieves (2014) description of the approach adopted in Spain by the 1990s. Therefore, each of the actors' actions, decisions and outcomes are centric to a common central actor.

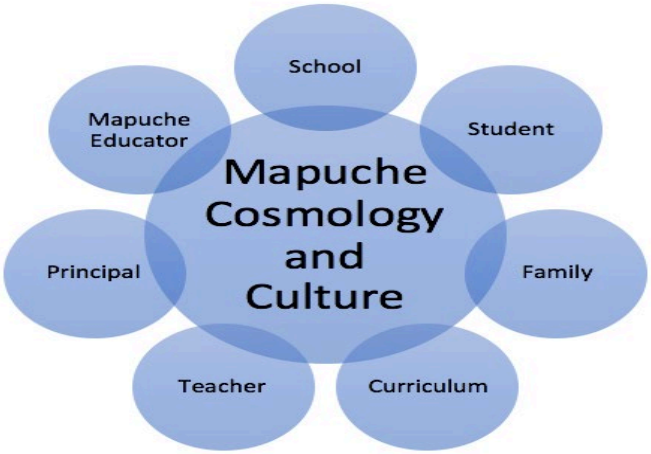


Figure 8.4 - A Mapuche Centric Relationship

Mapuche and Citizenship

The below network (Figure 8.5) identifies the actors which relate to the concept of citizenship. Although, Schugurensky (2010) maintains that there is no agreed-upon definition of citizenship, therefore, it can be argued that its meaning is fluid, changes over time and may be interpreted or understood differently by different actors. For example, citizenship would have meant different things to both the Spanish and Mapuche during the conquest, then for the Chileans and the Mapuche post the declaration of independence and so on, to the present day, as values and societies evolve. Therefore, I have depicted in the network below, 'Citizenship' as an actor but in reality, as six separate actors to depict the different dimensions that it takes, depending on the time and space where it finds itself.

Let me first explain the *raison d'être* or the reason for existence of these actors. Firstly, the network is both cyclic and meshed due to the nature in which each of the actors are capable of existing and inter-relating. Therefore, this model strives to illustrate the manifestations of 'citizenship', each with its particular properties within a present-day context.

In the network below, Mapuche Citizenship is seen from a Mapuche centric perspective whereby, it is what they understand and interpret as citizenship within their community. The Mapuche values and sense of community would give importance to different aspects and values that would impinge on the human actors and their personal, community and cultural values. However, it also has connections to Citizenship as defined by a homogenous education, which would also be defined by the dominant State (Citizenship as Defined by the State) or how it also changes over time (Citizenship Adapted Over Time). In this case, both education and the state (actors not included in this network) with their interpretation of citizenship, would give birth to the two separate actors shown below, which would have a tendency to permeate and influence with similar values on the Mapuche students' perception of their interpretation of citizenship. The students are also, over time, likely to absorb and normalise these values. And so, there is at this point a discrepancy between the elders

and the new members of the Mapuche culture, where both may have different interpretations of Citizenship as it has evolved and adapted with the passage of time due to one or more of the actors portrayed in this network, or actors that are no longer in existence or are yet to appear. Thus, there is a potential that even within the Mapuche, that is, elders *vs* the young, there are different perceptions or interpretations of citizenship.

Moreover, Mapuche citizenship as interpreted by the non-Mapuche population is another dimension of the same actor. For example, the non-Mapuche may have certain preconceived ideas, prejudices or parameters that they believe, ought or are expected to form part of the Mapuche citizenship but which may be partly or completely lacking any Mapuche context. The latter can lead to misconceptions and discrimination; similar to the data made public recently in February 2018, as a result of a survey carried out by the Instituto Nacional de Derechos Humanos (2018) which showed a marked negativity against the first nations by the general population which tends to see the Mapuche as violent, lazy, rebellious, strange and undesirable. On the other hand, it could be interesting to see how the Mapuche perceive the general population. Thus, in the below network, it is seen that 'Citizenship' as defined by education and the state, can have a defining effect on the general population and this can give raise to 'Mapuche Citizenship as Interpreted by Non-Mapuche', which is an expected perception based on what Pomering and White (2011) describe as a shared notion of imagery and identity. However, in this case, it that notion which comes from the general population, but it is not inclusive or with a Mapuche context in mind and which disagrees with Mapuche Citizenship and leading to the latter's greater marginalisation.

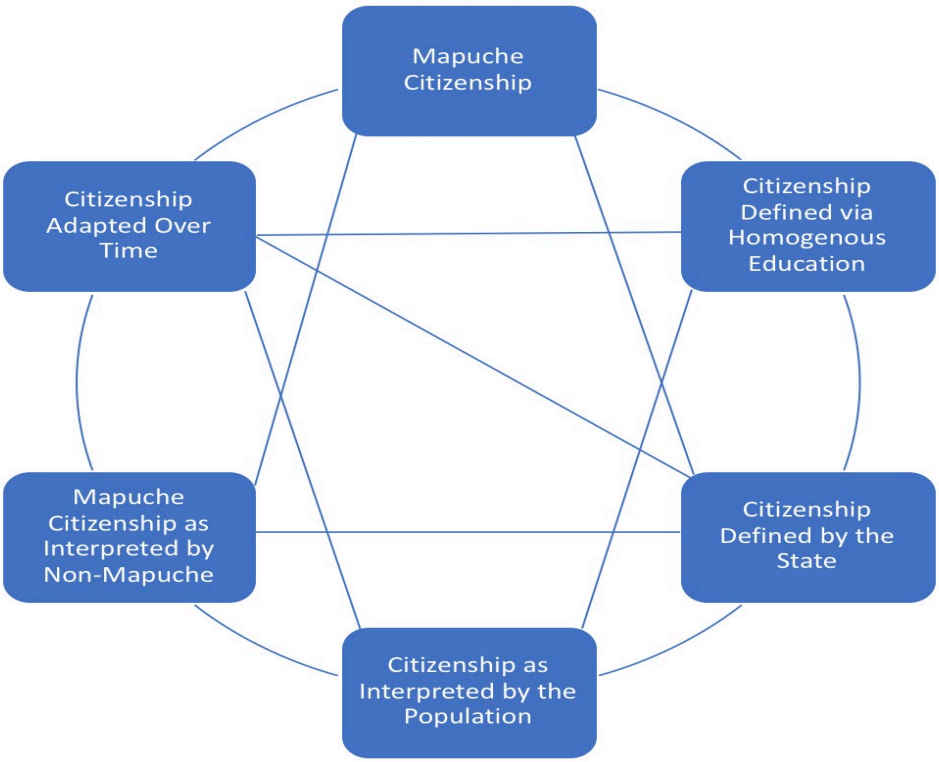


Figure 8.5 - Loop Depicting the Fluidity of Citizenship

In conclusion, the above network is always evolving and would never cease to evolve given that there is a discord on the what the state, general population and the Mapuche perceive as citizenship, each giving raise to different manifestations of citizenship.

Actors Which Impact Students

The Mapuche have struggled to maintain their culture since the arrival of the Spanish, but more so since the time of the new republic. It can be argued that humans adapt to their environment but in the case of first nations, it often comes at a cost. Be it loss of life as a result of wars or diseases; loss of territory, loss of cultural values, loss of language and displacement. However, the erosion and eventual loss of culture can occur by implicit signs and means that can be seen as innocuous by the affected actors and even those responsible for this occurrence. Therefore, the network below has been devised to portray some of the actors that can have an impact on Mapuche students and the

gradual loss of their culture. These actors, in this case have been treated as black boxes. However, their characteristics are fully explained below.

In the below network depicted by Figure 8.6, the Mapuche (students) have been placed centrally to show their inter-relation with each of the actors in this network. It is assumed that each of the actors below would interact and thus, no directional connectors have been used.

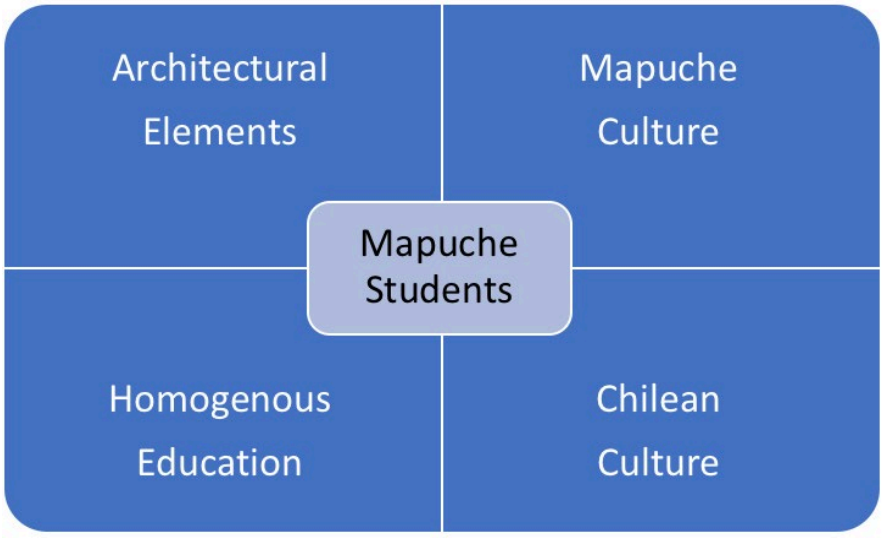


Figure 8.6 - Mapuche Students and Permeability of Cultural impacts

From an ANT perspective and in keeping with identifying the human and non-human actors (Tatnall 2011). Let's consider the actors which can be found at the school, each with its own characteristics as listed below. Of course, some of these characteristics can be actors in their own right, in this network these are not considered, except as characteristic of the black boxed actors.

Mapuche Students

- Technology: Perspective, meaning and translation of technology.
- Language: Mapudungun and Spanish proficiency (written and verbal), absorption of foreign languages, e.g. English.
- Culture: Mapuche Cosmology, Chilean culture/values.
- Family: Values, poverty, fragmentation, safety.

The students, as actors, can perceive and define technology differently, giving it a meaning and sometimes use it in a manner that is different to the original intended purpose (Tatnall 2009). In the case of the Escuela Basica School 1, due to the lack of computers, the students assumed a specific role when doing the exercises on the PCs. For example, one would take command of the mouse while the other could direct (finger pointing on the screen) to where the person with the mouse should point and click. Perhaps and unwittingly, the lack of PCs have forced the students to adopt a collaborative approach, which is what Dyson (2005) considers as a reference point when ICTs are introduced and where a communal approach is the norm for the community. However, the researcher did not explore if the students were receiving any traditional education from their community. But given the fragmentation of the families, this may not have been the case and would require further investigation. With reference to language, students can experience a degradation on their proficiency of the Mapudungun, they may only wish to speak in Spanish because of shame or mockery, and may not be able to write it. Spanish has become the dominant language even when a Bilingual program has been implemented by the government or students can absorb foreign words and use it to refer to objects or actions. These words can come from TV or radio advertisements. Also, their cultural values can and have changed due to the constant participation in a homogenous education system. And so, the students are being affected by what Becerra Peña (2011) describe in the receiving of messages, models and values of the dominant society which has discriminated and undervalued the Mapuche culture.

