The decision making process leading to curriculum innovation in medium sized New Zealand secondary schools since the introduction of NCEA.

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Abstract

The introduction of the current New Zealand Curriculum and National Certificate in Educational Achievement (NCEA) system provides New Zealand secondary schools with the opportunity to design unique courses that meet the particular needs of their students and the context of the school. Due to the recent implementation of this qualification (introduced in stages from 2002), there has been limited research that explores innovation in school based senior curriculum that contribute towards NCEA. This thesis investigates five innovative courses: Agribusiness, Fitness for Living, Viticulture, Sea Sports and Pasifika Studies. The research focuses on the decision making process which led to the schools implementing these innovations with an aim to identify who made these decisions and what influenced them. In order to investigate this focus, an Actor-Network theory (ANT), framework was utilised. ANT allows for the progress of an idea (the course design), to be followed and objectively views the influences (actors), on this process. The objectivity of ANT comes through the principle of symmetry which does not distinguish between social and material factors nor hold any expectations of positional power. This case studies examined were situated in medium sized secondary schools which face a limited range of resources when designing and delivering curriculum than their larger counterparts. Data collected through interviews with key actors in the course design process enabled the dynamic mapping of the network influencing the design of the course. This process determined a wide range of actors both social and material; each combination unique to the context of the school. There were a range of positional levels within each school identified as the key decision makers (the Executive); the group which had the final say on the design of the course. When the Executive deviated from senior management positions, they did so in an environment of high relational trust. Senior managers maintained a good understanding of decisions being made around the course design without interfering with the process. This research identified the influence policy and qualification criteria had on course design for the five case studies including any regulations that distorted the course design process. The level of consideration of these regulations varied across the studies. Each course network is hypothesised to be held together by a key motivator; when the motivator fails the significant actors are expected to disengage from the network. This thesis contributes insight into how innovative course design has been developed in senior secondary school and how actor network theory can be applied to educational research.

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Introduction

This study focused on the decision making process leading to National Certificate in Educational Achievement (NCEA) course innovation in medium sized New Zealand Secondary schools. NCEA is the New Zealand qualification system offered in the latter years of secondary schooling and was first introduced in 2002. The individual standards which build to NCEA were amended from 2011 – 2013 as they were aligned with a new national curriculum (Ministry of Education, 2007). The structure of NCEA, along with the 2007 curriculum, allows for flexibility in how New Zealand schools can meet the needs of students during their last years attending formal secondary education (Ministry of Education, 2007). NCEA has:

> a flexible modular structure that, at least in principle, contains opportunities for local curriculum design right through to the end of schooling (Gallagher, Hipkins & Zohar, 2012, p. 138)

Some schools have been observed utilising this freedom by creating innovative programmes that contribute to NCEA qualifications (Educational Review Office, 2013, Hipkins, 2007; 2012). The organisation responsible for assessing quality within New Zealand schools, the Educational Review Office (ERO), commented in 2013 on the difficulties for smaller secondary schools to offer a broad range of programmes. This report also recommended the Ministry of Education 'support schools to develop more responsive school curricula' (Educational Review Office, 2013, p.26). This thesis examines five examples of recently developed innovative courses in medium sized schools that are assessed using standards which contribute to NCEA. The term 'innovative' in relation to this thesis refers to courses that were locally developed; and unique to what is usually offered in New Zealand secondary schools.

This thesis concentrated on innovation in medium sized schools (401 to 700 students). Schools of this size sit approximately within the second quartile of schools within New Zealand; there are slightly less than 25% of schools smaller and slightly more than 50% of schools larger (Education Counts, 2014). Medium sized schools are able to teach a range of senior secondary courses without utilising correspondence school options, yet are also restricted by resources and student numbers in the courses they are able to offer. By investigating courses created at schools of this size, any findings could apply to the less resource constrained, larger schools.

Research Questions

The purpose of this study was to examine how decisions were made around NCEA course design. With this intent, the following research questions were investigated:

- Who are the main decision makers for course development within NZ medium sized secondary schools?
- What considerations guide the decision making process?
- What formal or informal processes are used to introduce innovative courses?

Review of the Method

Motivated by an interest in how schools with innovative courses made the decisions leading to them, this research started with contemplation on previously researched innovative courses and what influenced the decisions that brought them into being. ERO (2013) highlighted some courses offered at schools that were responding to the needs of their students. Many of these appeared to reference the local environment in which the school was located such as fishing, aviation and outdoor recreation. This led to the conclusion that some of the factors within the decision making process were material rather than social. The schools were utilising resources available in their context.

In order to account for this within this study, a social-material framework was adopted. During this period of contemplation, the level of influence on decisions by various factors was also considered. A research framework which did not prejudice factors, and allowed for an objective view was required. Actor-network theory allows for this. This is a research framework which has been used in various fields, each study taking a slightly different view or set of tools from this sensibility (Fenwick & Edwards, 2012). Within this, the concept of actors was adopted along with symmetry, token and 'black box'. Actors are the aspects which influence or cause change on the token. The token in this study is the course design. This research identified and examined the actors that influenced course design. The principle of symmetry was fundamental to the approach of this thesis. Symmetry proposes that no actor is more or less likely than any other to cause change to the token. The human or non-human nature of the actor (social or

material), the positional power and degree of intimacy are not considered in the initial investigation; solely the influence of the actor on the course design is the focus. Holding these concepts provided an objective way to view the decision making process leading to the innovative course design. The intent was to map the identified actors in a graphical way to enable interpretation of the data. As the research unfolded, the maps were developed to show change over time.

The research questions led to a case study approach; to gather the information interviews would be required as decision making is an internal process. In order to look for commonalities, five case studies were conducted. The five courses selected were gained from an initial online survey of all schools meeting the size requirement of 401 – 700 students (Appendix A). The relatively low response rate of 9% reflected the purpose of the survey; to find potential case studies. The case studies were selected purposively from responses in order to gain a range of courses with both vocational and academic intents. Within each case study interviews were conducted with the staff determined by the principal as being most responsible for the course design, along with the senior manager responsible for curriculum.

Significance

There has been little focus on the decision making process leading to NCEA course design in currently available research. The research that has been conducted previously, along with this thesis, shows courses which are unique to the school community in which they sit. This implies they are often not directly transferable to another school. By focusing on the decision making process, the findings in this thesis could be utilised in school contexts. The findings highlight the conditions which makes innovative course design flourish.

Chapter 1

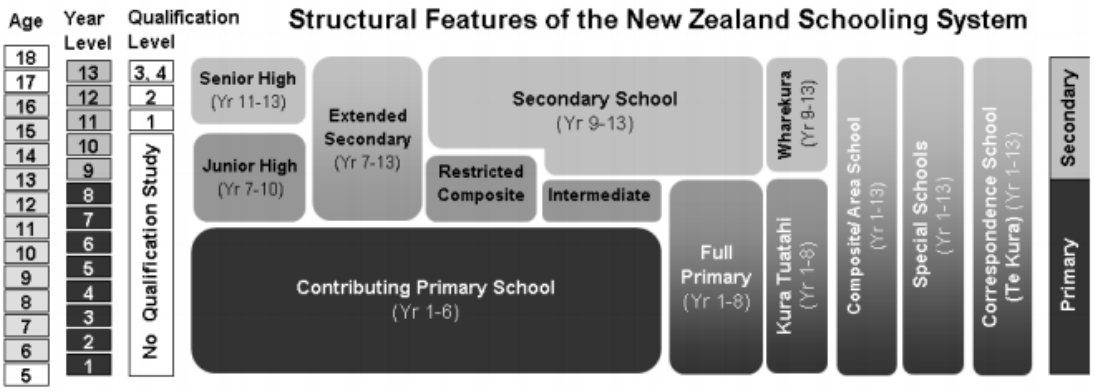
The Structural Environment

In order to understand the decisions leading to innovative course change, it is first important to understand the environment under which New Zealand secondary schools operate. This continuum of change informs why schools are faced with a need, along with the opportunity to innovate. The structural environment also demonstrates the legislative and resourcing constraints on a school, as applied from a central government level.