Some may maintain their traditional values and cosmology; however, it may be an exception as the celebration of the Mapuche New Year at the Escuela Basica School 2 school was seen as ‘stupid’ by some parents and the Mapuche educator indicated that there were not that many Machi as before. Finally, the concept of family unit is being challenged by the issues that arise from the fact that many parents have to work away from the communities, and so the children are sometimes placed in the care of grandparents or other family members. Thus, families can be fragmented, experience economic hardship and poverty and in some cases alcoholism and violence.

Architectural Elements

- School buildings: Shape, material and colour
- Classroom: Size, shape, seating arrangements, desks, doors, windows.
- School yard: Size, grass, playground area.
- Trees: Native, introduced.
- Toilets: Shape, clean, colour.
- Perception of structural elements: Authority, agency, power, government.

Students and also members of the general Mapuche community can experience hegemony from the dominant culture in many forms. In the case of this network, architecture has been included. The Mapuche have different concept and meaning to the shape of their dwellings. As seen at the Escuela Basica School 2 school and as explained by the Mapuche educator, the Mapuche Ruca or hut is circular to convey a sense of equality. However, this perception, tradition and custom, would have been challenged by the introduction of different construction techniques and shapes as contact with the Spanish increased, followed by the new republic in the early 1800s ending the colonial period and which saw increased incursion against their territory. Therefore, the structures, their shape and the internal layout can have an impact on the Mapuche, as some may have identified these as symbols of dominance, oppression, inequality and authority. While others may very well accept these as symbols of power, progress, improvement, superiority and security.

These shapes are present in most of the architecture found in the country and of course, in schools, which tend to vary from wooden to concrete structures and so, these shapes and structures become part of the students' commonalities. These can also include other facilities such as libraries and toilets, each with their own particular way of use and interaction. For example, at the Escuela Basica School 1 the classroom seating arrangement was similar to that found in most school in Chile, that is, in rows facing the front of the classroom, where the Teacher is seated. This arrangement can be interpreted

as having a figure of authority (the Teacher) and of unequal power structures. As explained by the Mapuche educator at the Escuela Basica School 2 school, the seating arrangement at this school adopted the traditional Mapuche custom of conducting meetings and communicating in the family dwelling, in a circle. This was to afford everyone taking part, an equal standing. On the other hand, the school yard with its boundaries and structures can also add to the commonalities of the students, for example, the lack of space, as seen in the Escuela Basica School 1 yard, the playground elements found at the Escuela Basica School 2 school such as a swing and monkey bars, as well as the use of fences. The latter would denote a sense of property, boundaries, loss of liberty and exclusion depending on which side of the fence the actor happens to be. Fences would also have been uncommon prior to the arrival of the Spanish and so the Mapuche would have to adopt the understanding and significance of these elements.

Mapuche Culture

- Symbols and traditions: Loss of culture, some adoption of Chilean traditions.
- Language: Loss of proficiency (verbal and written) absorption of other foreign languages, e.g. English.
- Education: Mapuche method of teaching the young.
- Beliefs and Values: Respect towards Elders, respect towards nature, e.g. water, trees, rivers, land; egalitarian, religion, e.g. Catholicism, Evangelism.

The Mapuche culture is depicted above as another actor that would interact with the students. This can vary from a very influential actor to a minor influencer. For example, if there is a cohesive community and family is active in this community, the student may be exposed or be able to learn and maintain their traditions by being also a member of the community. Whereas, some students living in fragmented communities and families may not be getting exposed to their culture or shunning it altogether. In addition, exposure to their culture could also be coming from the school through a homogenous education

model which may lack a Mapuche context as it may be interpreted by actors outside of the Mapuche culture or containing erroneous or misrepresented values and historical references.

Language is also considered as a characteristic of the Mapuche culture, of which the students can demonstrate varying degrees of proficiency. In the case of the schools visited, it was not evident that the students had any significant command of their language. This is evident in Table 3.6 above which indicates that greater number of indigenous people neither speak nor understand their language. In addition, their native language is being lost in one front and absorbing new words and lexicons derived from the media, online content and object at the school. An example of this is the use of manner that touch phones were recognised and referred to by some students. The use of software and the use of the letters ‘PC’, ‘CD’ or ‘DVD’ to refer to these objects using their direct English abbreviations. Again, this is similar to the argument put forward by Becerra Peña (2011) about the receiving of messages, models and values of a dominant society.

Another characteristic of the Mapuche culture is their Cosmo vision. Their view of creation and attachment to nature is different to that which comes from the dominant religions, either Catholicism and evangelism. They believe that men and women were created equally and have different interpretations for the four cardinal points (East, West, North, South).

Chilean Culture

- Symbols and traditions: Adopted from Spanish culture, adoption of native symbols and traditions, lacks indigenous traditions.
- Language: Spanish, absorption of other foreign languages, e.g. English.
- History: Distorted view of the Mapuche, little known about Mapuche traditions, customs and language.

Another actor identified in the above network is Chilean Culture, which in fact is a different manifestation of culture but which I have separated because the

Mapuche and Chilean cultures are two distinct actors. The latter has adopted and adapted most of its characteristics from the Spanish, such as language, religion, education, laws, music, dance and cuisine. Over time, some of these characteristics have crossed over to the Mapuche. However, the dominant culture has prevailed and continues to do so via the same means, that is, language, religion, education and so on. Chilean culture has experienced similar permeability traits as the Mapuche by adopting words in English. These can be seen or heard in mainstream media, advertisement and the greater use of technology as compared to the Mapuche.

Also, the Chilean Culture actor, may have a distorted view of the history, customs and beliefs of the Mapuche or none at all, leading to fear and negativity of the unknown. However, dominant culture has been happy to adopt Mapuche warrior images and names to use to portray, for example a football team as an indomitable warrior. And so, Chilean culture is mixed and has conveniently adopted certain symbols of the Mapuche whilst rejecting others.

Homogenous Education

- Technology: computers (PC), laptop, TV, DVD, software applications, projector, speed, access, cost, availability of technology, usefulness of technology, obsolesce.
- Textbooks: in Spanish only.
- Curriculum content: contextual on the dominant society. Culturally singular, little or no Mapuche history, imparted in Spanish, learn by memorising, reading, classroom exercises and tests.

The concept of Homogenous education has played and continues to play a significant part on the lives of the Mapuche students. In addition, the introduction of ICTs has meant that students now faced an actor which is ubiquitous. One of the principal aims of the government to introduce ICTs was to reduce the inequalities that existed in education. Mapuche students, as observed interacted with the technology with ease. However, there was clearly

a shortage of technology for the students to use in both schools. Meaning that up to three students would use on PC at a time. Therefore, some of the characteristic of this actor would also be the different types of hardware available, e.g. laptop vs PC. Only some students have laptops. These would have been expensive for most parents to acquire. Also, the software applications that are used in these machines were always in Spanish. Education is also contained and imparted via textbooks. None of which were in Mapudungun, therefore Spanish was the predominant language in the texts. All of the above stem from a curriculum that is derived to cater for a singular society which shares some common characteristics but lack those that identify with the Mapuche, their language and traditions. This was evident at the time of the school visits, despite a bilingual program having been implemented more than a decade earlier in 1996 (UNESCO 2010).

A Simplified Network

The connections in the network displayed in Figure 8.7, is a simplified view of the interactions that are possible in the current educational context of Mapuche students. I have started with this simple depiction putting the students as the central actors, given that they would be the recipients of the education and would interact directly with the school, Mapuche cosmology, ICT and the family. This high-level depiction gives a closer view of the current situation at the Escuela Basica School 2 school and to a lesser degree, the Escuela Basica School 1. The latter school did not have a clear approach on including a Mapuche perspective, it was not observed being exercised in the classroom nor was I shown any document or evidence, visual or verbal that there was such a program in place. Therefore, with reference to the Mapuche Cosmology actor, this was not present at the Escuela Basica School 1.

With reference to the school as an actor, it is in charge and tasked with interpreting and translating the government curriculum into a format that will be processed by students. In fact, the teachers serve as the intermediaries for this task. Intermediaries because, the Principal can be an influencing actor in this network, who can exert influence and translation on the manner that the

curriculum, ICTs and Mapuche cosmology are included as part of the school's *modus operandi*. However, teachers and Principals have not been considered in this network, as the atomisation of the actors follows later on and so, the school is seen an all-encompassing actor. What is important in this case, is the fact that either the Principal, teachers or both can adopt, shape or reject parts of the curriculum, which in turn, shapes the manner in which knowledge is imparted at the school. Thus, the school as an actor, has a number of characteristics that make it an important actor. These range from the structural makeup and appearance, to the teaching methods, roles of authority within the school, teachers' and Principal's perceptions.

The family, albeit playing a limited role within the top down education is still present. The family ensures that the student attends school to get an education. The family in this case may be a family member other that the direct mother and father. In a few cases, the students at the schools visited, lived with other family members, such as grandparents or aunts, due to the fact that the parents would be working in a major city, as opposed to the local region. In some cases, as noted by the school Principals, the grandparents of the students were either illiterate or semi illiterate, give they saw as an issue, if the student needed help at home or to be incentivised.

The Mapuche cosmology is placed as an actor under the assumption and in the event that this is still part of the students' life. Their customs and beliefs can be determinant actors in their acceptance of new knowledge or how it is interpreted. It has also been included given that inter cultural education was emphasised in the Escuela Basica School 2 school.

ICTs are another actor which is present in this model. When these are used, they have the potential to facilitate access to information quickly. On the other hand, the learning process in the school and with ICTs is in direct contrast to the manner in which Mapuche children would be traditionally taught. Additionally, ICTs may also be given less emphasis as a teaching tool, given that students may have other more immediate needs related to poverty or family, such as, poor nutrition, fragmented families and lack of resources. The

latter was evident from a comment made by the Escuela Basica School 2 Principal as well the special needs teacher.

However, the Escuela Basica School 1, as it was observed did have a more active approach to the use of ICTs in the classroom. Every classroom that was visited one of more computers inside for the students to use. These were used during class, to impart lessons or for the students to conduct exercises. Therefore, this model is relevant for this school as this actor was present and active at this school. Notably, given the number of students per computer, it was interesting to see the synergy displayed between three students and one PC (including keyboard, mouse and monitor). In this case, one student seemed to exert more power, usually, the one holding the mouse. However, at times, it seemed that this student exerted power over other students not by intellectual capacity but by physical capacity (the latter is an assumption), as it was observed on a couple of occasion that either student standing next to the chair, where the student controlling mouse was seated, gave instructions and pointed on the screen where to point, drag or click with the mouse.