The school system in New Zealand is one of the most decentralised in the world since the introduction of self-managing schools in 1989 (Nusche, Laveault, MacBeath & Santiago, 2012). Schools operate within National Education Guidelines (NEGS), and National Administration Guidelines (NAGS). This environment of flexibility has continued to evolve with the 2007 New Zealand Curriculum Document (Ministry of Education) and the introduction of NCEA assessment systems. The curriculum provides guidelines for all English medium state schools in New Zealand while allowing for flexibility in the way in which it is interpreted and applied.

Formal qualifications from schooling are gained in the final three years of schooling in New Zealand. Figure 1.1. shows how secondary schools and NCEA qualification levels fit within the New Zealand system. The left edge of the figure gives the ages, school year level and qualification level, while the right side indicates the different school structures.

Figure 1.1 Overview of Education Options in New Zealand



Adapted from "*OECD review on evaluation and assessment frameworks for improving school outcomes: New Zealand country background report 2010."* by The Ministry of Education, 2010, p. 6. Copyright 2010 by the Ministry of Education.

In 2014 there were slightly more than 164 000 senior secondary students in New Zealand (Education Counts, 2014). These are students in year 11 and above of their schooling in New Zealand (generally aged 15 – 18 years). Most of these students are studying towards gaining an NCEA qualification. NCEA qualifications are offered at three levels usually corresponding with years 11 (level one NCEA), year 12 (level two NCEA) and year 13 (level three NCEA).

NCEA is a standards based system in which students are awarded credits for standards they meet. Standards are selected from the directory of assessment standards (DAS) which is maintained by the New Zealand Qualifications Authority (NZQA). The DAS includes standards based upon the New Zealand Curriculum (academic) along with vocational standards set by NZQA and Industry Training Organisations (ITO). Standards have varying degrees of credits attached to them depending on the elements which make up the standard.

To be awarded NCEA the following must be obtained:

- Level One: 80 credits from any level including 10 credits of literacy and 10 of numeracy.
- Level Two: 60 credits of level two or above plus 20 credits from any level. This must include 10 credits of literacy and 10 of numeracy from any level.
- Level Three: 60 credits from level three or above plus 20 credits from level two or higher. This must include 10 credits of literacy and 10 of numeracy from any level.

NCEA was announced towards the end of 1998 with the intent of introduction in 2001 with the governments *Achievement 2001* qualifications policy (Minister of Education, 1998). The government changed in 1999 and introduction of NCEA was delayed by one year to allow for more preparation of resources and professional development of teachers. This led to NCEA being introduced progressively from 2002 to 2004, beginning with level one. Prior to this there was a norm-referenced system. NCEA was introduced in order to recognise a wider range of skills and knowledge. It aimed to describe what students could do, and to address some of the demotivating aspects of a scaled system that 'failed' a set proportion of students (Parliamentary library, 2005, Lennox, 2001).

At the time of introduction NCEA was based on the existing 1992 New Zealand Curriculum. This contained seven learning areas centred on traditional academic subjects.

In 2007 a revised New Zealand Curriculum was published (Ministry of Education, 2007). This document is in two parts. The first part outlines the vision, principles, values and competencies of school education in New Zealand (future focused). The second half details a revision of the learning areas including the introduction of languages as a separate eighth learning area. The document also explicitly acknowledges the links between learning areas. New Zealand schools must cover the breadth of the learning areas up until year 10. In the senior secondary school it is the school's responsibility to best meet the needs of the students; it is not legislated that all parts of all learning areas be taught (Ministry of Education, 2007).

With the introduction of the 2007 curriculum the academic standards on the DAS no longer directly matched the content or intent of the curriculum. There was also growing discontent within the secondary education sector about the mismatch between different types of standards on the DAS (Alison, 2005). At this time there were unit standards and achievement standards encompassing in many cases overlapping elements from the previous curriculum. The differences between unit standards and achievement standards at 2007, are summarised below:

Table 1.1 Differences between Unit Standards and Achievement Standards

	Achievement Standards	Unit Standards
Focus	Based on the national curriculum	Most based on vocational elements supported by ITOs along with a selection from the national curriculum
Grades	Not Achieved, Achieved, Merit, Excellence	Not Achieved, Achieved
Assessment	Mix of internal and external	All internally assessed.