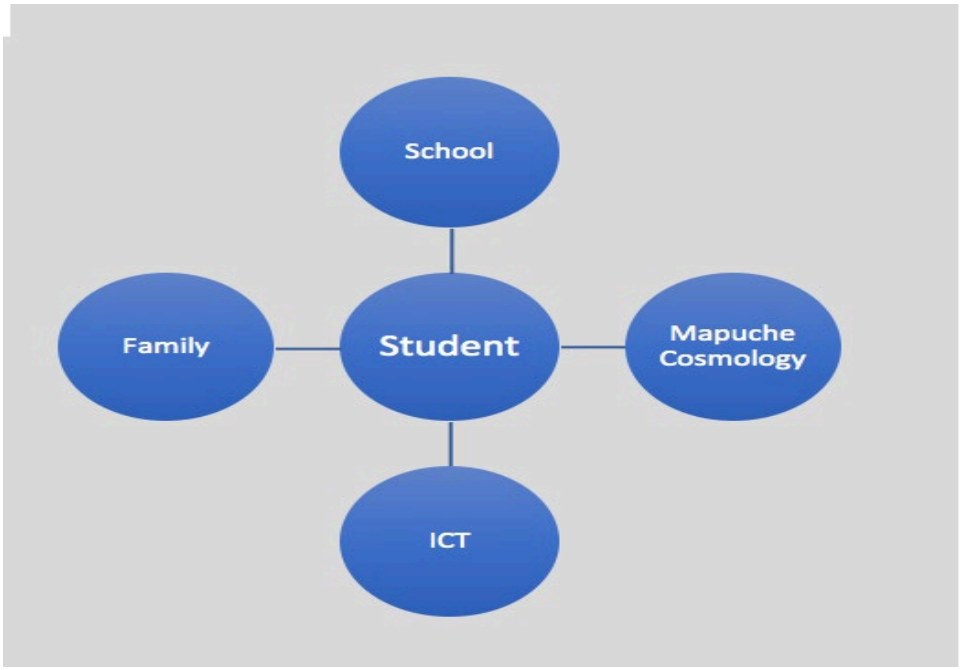


Figure 8.7 - Simplified Network

In addition, each of these actors above, may have one or more actors that form part of the network or an extension of the same. If we were to expand the

model above, we could, for example, make connections with the school, as the central actor interacted with any of the following actors:

- School Principal
- Influence
- Perception
- Teachers
- Government Policy
- Curriculum
- Community (Mapuche and Non-Mapuche)
- Physical Structures or Architecture
- Internet
- Software Programs

Therefore, the simplified model does not occur in isolation and if we atomise the school, we may end up with a network similar to the pictorial representation in Figure 8.8.

Actors at the Escuela Basica School 2

The following network as depicted in Figure 8.8, was derived from the data that was collected, both during the literature review and field observations at the Escuela Basica School 2 school. Although ANT assumes that all actors are equal, in this case, I have placed the school as a central actor, to accentuate the role it can have in this network and the various connections it has with the actors.

The Principal is connected with every actor; however, this actor does not influence the physical structures imposed by the government but may influence in the erection of the Mapuche structures and or artefacts found throughout the school. Therefore, this actor may have accepted the inclusion of Mapuche artefacts and trees within the confines of the school by either conscientious values or the influence of the immediate environment and its actors. The Principal is one actor that can also accept, reject and influence the direction the school takes with regards to ICTs and Mapuche culture integrated

in the school's curriculum. This can be exerted by the Principal unto and via the school via the teachers or outside actors, for example, local government actors, parents and Mapuche elders.

Influence has been singled out as an actor, for it is influence that can shape or guide the principles that the school wants to impart, in this case, a more integrative approach, where the Mapuche culture has been included in some aspects of imparting knowledge, as well as, the user of structures and symbolism throughout the school. Influence is an actor that has shaped the manner in which the school has started to celebrate Mapuche traditions, such as the Mapuche New Year celebrations, or the emphasis by the Principal to focus on the social aspects that are impinging on the lives of the students. On the other hand, all actors can be influenced by the other actors, for example, the physical structures can influence and exert hegemony on the Mapuche students that attend the school. Influence can also play a part on the manner ICTs are used at the school, as well as, ICTs influencing the students in the acquisition of knowledge or learning practices. Also, the teachers and Principal may be influenced by the Mapuche community and *vice versa*.

Teachers are another actor that plays a leading role on the Escuela Basica School 2 school or any other school, if this model was extended to other schools. For it is teachers that face the students for the longest part of their educational journey. However, in this school, the Principal and teachers expressed similar views with regards to the needs and challenges of the students. Thus, there was an apparent overlap on the characteristics of these two actors (Teachers and Principal). For example, the Principal and teachers at the Escuela Basica School 2 saw themselves as being at the coalface in tackling the difficulties faced by the students.

In this network, government policy is an actor that influences, imposes and sets the parameters and guidelines by which the school, Principal, teachers, school structure, ICTs and the community interact in this network. In this case,

each of the human actors may interpret or react to the Government's parameters and standards in a different manner. Those non-human actors, such as ICTs and physical structures can act as emissaries of the dominant culture by imposing structures, symbols, events and curriculum which can be homogeneous, non-inclusive and lacking context that is relevant to the Mapuche. The various initiatives by the different governments since the return of democracy have been putting an emphasis on the improvement of education, performance and equality. These have been some of the government policies that form part of the network below.

The community (Mapuche) is an important actor, albeit, losing some of its relevance due to the increased influenced of the other actors within this networks and also external ones. This is evident by the figures provided earlier with regards to the loss of the Mapuche language or the feedback from some parents that thought that celebrating the Mapuche new year at the Escuela Basica School 2 school was pointless and 'silly'. However, community values and culture have managed to influence actors at the school that has translated into aspects and symbols of the culture have been adopted, such as trees significant to the Mapuche planted around the school and Mapuche instrument available also at the school. This community building and rescuing approach has also challenged the existing physical structures imposed by a dominant culture by means of erecting a Ruca, a totem and the seating arrangement inside the classrooms. However, it must be assumed that despite these attempts to rescue their symbolic structures and culture, most the children would have lived in a house that was not built to look like a Ruca and would resemble the houses that dotted the area.

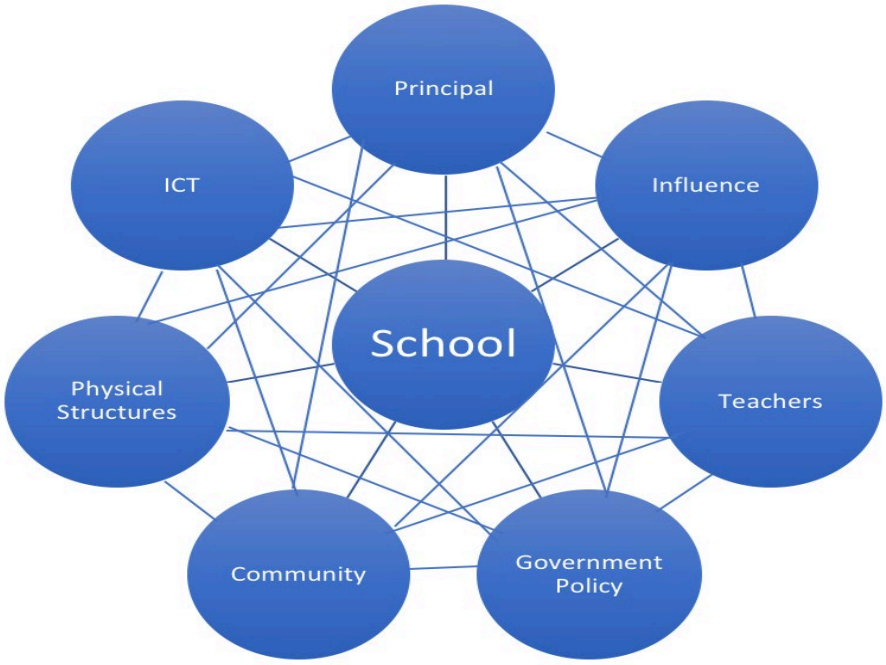


Figure 8.8 - Actors and the School

Actors Using ICT During the Lesson – Escuela Basica School 1

The following network in Figure 8.9 has been derived to understand the actors identified during the observation that included the students using ICTs in the classroom. The observations took place while students conducted basic astronomy exercises that had been loaded on the PCs at the back of the classroom. Due to the lack of sufficient number of physical hardware, three students per PC worked on the exercises at the same time. Meaning that one student would grab the mouse, another would use the keyboard (albeit, limited used) and the third would be reduced to sometimes direct or finger point to where the pointer on the screen should go and click, having no input at all. Some groups did some sharing of the mouse, but this was rarely done. At least, I do not recall seeing this more than twice.

In the network below, we can see the immediate interaction amongst the hardware components, and the same amongst the human actors which during the exercise maintained constant interactions. Most important, it appeared that in some cases, the dominant student would take command of the mouse but in turn would either be directed by the one standing (Student 1) or the student

on the keyboard. It was evident that by selecting three students at a time, it was likely to leave one student with less input and interaction as represented below by ‘Student 1’. Always, the student on the keyboard (Student 2) would sit down and sometimes share half of the chair with the student holding the mouse (Student 3). They could all see the screen, that is, the application characteristics being processed by the computer but only one could interact directly with those particular actors on this network that would facilitate the learning, that is, the mouse and keyboard.

In summary, the exercises were team exercises of sorts but were hindered by the lack of physical resources. Also, the software applications were predominantly mouse-driven and so, the use of the keyboard was limited and so, it would have been more beneficial if perhaps one or two students per PC were allocated. But this would have taken longer to accomplish given that the teacher had combined grades and she admitted to rushing at times due to this and other factors.

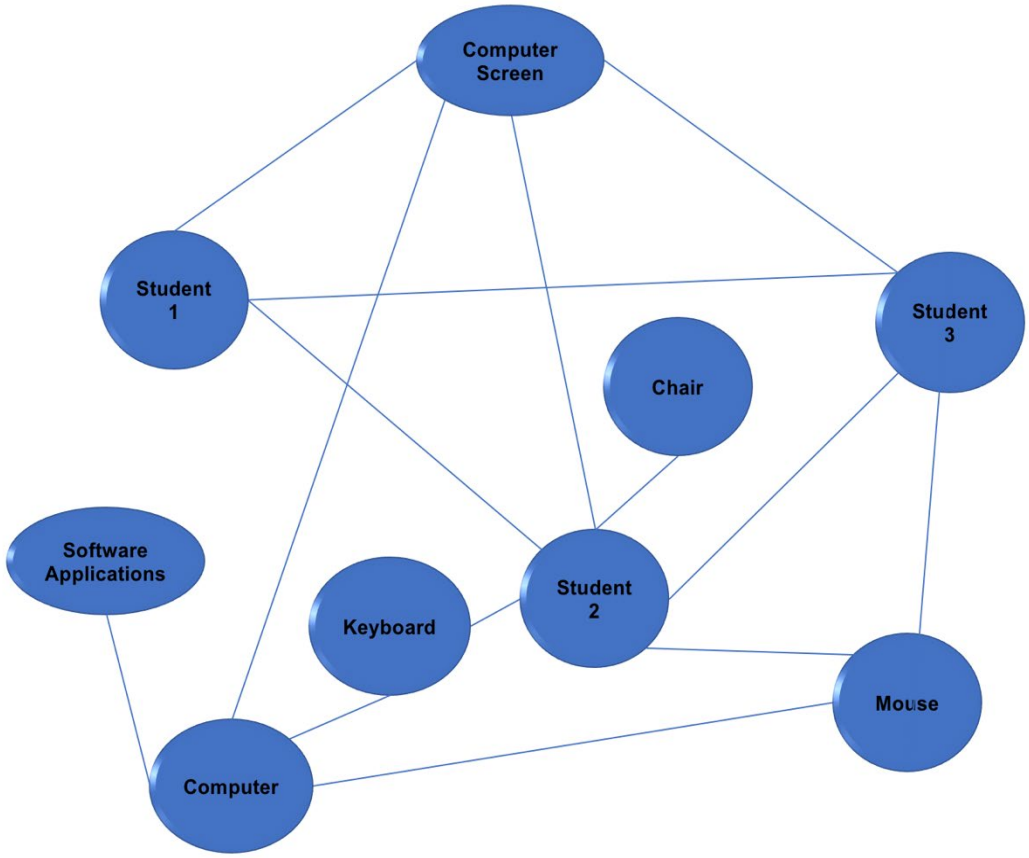


Figure 8.9 – Actors Using ICTs – Escuela Basica School 1

Proposed Hyperbolic Network

The below network as depicted in Figure 8.10 must not be interpreted purely as a Kepler-Newton elliptical model where the actors are orbiting a central actor. Rather, it must be interpreted as network where the actors can be permeable, can connect, absorb, diffuse, translate, reject or become irrelevant; depending on the circumstances or actors at play during a particular time and space that these actors come into play or are situated. I must add that it is difficult to represent this model on paper, as it lacks the depth and dimension that this network representation demands.

The point in which these actors intersect can be thought to perform ‘transitions functions’ as Penrose (2005) explains it and that it must meet consistency conditions at the points of intersections. It is here that the model adopted will deviate from the mathematical perspective of manifold or patches. For example, the network can be best described as made up of actors which can also be treated as ‘black-boxed’ (Fenwick & Edwards 2010) containing the characteristics that define each of the actors identified in this network. Furthermore, I propose that some of these actors (or black-boxes) are outward diffusing, while others are inward absorbing. For example, ICTs, as shown in the model, can be seen as ubiquitous and expanding their influence or characteristics outward. Whereas, the Student will absorb, interpreted or reject the transitions produced by ICTs or the school. Therefore, this network is more inclusive and fluid because it contains most of the actors that have been atomised earlier and looked at in a reduced network context. Therefore, this network contains the following actors:

- Mapuche Culture and Cosmology
- Mapuche Elders
- Mapuche Language
- Social Capital
- ICT
- Exclusion
- Principal

- Teachers
- Physical Structure
- Curriculum
- Chilean Culture
- Mapuche Community
- Prejudice
- Students
- Mapuche Parents

Unlike the previous and smaller networks, this particular network strives to identify a wider range of actor that are present but somehow, are missed when implementing ICTs in schools where the majority of students are Mapuche. Although, some aspects of this network could also apply to school in low socio-economic areas in Chile. This is because Social Capital and Exclusion have been included in this network. These two actors in particular can have negative aspect and not act as enablers but as influencers with negative characteristics. In the case of Social Capital, I have based this view on the argument put forward by Szreter (2000) who argues that 'social capital flows from the endowment of mutually respecting and trusting relationships that enable a group to pursue its shared goals more effectively than would otherwise be possible'. With this in mind, there could then be gaps between the Mapuche shared goals and commonalties within their own community and those of the dominant society, which may have a different perception of these. Therefore, the Social Capital of the two actors would be at odds or be seen as less value by the dominant society. This in turn could give rise to Exclusion by the dominant society, by objects at the school due to the lack of these to be exposed sufficiently and become adept in their use; by self-exclusion if the actors decide to shun using a particular object, language or facility.

Therefore, this network provides a wider range of actors, although not exhaustive, which have been identified and considered in a holistic approach to highlight that introducing ICTs, its early adoption and willingness to adopt/use does not demonstrate or translate into immediate success. Trust

given to the technology without little or no thought given to the many actor that may be present or yet to be present may render such an endeavour just that, a mere effort and never a completed milestone.

Figure 8.10 – A Holistic View of the Actors

Conclusion

This chapter has discussed the various networks that have been identified as a result of the literature review and most importantly, tied and juxtaposed to the data gathered at the schools visited. Thus, I set out to use ANT so that I

was able to identify and explain those human and non-human actors (Tatnall 2011) that are deemed to be significant in the context of this thesis, so that the introduction and used of ICTs was examined not as an isolated actor.

The rationale for the government to introduce ICTs was to reduce inequalities and provide more opportunities in education. The networks and actors identified provide a more holistic view of the interactions that exist between those actors and which can identify other actors and their interactions which go beyond the premise of reducing inequalities and/or providing more opportunities in education.

The chapter started by identifying those networks and actors which are Mapuche centric and inclusive of their community and cosmology, so that it was possible to see their interactions and relevance. These were further expanded to identify these from within a cultural and then more holistic approach, so that a bigger picture is formed of those actors that come into play and require examining when introducing change, in this case technological change or introduction.

Chapter 9 – Conclusions and Implications

Introduction

In this chapter, I provide the conclusions and findings of this thesis and possible implications, whereby, a conclusion is provided to each of the research question or hypothesis/aims. The chapter also provides a conclusion about the research problem, implications for theory, implications for policy and practice and finally, provides recommendations for further research.

The Research Questions Revisited

This thesis started with a major research question and six sub questions. Therefore, the data gathering was centred around these and in the following sections, I revisit the questions to consider whether this thesis has contributed to knowledge. To get to this point it was also necessary to use ANT to understand the human and non-human actors that are impacting the Mapuche and their education. Below are the questions that were integral to this thesis:

Major Research Question:

1. How are ICTs being used in the classroom environment by the Mapuche students and as such, are ICTs being used as a tool to improve their education outcomes and what have they experienced as a result?

Sub Questions:

The following sub questions have been formulated with an ANT approach and were expected to result in a more descriptive reply.

1. What challenges are experienced by the students?
2. What challenges are experienced by the teachers?
3. What challenges are experienced by the school?
4. In what context are ICTs perceived by teachers?

5. Are there any visible impacts on the student's Mapuche language?
6. What impacts are the aims proposed by the Chilean Ministry of Education having on the Mapuche students (relationship between policy and effect)?

The Major Question – The How, the What and the Actual

Formulating the How

The major research question was formulated to get to the *how* ICTs were being used in the classroom environment by the Mapuche students, it also posed to understand if the expected outcomes envisaged by the government were in fact starting to materialise as a result of ICTs being used as a tool to improve education outcomes and ensuring equality in education. The verbosity of question was designed to be broad and open to guarantee qualitative responses.

After having described the data gathered at the schools by means of photographs, school records, classroom observations, interviews and performance results, I also identified the networks and actors at play in the context of Mapuche education and where ICTs had been introduced. The ANT approach was more specific in describing the interrelations that exist and take place in this context and which provided a more holistic view of the actors and networks. The ANT approach was adopted to understand these actors beyond the uniform introduction of ICTs, which as described, the intended outcomes have not been fully realised.

The Escuela Basica School 1, the How and Its Challenges

Firstly, let us start with the Escuela Basica School 1. Of the two schools visited, this school is where ICTs were being used in most of the lessons, each of the classrooms had one or more PCs, a printer and internet connection. It was evident that software and hardware issues were constant and getting these

addressed was not easy as the maintenance of the equipment was performed by people outside the school. The Enlaces program had tasked tertiary students studying IT related the courses with maintaining and supporting the equipment at the schools. Apparently, this plan aimed to give the students hands-on experience by providing helpdesk related support. But as indicated by the Principal at the Escuela Basica School 1, the regular visits to maintain the equipment had ceased to be so regular and it seemed that there was no central point of contact to log a ticket with the University so that students could be sent to fix any ICT related issues at the school.

With reference to the Major research question, the school appeared to have adopted ICTs as part of their teaching. They had educational software available at the school, the teachers also downloaded educational software available either from the Ministry of Education or other sites that they knew of. Thus, the teachers were using and seeking additional material to impart lessons. However, one important point to note at this school was the lack of a bilingual program to teach Mapudungun. Therefore, all of the material that was available to the students was devoid of a Mapuche context, both visually, contextually and linguistically.

Whilst observing a lesson that seemed rushed given the combined grades, I later asked the teacher how it was possible to cover the curriculum material in any given year. To which the reply indicated that this was difficult, and it was always a struggle due to other issues that impacted the students, such as social economic, family and poor performance. But in saying this, it was also observed that the lack of sufficient computers made it difficult for students to get enough exposure to the technology at the school. In addition, most of the students did not possess a computer at home, making the school the only place where they could use and become adept users of the technology. From this it could be assumed that in this school the limited use and lack of computers may limit any perceived or expected increase of student performance.

So, the *how* of the major question has translated into an improvisation exercise in the classroom. This was evident during the observation of the Grades 5 and 6 students whereby, two to three students interacted with the one PC in what seemed an interesting division of tasks. For example, one student could take the chair and grab the mouse and immediately become the dominant actor. The other two could be standing up not having any interaction with the PC. However, in some occasions the dominant actor was not always the most knowledgeable given that it was also observed that the student(s) standing up and not having any physical interaction with the PC would point to the screen and direct the person holding the mouse. On other occasions, two students would share the chair, that is, two students sitting on the one chair and thus one could use the keyboard and the other the mouse, a third student would again be relegated to only provide verbal cues. This arrangement seemed to indicate that the student getting hold of the mouse was exerting some influence over the other students as it seemed that the student holding the mouse was in control of the PC. It also seemed indicated that the students had been doing this for a while, as it was not evident that there was conflict when using the PCs. However, this arrangement appears to correlate with Cuthell (2002) who argues that when students use ICTs they are able to develop learning strategies of their own, thus, allowing learners to interact with the material. However, the particular learning strategy observed, which seemed collaborative and or based on sharing, appeared to have been adopted due to the lack of resources. And so, it partially contradicts Pearce and Ainley (2002) who in reference to learning with ICTs argue that student motivation suggest that outcomes depend on a variety of factors including interactivity, well designed learning sequence and the willingness of the students to engage. Clearly, we have seen that a wider 'variety of factors' are at play in this case.

What can be inferred from this arrangement is that there were not enough PCs to ensure that all students had sufficient and equal access and exposure to the technology. Otherwise, the exposure for some students would be slightly better than that described by Forno and Rivera (2009) in their description of President Lagos' attempt to breach the digital divide in Chile.

With reference to the ratio of students per PC, this was well within the target imposed by the government which by 2010, there would be a ratio of 10 students per PC (Ministerio de Educación de Chile 2008). However, most students would not have a PC at home to make up for this shortfall and none at this level, were observed to have a laptop as part of the JUNAEB program that rewarded students with a laptop based on their academic performance.