There was a large disparity in the number of credits and the level of knowledge/thinking required (Pilcher & Phillips, 2007).

Beginning in 2009, the Curriculum Alignment Project restored the continuum between the curriculum and Achievement Standards. During the three year staged implementation of this project, all unit standards that overlapped with the curriculum were removed and the curriculum matched to levels of NCEA (level six of the curriculum awards level one NCEA credits, level seven awards NCEA level two and level eight or the curriculum awards level credits at level three NCEA). The number of credits awarded for each standard was also revised.

Aligned achievement standards also reflected the future-focused aspects of the 2007 curriculum. This significant change centred on a philosophical shift that linked student achievement with the depth and quality of thinking, and the ability to communicate answers and ideas. In particular the new structure allowed for the award of merit or excellence grades for applying the learning; rather than for the accumulation of knowledge resulting in a correct answer. Each standard has a list of objectives; the way in which the student uses the knowledge allocates their performance grade. The alignment project also saw a rationalisation of the number of externally assessed achievement standards. Each subject was limited to a maximum of three externally assessed achievement standards. This increased the number of internal assessments available,

as areas which had previously been externally examined were converted to internally assessed standards. This increased the flexibility schools have in course design as they can determine when and how more standards are assessed.

It is also possible to gain a certificate endorsement for NCEA. This occurs when the student gains 50 or more credits at a higher level. If there are 50 or more credits at excellence, the certificate will be endorsed with excellence and similarly for merit (NZQA, 2013).

A course endorsement relates to an individual course and does not rely on a student gaining a certificate. To gain a course endorsement with merit, a student must have 14 credits in that course at merit or higher, including three credits from internally assessed standards and three from externally assessed standards (there are some exceptions for subjects with no external examination such as physical education). For an excellence endorsement the 14 credits must be at excellence level (NZQA, 2013).

The standards a student gains also contribute towards the university entrance requirements. These are set by NZQA in consultation with New Zealand universities and other stakeholders (The Education Act 1989). The requirements in 2014 for University Entrance for a student under the age of 20 years are:

- NCEA level 3

  60 credits at level 3 or above

  Plus 20 credits from level 2 or above

The above must include 10 credits from literacy and 10 from numeracy at level 1 or higher.

- Three subjects at level 3 made up of 14 credits each, in three approved subjects
- Literacy: 10 credits at level 2 or above
- Numeracy:10 credits at level 1 or above (which the student has if they gain level 3 NCEA)

The approved subject list is also set by NZQA in the same consultative manner.

When a new NCEA course is being designed, schools may consider the implications of the criteria and constraints listed above. For example, in order to make a course eligible for

endorsement, schools may ensure inclusion of an externally assessed unit. Schools may limit the number of courses they offer at Level 3 which do not meet the approved subject criteria of University Entrance. If multiple subject areas are taught within a course, the number and distribution of the external examinations required may be considered.

All of these factors result in consequences for students who are dependent upon the course design and selection of standards assessed within that design.

Quality Control

The organisations responsible for quality checks within New Zealand schools are NZQA, the Educational Review Office (ERO), and the New Zealand Teachers' Council (NZTC).

NZQA focuses on assessment and qualifications. It administers a moderation system which checks the awarding of internal assessments within schools as well as administering external assessments (Ministry of Education, 2010). ERO focuses on the quality of teaching and learning as well as evaluations of sector performance and policy implementation. ERO produces reports on individual schools on a cyclic basis along with national reports on key areas of focus. The New Zealand Teachers' Council maintains standards and codes of ethics associated with teacher registration. (Ministry of Education, 2014).