From a pedagogical perspective, it was evident that in this school the teachers had adopted and integrated the technologies in their lessons and they were the ones playing a central role. The lessons observed had a mixed approach despite the challenges posed by the mixed grades, the lessons were split to cater for example the Grades 5 and 6 to perform Astronomy exercises on the PCs or a history lesson comprised of multiple-choice exercises. Apparently, these lessons would have to have been prepared beforehand to have been carried out on the time allocated. It was also evident that the teachers were aware of available material online that they accessed. But despite their uptake and usage, the ratio of PC to student seemed to leave out some students with little or no access to the technology during class. Also, the teachers did see the technology as an enabler and a tool that made their teaching easier and better because of the ability to access and prepare better lessons.

During the observations of the Grades 5 and 6 using PCs and the teacher conducting the lessons, there were a number of factors that seemed to impinge on the effectiveness of the lessons, that is, teachers were not capable of solving more technical issues such as infected computers and other minor issues that meant relying on the Enlaces support, which was not reliable. On the other hand, the teachers were able to prepare material for the lessons but the speed in which this was imparted was limited by the ratio of students per PC. Also, the classroom did not appear to have been set up for optimal use of the PCs, these were at the back of the room and the teacher was not always able to spend time with the students using the PCs because at the same time the teacher was at the front of the class conducting a parallel lesson to the rest

of the student not taking part in the exercises on the PCs. Perhaps, one extra teacher would have been optimal and more PCs so that no more than two students per PC could use them at a time. The fact that the students were put into groups of three seemed to suggest that this was the right number to get through the lessons within the time allotted. However, the latter was not confirmed by the teacher and so it is an assumption from my part.

Whilst the Grades 4, 5 and 6 had more interaction with ICTs, albeit not without its challenges. The Grades 1, 2 and 3 Teacher did admit the use of ICTs was somewhat limited and very little time was given to students on the PC, there was only one PC in the room, it was mostly used to print material for the students to work on, otherwise, the TV and DVD was used to show documentaries and other educational material to the students. The teacher of this class indicated that she did not have enough time to devote to using the PC for lessons or the student to use, as she had the greatest number of students, compared to the other teachers.

A Tool to Improve Educational Outcomes?

The major question also sought to find out if the ICTs were seen and used as a tool to improve educational outcomes that somehow translated into results, either negative or positive. It must be noted that from a government viewpoint, it strives to measure quantitatively the students' results by collecting their performance and ranks the school's performance once compared to other schools countrywide. However, during the observations, it was noted that although ICTs were being used, their limited number (student to PC ratio) also resulted in limited time spent per student using ICTs and so, it would probably result in limited improvements and school performance as rated by the Ministry of Education.

As indicated above, the teachers were willing users of technology to prepare and impart knowledge but due to student to PC ratios their expectations were limited. It was evident that at this school, the ICTs were being used but it did

not seem to translate to better educational outcomes. The introduction of ICTs was welcomed by students who liked using it and teachers who perceived it with positive eyes. The latter perception provided some clarity sub question 4. However, the positive uptake and use was not translating into better results for the students as indicated earlier, the school was underperforming given that data provided by the Ministerio de Educación (2010a) as at the end of 2010, the school's students scored an average of 5.5 (out of 7), lower than the average score for all primary level schools (Urban and Rural) at 5.63 (Ministerio de Educación 2010a). It must be noted that students in Chile are marked using score from 1 to 7 (with 7 being the highest score). Given that a lower than average score was obtained at this particular school, it is necessary to clarify that this result cannot be generalised to other schools nor can the reasons. Therefore, only further research could show some correlated data.

ICTs Impacts

As part of the Major question, it was also sought to find what is being experienced as a result of using ICTs. The answer to this was derived from observations and answers provided during the interviews.

The students at the Escuela Basica School 1 were not exposed to their language at the school, even when a bilingual program was supposed to have been in place due to the number of Mapuche students enrolled (UNESCO 2010). In addition, most of students did not speak Mapudungun and none of the teachers were proficient in the language either. To compound this, the material used during class that included text books, software and Internet sites were all in Spanish. Therefore, with reference to the latter, the students were experiencing newer and richer actors that were challenging their language, culture and beliefs. This was taking place by succinct steps due to the limited access but nonetheless, it was evident. For example, their use of abbreviations that came from English, such as 'PC', the recognition of certain objects such as an iPhone and calling it a 'Tush', because it was being marketed as a

‘Touch’ phone at the time and the word used refer to the phone was its English equivalent instead of a Spanish word similar to ‘Tactil’. Therefore, the students used the same word, at least, how it sounded to them (‘tush’). At this school, it was not entirely clear how ICTs were positively impacting the Mapuche students given that it was compounding the loss of language and normalising the content as the new normal.

It could be argued that ICTs were impacting positively those students who had benefited with their new laptops through the ‘Yo Elijo Mi PC’ scholarships (Junta Nacional de Auxilio Escolar y Becas 2017a, 2017b; Wikipedia 2017). However, this could lead to a number of outcomes. For example, these students would be better equipped to produce school work which could include more content, better presented and less spelling and grammatical errors. They can also become much more adept users than those who only have limited access to the PCs available at the school, they may be able to access information fast and more of it (provided they know where to go). Also, given that these students were recipients of laptops based on their school performance (Junta Nacional de Auxilio Escolar y Becas 2017a, 2017b; Wikipedia 2017). Their performance and quality of work would improve compared to those with no laptops. Thus, creating perhaps, a bigger gap in terms of performance results between these students and the rest of the class who do not have a PC or laptop. Those students who possess a laptop have been able to acquire a form of capital and influence that is not available to the rest of the students. This can stigmatise those students who may never be able to qualify for a laptop due to their poor results and thus fall further behind. Over a period of time, the intended purpose of rewarding students based on performance would in fact create disadvantage to many students. In fact, it appears that this was the reason to instil another program that covered all students who are enrolled in a public school, are in grade seven and who have not received already a PC through the ‘Yo Elijo Mi PC’ scholarship in the last few years, will now qualify to receive a PC (Ministerio de Educación 2017b).

In this limited context, it can be argued that ICTs may have improved the education of only those students who possess a PC or laptop and as far as the teachers are concerned, they benefit from the work that is handed by these students, which can be placed in a shared folder or via USB, making it easier to review and mark. Also, the teachers have readily adopted and perceive ICTs as useful tools, which they have integrated in their lessons. Thus, this uptake and opinion provided some answers to sub question 4. With reference to the rest of the students, those that did not own a PC or laptop; unless these students have access to the same resources, they would continue to be disadvantaged and more so, given that those who benefited from the 'Yo Elijo Mi PC' scholarships, where already the higher performing students. It is assumed that under the 'Me Conecto Para Aprender' scholarship (Ministerio de Educación 2017b) and which has been in place since 2015, those students that have reached Grade 7 would have qualified for a laptop and results would have improved. However, the latest results indicate that the school is still a low performer and thus, there are other problems that need to be further investigated. These are discussed later on.

The Escuela Basica School 2, the How and Its Challenges

The Escuela Basica School 2 offered a different perspective and approach to the use of ICTs as compared to the Escuela Basica School 1. In fact, in this school, the use of ICTs by the students was not observed, as none of the classrooms had a PC inside. The school had four PCs in working order (as assured by the Principal) but these were in the Library. The only exception to this was a teacher using a laptop during class to refer to class notes that had been prepared earlier. It appeared, from feedback received by the Principal that ICTs took second place to the more pressing social issues that were ever present and impacting their students who were classified at risk. However, their approach to the Mapuche culture was different and more inclusive.

The first impression of the school and its surroundings was that this was a bigger school compared to Escuela Basica School 1 in terms of space and

rooms. Later on, I could see that there was an actual playground for the students to play but in terms of architecture not dissimilar to Escuela Basica School 1's buildings. However, the seating arrangements inside the classrooms was different and aligned to the customary Mapuche way of meeting with other members of their community or families sharing their living space. This is something I had not seen before.

With reference to the Major research question, this school had adopted ICTs but not as an integral part of teaching. ICTs were mainly used by teachers to prepare lessons and administration tasks. But students seemed to have limited access to ICTs, given that the four available PCs were mainly located in the Library, meaning that the students had no interaction with ICTs during lessons, teachers would not always be present when the students would use the PCs and students would have to book time to be able to use the PCs. Similarly, to the Escuela Basica School 1, at the Escuela Basica School 2 there was also educational software available, the teachers could download educational software available from the Ministry of Education or other educational sites, which they could use to enhance the content of their lessons.

According to the school Principal, five students had their own laptops, their results from grade 4 to 6 were considered and as part of the government scholarships, they were able to choose a laptop from a range that is available, and which includes as part of the warranty, free technical support for a year (Ministerio de Educación 2017a). I must add that I do not recall seeing any student using a laptop in the lessons observed. However, a similar assumption as that used for the Escuela Basica School 1 can be adopted due to the advantage that the better performing students would gain over the other students who were lower performers and did not own a laptop.

With reference to the ratio of students per PC, the school had 63 students and only 4 PCs, which was below the target imposed by the government which by 2010 was expected to have reached a ratio of 10 students per PC (Ministerio

de Educación de Chile 2008). Even if we remove the five students who owned a laptop, the school would still not be within the target. Thus, the school had about 14 - 15 students per PC. Combined with the fact that these where located in the Library, access to the technology would be restrictive since the students would have to book time and given they spent most hours of the day in class, it would then be difficult to accomplish and become adept and confident using the technology and most importantly, to have equal access that supposedly warrants equity, quality and opportunities (Claro et al. 2012; Toro 2014). Thus, it cannot be argued that at this school, technology was entirely used as a tool to improve the outcomes of the students. Primarily because of the number of PCs available, the place where these were located, in the library, as opposed to the classroom and the approach that the school had adopted, which was more centric to the Mapuche culture and education.

Mapuche Inclusive Education

What was different at this school, compared to Escuela Basica School 1, was their cultural approach and inclusion of a local Mapuche educator and a special needs teacher, which seemed to suggest that the school placed emphasis on both the cultural aspects of the child and their social and personal wellbeing. The school had implemented a bilingual program to teach Mapudungun to the students. Although, according to the Principal, the parents could opt out their children from attending these lessons. I was not given what alternatives were in place if the parents opted their children out of the Mapudungun lessons and if so, what where the reasons for not wanting their children to learn the Mapuche language. It must also be noted that no audio-visual material or textbooks were sighted that were in the Mapudungun language. All the material sighted was in Spanish. Therefore, the *how* at this school was limited and did not appear to be championed by the Principal who saw other pressing challenges that included poverty, exclusion, family issues and hunger as opposed to the digital breach.

As indicated earlier, this school had adopted inside the classrooms a seating arrangement that was familiar to the Mapuche. Although, it would be assumed that some students would not have been aware of the customary Mapuche seating arrangement if they had limited contact and interaction with Mapuche customs. Although, the students at this school seemed more adept and willing to use their language, suggesting that either their community was more active, or the school was succeeding in rescuing their culture and language. Also, the school had planted trees that are significant to the Mapuche, erected a Ruca and a totem. These were also objects, symbols and/or structures that are part of the Mapuche traditions.

Let's start by looking at the seating arrangements. As stipulated earlier, the classrooms had the desks arranged in a circle around the room, which also included the teacher's desk. This was adopted from the Mapuche custom of conducting meetings while sitting in a circle and so everybody can see each other while communicating and also giving a sense of equality. This custom aligns with Dewey (1958) who argued that humans live in communities, sharing things in common and that communication is the facilitator to sharing those commonalities. However, as far back as 1958, Dewey (1958) had already argued that as civilization advances, 'the gap between the capacities of the young and the concern of the adults widens'. However, contrary to the argument of Dewey (1958) and with reference to the Mapuche, it appears that they have not sustained themselves by self-renewal. Rather, it has been a survival approach in the face of impositions of a homogenous education and as a conquered society (Forno & Rivera 2009; Llanqinao, Rebolledo & Briceño 2008). And so, at the Escuela Basica School 2 school we have two approaches mixed into one, where lessons are reflective on the curriculum set out by the MINEDUC and where the students are surrounded by Mapuche symbology, ranging from the seating arrangement, trees, the presence of a Mapuche educator, a Ruca, totem and musical instruments. But despite the adoption of Mapuche culture which is visible throughout the school, the school architecture and the lessons take place within the confines of those structures that have been erected by the dominant society.

The Teaching Methods and the Mapuche

The traditional Mapuche methods used to educate their young were explained earlier in Table 5.1 where it can be seen that the Mapuche relied on three main methodologies (refer Table 5.1 for more details on each of the methodologies), namely, Pentukum, Nutram and Gulam (Llanqinao, Rebolledo & Briceño 2008). Students at this school are exposed to somewhat similar methodologies where oral communications are important in learning. However, these are purely within the context of a homogenous curriculum. Therefore, the Gulam which involved the elders and the family in advising the young Mapuche by reflecting on past experiences to formulate better decisions going forward, has been replaced by a system that now employs a special needs teacher to oversee some of these tasks, especially when there are social issues that impinge on the students. Also, the school has been able to compensate by including a local Mapuche educator who had held meetings in the Ruca, teaches and advices the children with a Mapuche context and the children participate in two hours of Mapudungun classes per week to learn their native language. In fact, it was at this school where I heard children speaking in Mapudungun, or at least they sounded to have better proficiency than anyone at the Escuela Basica School 1 where there was no program in place to cater for the learning of Mapudungun. Therefore, as the elders have become less relevant for these children's learning, that is, Gulam. The school has mitigated this by engaging the Mapuche educator who now must assume this role but within the confines of the school.

The School, Thick Democracy, Class and Equality

At the Escuela Basica School 2 school, it was clear that ICTs did not play a central role in the education of the students, Instead, technology was used for bigger groups, including parents in the main hall that was equipped with a projector, screen and white board. However, the school was characterised by its approach that took on the paradigm which Schugurensky (2010) describes as thick democracy, which entails a more participatory approach, focused on

societal wellbeing and human rights. Whereas, at the Escuela Basica School 1, technology was more pervasive.

It is at this point that we arrive at what Apple (2012) refers to as the 'holy trinity' of power which is the nexus between, race, gender and class. As we have seen both of the visited schools are disadvantaged, the students are affected by a host of issues including poverty, family issues and exclusion. For example, the Mapuche generally suffered dispossession, discrimination and poverty since the first contact with the Spaniards up to the present day. Although, as part of their beliefs the Mapuche view the creation of man and woman as equals, it would be assumed that gender discrimination would be as a result of the dominant society. With reference to class, the Mapuche have been economically disadvantaged due to the lack of social capital and capital (in its monetary sense), the resulting exclusion and discrimination, the lack of education; all of which have contributed to becoming an underclass unable to receive palpable economic returns and which Jencks *et al* in Apple (2012) argues that as compared to those individuals who are economically advantaged who are able to get economic returns twice as much as those not on this stratification. It is then no surprise that the Araucania region which has the highest proportion of Mapuche people with over 30% of its inhabitants being Mapuche, is also one of the poorest regions in the country (Valenzuela, Toro & Rojo-Mendoza 2017).

Race is also an important factor which can influence the outcomes of the students beyond the school years. However, let us not forget that the majority of the Mapuche parents at the schools visited did not have secondary school completed. Which compounds the lack of social and economic returns that has meant that the students are in a level of poverty that puts them at risk. However, let us consider Apple (2012) again who argued that even if the discourse of inequality of school performance was removed and all schools were achieving similar results, evidence suggests that the outcomes would not be significant when race discrimination takes place (Apple 2012). Therefore, it would be interesting if for example, Chile had a meritocratic system and all

schools produced similar results, where all students, regardless of ethnicity, location and perceived class, would have access to equal opportunities. Already this sounds utopian and Apple (2012) argues that 'evidence seems to indicate that there has been little consistent loosening of the ties between origins and attainments through schools.' (Apple 2012). Therefore, ICTs alone do not have the power to equalise education or be an important actor in the education, performance and social inclusion of Mapuche students.

In addition, during the interviews, it was indicated that the teachers pushed the students to finish primary school and then progress and also complete secondary schooling. However, the teachers and data suggest that not many Mapuche students progress to tertiary education and opt for a technical or agricultural education. If we refer to Figure 3.1 the disparities of average and median (Monthly) wages according to education level (as at 2016) are shown. Thus, at a national level, the higher the education level, the higher the wages. For example, those with university education earned 2.5 times more than those with only secondary education (Instituto Nacional De Estadisticas 2016; Lara 2017). According to Hepp (2009), communities which have a high index of poverty, according to CASEN, tend to also have the worst index of learning. The latter is true for those areas where the Mapuche are concentrated, leading to the erroneous association of poor education and student performance to ethnicity (Hepp 2009). Therefore, there is also the need to change the manner in which the system via the schools preserve the current social division of labour, making the distinction between mental and manual labour, as perceived to be the path for a particular group in society (Apple 2012). What this means, as Apple (2012) explains it is the teachers or the school can perceive students to be capable of producing significant quantities of 'technical/administrative knowledge,' and thus can be placed by means of the 'natural' process of the curriculum and the school's guidance program, into the 'mental dichotomy'. On the other hand, those that are rejected are due to and by the same inner workings of the curriculum and the school's program, are guided and reserved for the extraction of labour at a later stage in the form of services and or manual labour (Apple 2012). Having said that, the Escuela

Basica School 1 and Escuela Basica School 2 school may be indivertibly contributing to this division of labour without realising it.

The Sub Questions

In this section, I juxtapose the sub questions to the data gathered at each of the schools. The first of these questions sought to find the challenges that were being experienced by the students.

Sub Question 1 - Challenges Experienced by the Students

At the both the Escuela Basica School 1 and Escuela Basica School 2 School the students were facing challenges due to their economic disadvantage, that is, their families were in the low socio-economic stratification, which presented in a number of issues that included inadequate nutrition, given that the majority of students required to be fed at school, inability to afford ICTs as a small number of students owned a laptop and those who did received them through government scholarships. Those students who possessed a laptop would not have been able to have an Internet connection at home due to the associated costs in getting the service set up. If we recall the answer provided by the Escuela Basica School 2 School Principal whereby it was mentioned that 'You may not have seen students using their laptops, but there are occasions in which those students, who have one, have brought them to school and use them to connect to the Internet and or do exercises to hand in work'. Which seemed to indicate that these students did not have Internet access at home. Also, if we pause for a moment and recall Figure 7.4 where the connection at the school was possible via a microwave antenna, it gives an indication that the remote location poses a problem. Another factor that caught my attention, was that no child was seen using a mobile phone or tablet at both of the schools and in fact, during my time in Chile (in 2010) I do not recall seeing any young child with a mobile phone in Santiago (the capital). Therefore, it would be safe to assume that technology was expensive and unaffordable for most parents of Mapuche children. And so, access to information was only limited to school hours and for those students at the Escuela Basica School 2, this

was more difficult due to the location of the PCs and having to book time to use one. Some students were also impacted by the combined grades. This was evident and acknowledged at the Escuela Basica School 1 where some lessons appeared rushed and to be skimming through the subject being taught, given that the time allocated for the lesson had to be split into three separate lessons. This meant that at times, students would lose concentration, the teacher appeared to lose control over some students, especially those that were copying from other students and the classroom became a noisy environment where students that were not the focus of the teacher at the time, would start talking amongst themselves. In addition, at the Escuela Basica School 1, the Mapuche students were not getting any Mapudungun lessons to meet the requirements set by the government under their bilingual education program which had been implement in 1996 (UNESCO 2010).

Marshall and Taylor (2005) argues that there is consensus that the inequitable access to ICT can have implications in societies and thus, there has been an increased emphasis in government initiatives to tackle this issue. Which is true in the case of Chile through the various initiatives that are in place. However, as we have seen above, there are other factors that need to be considered to tackle the other issues that affect and/or contribute to the inequitable access to ICTs. On the other hand, at the Escuela Basica School 2 the approach was different and was less centric on ICTs and emphasised a more socially and Mapuche inclusive approach for the children's education and so similar to what Osorio and Nieves (2014) describe of the approach adopted in Spain by the 1990s in which the each of the actors' actions, decisions and outcomes are centric to a common central actor, in this case the Mapuche children and culture.

Sub Question 2 - Challenges Experienced by the Teachers

The second sub question sought to find out about the challenges that were being experienced by the teachers at each of the school visited. There were some challenges which were particular to only one school and others which were uniform or common across the two schools visited. These challenges

spanned across technology social issues and teaching. For example, at the Escuela Basica School 1, the teachers were challenged by the lack of basic technological *know-how* to identify simple PC issues, such as regularly updating software (antivirus and other applications) so that PCs did not get infected or lessons impacted due to a software updates being required on the laptop being used for a lesson. In addition, at this school teachers had too many students per PC and so students did not get enough interaction with ICTs and exposure to information. At the Escuela Basica School 2, there were not enough PCs at all. Thus, teachers would not be request or expect students to produce work using ICTs. Although, at this school technology was used primarily for administrative tasks, by teachers to access information on the Internet and seek material to use in lessons. As opposed to the Escuela Basica School 1 which had some issues with their PCs, at this school, I was assured that all PCs were in working order. Therefore, teachers did not have to worry about losing functionality of the equipment, especially when these were limited in numbers.

With reference to social issues, teachers at both of the school were aware of the issues impacting the students and which impacted teaching. For example, fragmented families, family issues, lack or insufficient education of their parents, the vulnerability of the students and dealing with adaptability issues of the students. Most of these have been mentioned already and overlap with what has been described before because these issues do not occur in isolation. However, it was notable that teachers at the Escuela Basica School 2 were more vigorous in their approach, had engaged a special needs teacher and were more candid in discussing the social challenges being faced by the students and that they were actively trying to resolve.