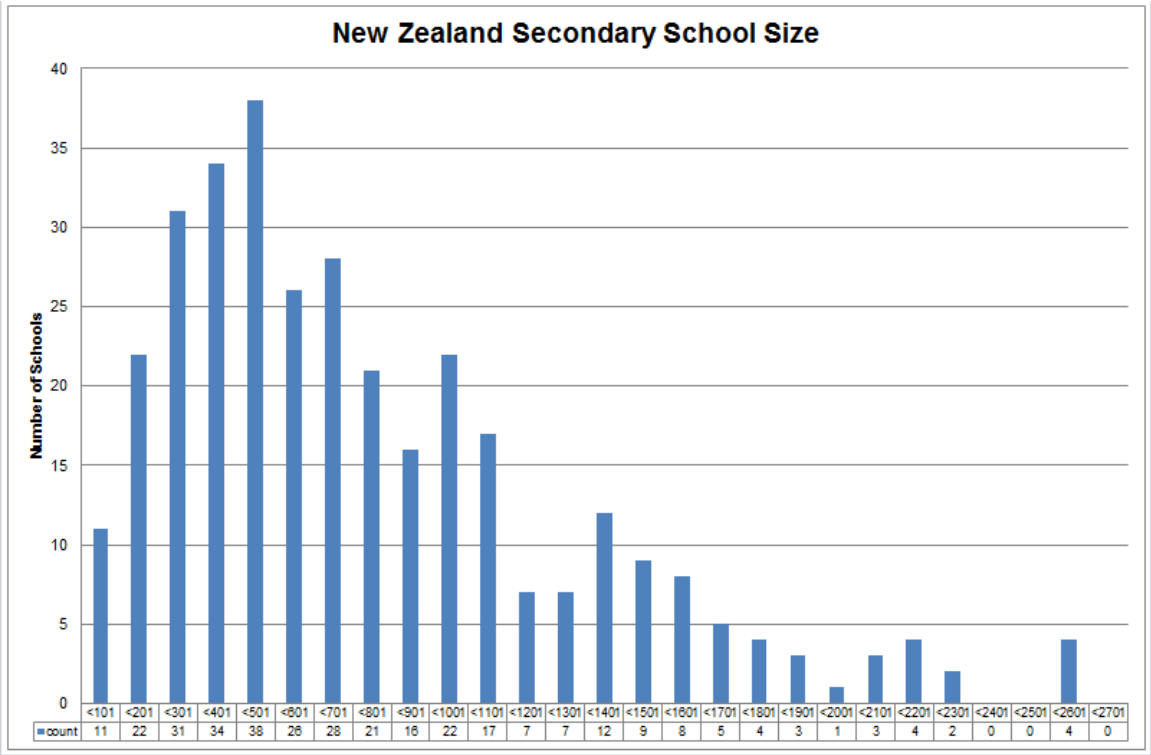
All of these organisations involved in quality control have the ability and mandate to influence what occurs within New Zealand schools.

Size and Resourcing of New Zealand Secondary Schools

The resourcing provided to a school predominantly depends on the number of students. There are other aspects taken into account, however roll size dominates. This includes the provision of teaching staff (Education Order 2013). Teachers are funded directly from the Ministry of Education. All other expenses are paid for by the school from lump sums allocated to the school based on the school characteristics; largely the roll with additional funding for schools with students from the lowest socio-economic households. It is the responsibility of the school to manage its budget.

Figure 1.2 Secondary Schools: number of students attending as at March 2014

(Data from Education Counts, 2014)



The median school size is 638 with a lower quartile of 359 and an upper quartile of 1011.

Amendments to the Education Act

There have been several alterations to the Education Act; the law under which New Zealand education operates. Notably for course design are provisions allowing students to be enrolled in both secondary schools and tertiary organisations simultaneously (Education Amendment Act (no 3) 2010), and the Education Amendment Act 2013, which allowed schools to become flexible with their timetabling. The New Zealand Government has continually revised the Education Act with a general trend of further decentralisation and less restriction on schools.

Youth Guarantee

The Youth Guarantee Policy is a government initiative aimed at improving educational outcomes for 16 and 17 year olds within New Zealand. The motivation for this was a government *Better Public Services* target of 85% of 18 year olds to have level two NCEA or

equivalent qualifications by 2017 (Ministry of Education, 2012). This policy began progressive implementation from 2010 and includes ways in which secondary and tertiary education organisations can help students gain NCEA level two or equivalent (Ministry of Education, 2013). It includes fee-free placements at tertiary organisations for 16 and 17 year olds. It incorporates existing youth training programmes (short foundation skills programmes for disengaged 16 and 17 year olds). Secondary-tertiary programmes were introduced in 2011 where students can be enrolled in secondary school while participating in various tertiary programmes. In 2014 vocational pathways were introduced which categorised standards students gained as fitting into different vocational patterns or pathways. This increases students' visibility of the coherence of their building qualifications. Since 2014 the format of all students' NCEA documentation includes the vocational pathways for which the standards assessed contribute.