Sub Question 3 - The Schools and Their Challenges

The next question was formulated to find that challenges being faced by the school. The answer to this question was provided by the Principals, Teachers, the Mapuche educator and via direct observations which provided clues about

the state of the facilities or buildings, the equipment (PCs, and other audio-visual equipment) and in some instances, teacher to student ratios.

The challenges faced by both schools were of a human and non-human nature. Both schools had issues with combined grades which restricted the time required to spend on a particular subject. This meant, as indicated earlier, a rushed content. Also, the school were impacted by factors outside the school that included, alcoholism, drugs and cultural values, the latter was mentioned by the Mapuche educator who indicated that some of 'these things are imported' and not part of the Mapuche culture. Thus, the Escuela Basica School 2 had identified the challenges faced by the school and that these were more social in nature and so their approach was centred on these and not so much on the use of or lack of ICTs.

Both schools had buildings that needed some form of repair, such broken toilets, repainting of walls, insufficient lighting. In particular, at the Escuela Basica School 1 it was observed that even when electricity and light fittings were available, these were not turned on and part of classroom did not have sufficient light. A similar approach was observed at the other school but at the time, more natural light was available, and I did not notice dark spots. Therefore, it is assumed that either electricity was an expensive overhead, the school had a limited budget, or they were under instruction to reduce expenses. With reference to facilities, the Escuela Basica School 2 had more rooms and space around the school, for example, there was a playground for the students to use and the school yard could be identified as such. Whereas, at the Escuela Basica School 1 it could be said that the school did not have a playground. From what I did observe, at the front of the school there was a space which would have been unsuitable in Winter because this was just a dirt covered area and would become muddy, and the rest of what seemed to be used as the schoolyard, judging by the number of students seen within this space, appeared to the backyard of the a house that was used by the Principal (refer Figure 6.2).

Some of other challenges faced by the schools were the number of PCs per student, especially at the Escuela Basica School 2. Although, this school was not too reliant on ICTs, a greater number of PCs and a reallocation of these may have improved accessibility for the students and given teachers the opportunity to explore and implement new teaching approaches. Finally, the fact that the lower Grades teachers had combined grades and finite time to impart lessons, it would have been more ideal to have more teachers so that lessons were not rushed. If we accept the figures provided by the Ministerio de Educación (2010a) which indicate that in terms of performance, the highest score obtained by a school in the Chile in 2010 was 6.95 out of 7 and that this was in fact achieved by a rural school with only 2 students enrolled, it is perhaps an avenue to explore in the pursuit of better educating children in remote location and indigenous children in rural schools. To emphasise this further the top ten highest performing schools were all rural schools, with six of these schools having from 1 to 5 students enrolled and the rest from 6 to 12 students enrolled (Ministerio de Educación 2010a).

Sub Question 4 - Teachers' Perception of ICTs

With reference to sub question 4, where the perception ICTs by teachers was explored, most of the answers were provided either verbally or by direct observations. These have been provided earlier and include the teachers' adopting and perceiving ICTs as useful tools, that have been integrated in their lessons, used to search for educational material and other school related tasks, as seen at the Escuela Basica School 1. For administration tasks and preparing lessons, searching for material, as was the case at the Escuela Basica School 2. However, and as discussed earlier, the teachers at both schools had different views on ICTs and a sense of urgency or priorities on social issues impacting the students and this guided their approach and views towards ICTs as we have seen earlier.

Sub Question 5 - Visible Impacts on the Students' Mapuche Language

With reference to this question, we have seen that the data suggest the Mapuche have been gradually been losing their language proficiency (Sotomayor et al. 2015). However, this is an isolated event and if we refer back to Chapter 3, where these figures are provided (refer Table 3.6) we can see that all indigenous people in Chile are affected by the same issue and so the younger generations are not retaining their language. However, with emphasis on the Mapuche, the data shows similar trends as per the overall indigenous people. What can we infer from this data, observed/heard conversations of students and the answers provided by those interviewed?

Firstly, at the Escuela Basica School 1, there was no program to teach the Mapudungun, despite a government directive in place to provide this based on the ratio of Mapuche students at this school, there was no teacher proficient in the language, even though one had Mapuche origins and there was limited Mapuche context in the lessons observed. However, some students were heard using lose words, as opposed to sentences, during class and in the schoolyard. In conclusion, it can be argued that this school was only continuing and perpetuating the loss of language. On the other hand, at the Escuela Basica School 2, an entirely different approach had been embraced that not only included language lessons but a whole adoption of customs and symbols significant to the Mapuche. I must state that as indicated by the school Principal, parents could choose for their children not to attend the Mapudungun lessons. Which seems at odds with the program implemented by the government. In addition, the Mapuche educator had mentioned that when traditional Mapuche celebrations were introduced at the school some parents though that these were 'stupid'. Which seems to indicate that some parents either rejected or held negative views about their language and or traditions. The reasons could be one of many and if we recall Sotomayor et al. (2015) who in the case of language, status is also tied to the perceived status or

prestige that an indigenous language may have or enjoy, as opposed to a language that has been accepted as standard, then we could also infer that due to the imposed system, the parents have come to perceive themselves as auto-colonised and intervened (Forno & Rivera 2009), This also reiterated by Llanqinao, Rebolledo and Briceño (2008) who assert that the connexion between the Chilean and Mapuche is one of total submission, with a lack of recognition of their people, as distinct from the Chilean and thus also impacting their education, language and religious differences. Therefore, as a way of assuring their children a better outcome, the parents may feel that rejecting their customs and being absorbed by the dominant culture may be a solution to some of their problems. This point is open for more research so that the reasons are fully understood.

Despite some earlier negative comments, the Escuela Basica School 2 persevered with their approach and I was able to hear both during class and in the schoolyard, students speaking in Mapudungun. Although, I'm not a speaker of their language, I could determine that the students were using more words and sentences and sounded like conversations were taking place. This was important from the point of view that I had not seen this take place at the Escuela Basica School 1, the students seemed comfortable using the language, which contrasted with the reply provided by Eugenia, the Teacher at the Escuela Basica School 1 who indicated that the students at the school seemed 'somewhat ashamed to speak their native language' and that the Mapuche traditions were 'being lost'. Which was in fact peculiar to hear this recognition when no action was being taken to counter the loss.

There were a number of observations that also suggested an adoption of words into the lexicon of the Mapuche children that were not part of the Spanish vocabulary. For example, words such as 'Tush' which was heard when students had recognised my mobile phone (iPhone Touch phone). They pronounced it as they probably heard it and so they phonetically repeated the name (in Spanish phonetically would be 'Tash'). Clearly the students

recognised the item. However, it would have been out of their reach due to the price of these objects in Chile and their economic situation. Furthermore, on some occasions students and teacher (more so at the Escuela Basica School 1) were heard referring to the computers as the ‘PC’ which is in fact short for ‘Personal Computer’ in English but not in Spanish.

Sub Question 6 – Policy and Reality

The last of these sub questions was formulated to find what impacts, if any, are the measures and aims proposed by the Chilean Ministry of Education having on the Mapuche students. The question was specifically aimed at the correlation between policies implemented and which include the introduction of ICTs in rural schools where the Majority of students are Mapuche and the results are observed, obtained from the interviews and data available on the subject, such as CASEN and SIMCE.

Similarly to the what Marshall and Taylor (2005) have argued, the various Chilean governments (post dictatorship) have agreed that the inequitable access to ICTs can have implications in societies and thus, there has been an increased emphasis in government initiatives to tackle this issue. Therefore, since the 1990s Chile has been reforming and introducing ICTs in their education system via a number of programs, for example, in 1992 the creation of ‘Programa Enlaces’ or ‘Enlaces’ (‘Linkages Program’ in English) (Claro et al. 2012; ENLACES Centro de Educación y Tecnología del Ministerio de Educación 2009b; Sánchez & Salinas 2008; Silva & Figueroa 2002). Also, the ‘Yo Elijo Mi PC’ and ‘I Connect to Learn’ scholarships that provided 30,000 PCs in the first year of implementation (that is, 2009) and then increased to 60,000 per year after that (Junta Nacional de Auxilio Escolar y Becas 2017b; Wikipedia 2017). The Junta Nacional de Auxilio Escolar y Becas (2017b) indicates that since its inception, 350,000 students have benefited as a result of the scholarships and an extra 30,000 who are enrolled in a subsidized school in grade seven would have to benefited in 2017.

Despite the introduction of ICTs and budgetary allocation towards making education more egalitarian, using ANT a number of factors were exposed to be impacting the government's proposed and expected outcomes. These were explored in Chapter 8 following the approach by Tatnall (2011) in which the humans and non-human actors were identified and explained. As a result, there are a number of actors that are acting as influencers and exerting negative outcomes. For example, the homogenous education which was still in practice at the Escuela Basica School 1, despite the existence of a Bilingual program leads me to infer that at a school level there was a disconnect between policy and practice. However, this seemed to originate from the lack of Mapudungun proficiency and or the lack of economic resources to hire a Mapuche educator. A targeted approach for this school would be similar to the method described by Osorio and Nieves (2014) of the pilot approach adopted in Spain in the 1990s which was more centric to particular regions and so each region was responsible for the education in their territory. Thus, the Araucania region should be able to have a more Mapuche centric approach that caters for schools where the majority of students are Mapuche. However, in Chile, a centralised system is in place and although each region has its own government (MINEDUC) representative, the guidelines are generally dictated from the top and so the implementation of ICTs have followed the same trend.

Given the generalist nature of this approach, there is a tendency to ignore or place other actors in these networks as separate and independent entities. Therefore, aspects related to lack of economic resources by the Mapuche students, unable to afford and connect to the Internet at home, either remoteness of some rural schools or not enough support staff impacting maintenance of school PCs, lack of contextual priorities towards the region, for example, greater number of teacher to student ratios, tackling poverty and low wages may have greater social impacts than ICTs. Thus, a more inclusive approach is required whereby the community is empowered to identify and tackle their issues within the circumstances of their own culture (Marshall, Kinuthia & Taylor 2009).

In addition, data, observations and responses suggest that the Mapuche have been losing their language, self-image, community cohesion and face a myriad of social issues and discrimination, therefore it is inferred that the homogenous approach has a tendency to continue with what White (2017) argues in which imagined nationalism is maintained by institutions such as media, education system and art.

Conclusion and Final Words

In conclusion this chapter compared and critiqued the data gathered in order to answer the main question:

> How are ICTs being used in the classroom environment by the Mapuche students and as such, are ICTs being used as a tool to improve their education outcomes and what have they experienced as a result?

In summary, the question has been answered. We have seen that ICTs and their expected outcomes have not been fully realised and the students continue to face issues that stem from the school environment, that is, lack of resources, inadequate resources and pedagogical approach; also, those that originate outside the school, including societal perceptions, exclusion, poverty and family issues.

Also, each of the sub questions were answered so that we arrive at the following recommendations and/or final inferences:

ICTs alone are not the solution to a problem that has been perpetuated by years of discrimination, inequalities, poverty, lack of social capital and opportunities. Thus, identifying and tacking these issues may lessen the negative influence these actors may bestow on the Mapuche students.