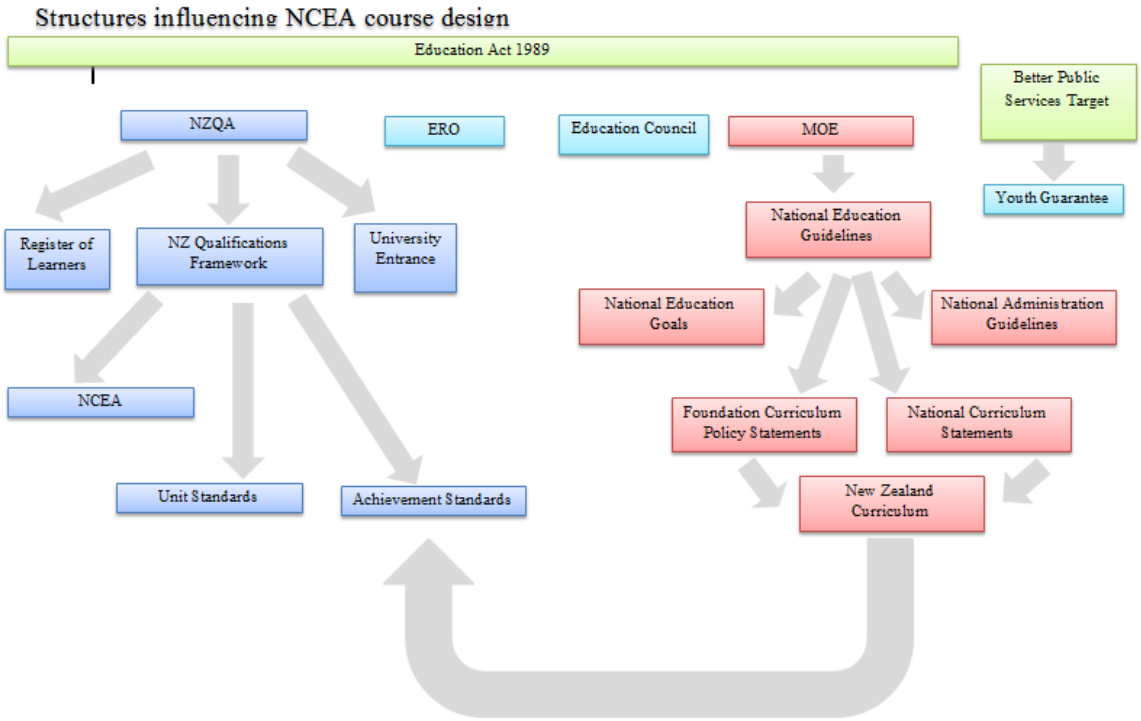
There is also an established history of structured work-experience placements by secondary schools (Gateway), and alternative learning experiences to support their continuation within the education sector (Secondary Tertiary Alignment Resource (STAR)). These both now operate within Youth Guarantee.

The provisions of Youth Guarantee government policy are another potential influence on course design. Schools may utilise the opportunities provided by STAR and Gateway to offer innovative learning pathways. The policy aligns with a government goal of 85% of 18 year olds achieving NCEA level two (Ministry of Education, 2012). This could influence schools to develop courses for students who were unsuccessful as year 12 students to complete a level two qualification during year 13. As public awareness of the vocational pathways presented within NCEA qualification documents increases, schools may be influenced to structure courses more in line with particular vocations.

Summary

Figure 1.3 below shows all of the New Zealand governmental structures mentioned above. These are all either legislatively required or potentially capable of influencing the way in which a NCEA course is designed.