Any attempt to address issues faced by indigenous societies needs to give them agency and empower the community to find solutions to their own problems.

The schools visited had a significant number of students who were considered at risk. However, at the Escuela Basica School 2 the Principal and Teachers were focused on these issues as opposed to the using ICTs to improve their situation. A more careful consideration of the immediate community and school's needs are required, as well as understand the school's perceptions and monitor their school's approach.

Despite that by 2017 most students in Grade 7 would have received a laptop, both schools appear to be performing at previous levels and so are still underperforming. Therefore, ICTs cannot be said to be improving the students' performance.

Teaching methods at times seemed rushed and repetitive, meaning that either teacher to student ratios are not optimal, teaching techniques or the quality of teachers needs to improve or all of the above.

Further Research

An Inclusive Approach

In Chile, there are number of assessment and testing programs which are designed to capture students' and schools' performance (Ministerio de Desarrollo Social - Subsecretaría de Evaluación Social 2017; Ministerio de Educación 2010a; Ministerio de Educación 2008). We have also seen that there are surveys conducted to capture socioeconomic results (Ministerio de Desarrollo Social 2017; Ministerio de Desarrollo Social - Subsecretaría de Evaluación Social 2017). This thesis analysed this data, including the literature review and the data gathered at the schools and found in the schools visited (as well as other judging from the data available) that despite the data captured from tests and survey and including the programs implemented to tackle some of the inequalities, for example, 'Yo Elijo mi PC' (Junta Nacional de Auxilio Escolar y Becas 2017b) there are still inequalities and deficiencies both at the school level and socially.

This leads me to recommend further research on a targeted school and with a similar approach as that described by Osorio and Nieves (2014) which would be more inclusive of the regional context in which the school is located. For example, there is a need to see how ICTs would be used if more were available (1 computer/laptop per each student) in a smaller class setting, that is, less students per teacher and single Grades as opposed to combined. However, the educational content would need to consider the community's language, traditional learning approach and needs from a holistic perspective (Dyson 2005; Kim, Miranda & Olaciregui 2008). In addition, ANT would need to be adopted in this proposed pilot study in order to recognise the new networks, actors and interactions that take place (Tatnall 2011). This would ensure that the model, based on the results could be refined and tested again until the results show positive outcomes within the school and community.

Appendix 1

Mapuche Symbols and Instruments

The Central Mapuche Symbol

Figure A.1.1 – Mapuche Symbol

The above depicts the common Mapuche symbology depicting four cardinal points. These points can also be interpreted to signify the four seasons, the Sun, Moon and the Stars. In addition, the colour yellow signifies the Sun and light. This symbol can be found in the Kultrun, their flag and jewellery.

Kultrun or Cultrun - The Mapuche Drum

Figure A.1.2

Figure A.1.3

The Kultrun is a drum used by the Mapuche during their ceremonies. The percussion surface is made from a piece of stretched leather that is usually painted with their symbol. The drawing can vary from a simple one as seen in Figure A.1.2 to more colourful and elaborate ones as seen in Figure A.1.3. The same symbol is also found on their flag (refer Figures A.1.5 and A.1.5).

Trutruca – Mapuche Wind Instrument

Figure A.1.4

The trutruca, is a wind instrument that is made from a hollow reed. It can be curved as seen above or straight. It is also covered with a woven material and at the end, a horn is attached to amplify the sound.

The Mapuche Flag

Figure A.1.5

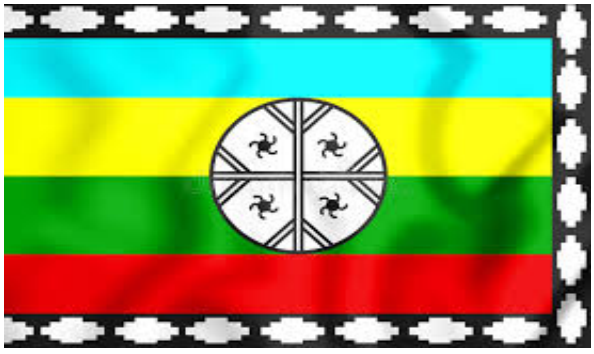


Figure A.1.6

There are some variations to the Mapuche flag. However, most appear similar to the above examples and share similarities. Their main symbol containing cardinal points and astronomical symbols is always at the centre. The colours of the flag represent the following:

White: Mountains and snow.

Light Blue: Sky and hope.

Green: Nature and earth.

Red: Blood, the loss of blood during the wars.

Yellow: Sun and Light

Appendix 2

Expropriations

The following timeline depicts the expropriation which benefited the Mapuche and that took place as part of the Agrarian reforms during the Frei (1965 - 1970) and Allende (1970 - 1973) presidencies by year, region. Including number of land holdings and totals by hectare.

Table A.2.1 - Expropriations

Year	Arauco Holdings	Malleco Holdings	Cautin Holdings	Total Holdings	Area (hectares)
1965	4	0	0	4	10,471.3
1966	16	0	32	48	47,376.6
1967	10	0	17	27	30,075.5
1968	5	3	11	19	29,682.5
1969	8	15	9	32	44,723.7
1970	0	18	11	29	50,903.0
1971	22	76	137	235	291,017.0
1972	5	94	155	254	283,897.7
1973	4	59	34	97	77,285.3
Total	**74**	**265**	**406**	**745**	**865,110.6**

Appendix 3

Approval

The following is a signed confidentiality agreement sent to sent to Mr Rodrigo Carvajal from the Programa de Educación Intercultural Bilingüe, Ministerio de Educación (Chile) so that I could be provided with school records and data. The records were provided in a MS Excel spreadsheet, which contained school names, enrolments, ethnicity, gender numbers, location by region and commune, location by definition (Urban, Rural), contact names, addresses and telephone numbers.

GOBIERNO DE CHILE

PROGRAMA DE EDUCACIÓN INTERCULTURAL BILINGÜE

Folio N°

CARTA COMPROMISO
Y
CONFIDENCIALIDAD DE LA INFORMACIÓN

Con fecha, Martes, 06 de Abril de 2010, solicito al Programa de Educación Intercultural Bilingüe de Ministerio de Educación, la preparación de la siguiente información y/o datos:

Informacion y/o datos que contengan lo siguiente: numero de escuelas secundarias en la region del Bio-Bio en donde la mayoria de estudiantes son Mapuche, localidad, numero de estudiantes, numero de profesores por estudiantes, facilidades de TICs, numero de horas que se usan TICs en el aula, lengua/s en que se dictan las clases, datos de retencion escolar, numero de estudiantes Mapuche que entran a la Universidad.

La(os) cual(es) se utilizará(n), con el(los) siguiente(s) fin(es):

Identificar posibles escuelas para hacer una investigacion en terreno. El fin de la investigacion es analisar el uso de TICs por estudiantes Mapuche, ver que tipo de influencia tienen los diferentes actores en el uso y/o adopcion de TICs en el ambito cultural y escolar en aquellos estudiantes. Se dar por entendido que actores pueden ser, estudiantes, TICs, language, creencias, cultura, entre otros.

La(s) persona(s) que tendrán acceso a la información se detalla(n) a continuación:

USUARIOS DE LA INFORMACION		
Nº	Nombre	RUN
1	Dr Arthur Tatnall, Victoria University, Melbourne Australia	
2	Dr Eva Dakich, Victoria University, Melbourne Australia	
3	Fernando Toro, Victoria University, Melbourne Australia	

Firma este compromiso:

NOMBRE:	Fernando Toro
RUN:	------
INSTITUCIÓN Y/O CONVENIO:	Victoria University, Melbourne Australia
CARGO:	Candidato a Doctorado
TELÉFONO:	+61 404 931 413
EMAIL:	fernandotoro@kpmg.com.au y fernando.toro@live.vu.edu.au
FECHA DE TÉRMINO DEL ESTUDIO:	01/09/2014

El solicitante declara haber leído y aceptado las obligaciones y responsabilidades detalladas en este documento (página 2) con tal de resguardar el buen uso y la confidencialidad de la información proporcionada por el Ministerio de Educación.

[redacted]

Firma solicitante

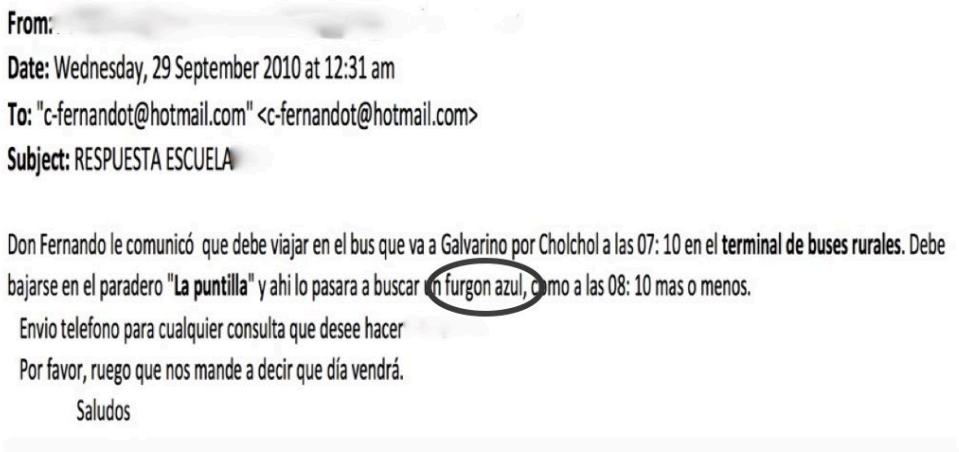
1

Programa de Educación Intercultural Bilingüe – Ministerio de Educación de Chile

Appendix 4

Email referring to ‘Blue’ Van

Copy of email (in Spanish) received from school Principal with instructions and reference to the ‘blue van’ (circled). The same colour reference was provided in October when I telephoned the Principal to confirm the dates.
Email address, name and telephone number have been blanked out to guarantee anonymity.



From:
Date: Wednesday, 29 September 2010 at 12:31 am
To: "c-fernandot@hotmail.com" <c-fernandot@hotmail.com>
Subject: RESPUESTA ESCUELA

Don Fernando le comunicó que debe viajar en el bus que va a Galvarino por Cholchol a las 07: 10 en el **terminal de buses rurales.** Debe bajarse en el paradero "**La puntilla**" y ahi lo pasara a buscar un furgon azul, como a las 08: 10 mas o menos.
Envio telefono para cualquier consulta que desee hacer
Por favor, ruego que nos mande a decir que día vendrá.
Saludos

Translation

I have provided the English translation of the above email as follows:

> Mr Fernando I inform you that you need to catch the bus which travels to Galvarino via CholChol at 07:10 at the rural buses terminal. You need to get off at the ‘La Puntilla’ stop. You will be picked up from this stop by a blue van around 08:10 give or take.
> Here is my telefone for any enquiries you may have
> Please let us know which day you will come.
> Greetings

References

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