Figure 1.3 Government Structures Potentially Influencing NCEA Course Design



Chapter 2

NCEA Course Design: a Review of Literature

This chapter introduces and examines previous research concerning NCEA course design. It begins with research that has been undertaken regarding the state of course design since the introduction of NCEA in 2002. This will be examined in a chronological order. The literature review will then examine the concept of place-based education, and conclude with ideas concerning curriculum change.

In 2002 the first report of the 'Learning Curves' project was released (Vaughan & Hipkins). This longitudinal study conducted by the New Zealand Council of Educational Research (NZCER), posed questions concerning how schools were adapting their courses to meet the learning needs of their students. The study centred around six New Zealand schools sized between 590 and 950 students; "neither small nor large" (Vaughan & Hipkins, 2002, p.2). The data used in the first report was collected in March-April 2002; just a few months after NCEA level one had been introduced, and even in these initial stages, there was already a blurring of core curriculum subject options; schools were targeting their courses at particular groups of students. One course in particular was mentioned – Creative Technology, which was an across-learning area course combining aspects from arts and technology fields.

The Learning Curves Project completed a second report in 2004 and a final in 2005, thus tracking the full implementation of NCEA through levels one, two and three. The final report (Hipkins et al., 2005), categorised courses into three areas. The first traditional-discipline subjects were the more direct replacements of the pre-NCEA courses, covering similar knowledge. The second was locally-redesigned courses which mix and matched achievement and unit standards. These could also include standards from different levels or less commonly, standards from different learning areas or subjects within learning areas. The last category was contextually-focused courses. These covered a context which was relevant to the students and were assessed with mostly unit standards. These courses were having a positive effect on the learning experience of students who may not have had success in the previous examination focused system.

Many of the findings of the Learning Curves project are not directly applicable to current course design decisions following the alignment of the curriculum. This is due to the removal of unit standards derived from the curriculum which were a large feature of many of the innovations seen at this time. These reports did highlight the desire of many students to collect credits as their focus rather than extend their learning. The Learning Curves project also demonstrated the way in which students were becoming selective in which assessments they sat; sometimes with advice from teachers and often without (Hipkins et al, 2005). These are all factors which need to be taken into account during the course design process.

In 2005 the Post Primary Teachers Association (PPTA), which is the employee union for secondary teachers, conducted focus groups at 16 schools covering various topics concerning NCEA. There was a mixed response about the relative value of unit standards versus achievement standards. There was greater consensus that the inequity between the credit values and learning time of different standards needed to be addressed. Most teachers did believe NCEA to be a fairer system than its predecessor. The focus groups also raised the dilemma of providing a larger variety of courses within existing resources; both in teaching the courses and taking the time to design courses for specific student needs (Alison, 2005).

The next major review of NCEA course innovation occurred in 2007 and was again authored by Rosemary Hipkins at the NZCER. This report examined the extent to which schools were: mixing unit standards and achievement standards, offering multiple levels within one course, offering standards from different subjects and learning areas within a course and lastly investigated the knowledge and uptake of sustainability standards. This research had a large sample; 469 schools were emailed, 124 responded. The purpose of the research was to provide information to the MOE and NZQA in preparation for proposed subject endorsements (merit and excellence awards for individual subjects). There may have existed a bias in the respondents as if the original email to schools indicated the focus of the research; schools which considered themselves to be innovative would conceivably be more likely to respond. This would suggest that the population percentages for the innovations reported would be lower, perhaps significantly so. Even if this research does overinflate the presence of innovation, it still shows what was happening in a large proportion of schools at the time. Most importantly for the

purpose of the report, it did inform the MOE and NZQA of what some very innovative schools were doing.

This report did show that there was extensive use of unit standards. The most common examples were in English, mathematics and science (these standards expired in 2011-2013). The most common use of ITO standards was in technology subjects. There were many courses which included multiple levels of NCEA. Two thirds of respondents reported courses which combined different subjects from within one learning area; these were reported for every learning area across the curriculum. The least common innovation was across learning area courses. These use standards from entirely different learning areas within one course (11 % of respondents). The combining of different subjects and learning areas was seen as real evidence that schools were focusing on meeting the learning needs of students: "Designing context-rich courses often means a degree of curriculum integration because the real world does not conform neatly to historical subject divisions" (Hipkins, 2007, p. 35)

This report demonstrated that to varying degrees schools were using some of the flexibility afforded by the system to design courses particular to the needs of their students. Some schools did offer some hesitation. The sustainability standards were not taken up by one school in part due to a fear of students having a scattering of standards across subjects and no coherent body of knowledge. Another school with a very high rate of students moving through to tertiary education also commented on the need to accommodate students being able to gain 14 credits in any one domain to enable them to gain University Entrance. They saw this as a limiting factor on innovation despite interest from students and teachers in developing different courses.

Contemporaneously to this report was a comparable study conducted by Pilcher and Philips (2007). They experienced very similar findings to similar research questions. There was a similar range of innovations along with some schools reporting perceived inferiority of unit standards. This was extended to include commentary from teachers on the need to sort out the disparity between the credit value and time taken to learn the content of different standards to a more equitable amount. They did include limited comments on "aids and barriers to offering flexible courses" (p. 155). This section briefly listed "timetables, staff, resources, students, courses and relationships with others in the education sector and community" (p. 156). Pilcher

and Philips highlighted the need for further research into "the factors considered before choosing to introduce or drop a course" (p. 168).

NZCER again undertook an examination of what course innovation was occurring in 2012 (Hipkins & Spiller). This study involved an exploratory look at the experiences of three schools. The study looked at the changes these schools had made and what motivated them. The first school was Hagley Community College in Christchurch. This school has a reputation of working flexibly with learners. There were particular programmes examined at Hagley:

- Fresh Start – aimed at bringing learners back to education (this is partly prompted by the Christchurch Earthquakes which displaced many learners)
- Step Up – aimed at increasing students' credit total and quality of credits (merit, excellence grades) in order to gain University Entrance and meet specific criteria laid out by different universities.
- Catch-up College – a type of summer school, again aimed to support students who did not quite have acceptance into university.
- School of Music – intends to enable students to study only music at level two and meet the criteria for entry into a music programme at the local polytechnic.

The initiatives outlined above all fill a deficit or failure in the learners' previous education experience. The timeframes of the programmes are entirely different from the way school is traditionally operated in New Zealand both in the length of the programmes and timings of lessons to allow learners to meet their goals. This makes managing the school difficult as it doesn't fit with normal funding mechanisms agreeably, given the significant roll fluctuations caused by programmes starting and finishing. The study did not comment on where the students had experienced their earlier secondary education. It would be interesting to know if Hagley was picking up unsuccessful students from other Christchurch Secondary schools. This would still be a significant achievement but it would imply that it is successful as there is a large urban area with many schools' disengaged learners turning to Hagley to remedy their education. Hagley sits within a large urban area containing 22 secondary schools. This case study does show schools can successfully move right away from traditional modes of education delivery.

The second school this project examined was Wellington East Girls College; specifically the history department. There already existed a strong department who had previously revamped their year nine and 10 programmes. With this experience in curriculum revision this department used the alignment of standards as a chance to make the contexts more relevant to their learners. They still retained courses using history achievement standards but used the new focus on thinking skills rather than knowledge to refocus their programmes. This was a recursive process with continual improvements and adjustments. This section of the report also highlighted the difficulty single subject teachers in smaller schools would face when they are facing curriculum change on their own.

The last case study was at Newlands College within their year 12 science programme. This was a programme focused on contexts relevant to the students where achievement standards from different science subjects were slotted in (the context first – assessment second). There was specific room made for one externally assessed standard in order to allow for course endorsement. At the time this was designed the Head of Science faced the dilemma that a follow on year 13 programme would not qualify as a University Entrance subject as it crossed different subjects from the approved subject list. This has since been amended in the University Entrance criteria to allow science to be an approved subject in its own right. Although the change made by NZQA solved this problem, it would still be encountered in other learning areas where across subject courses are not on the approved subject list or for courses that cross learning areas.

The case study highlights some creative design in line with the principles of the New Zealand Curriculum. It is then constrained by endorsement and University Entrance criteria which are not in line with the flexibility afforded by the New Zealand curriculum.

This 2012 report by Hipkins and Spiller shows a diverse way in which some schools are fulfilling the intent of the curriculum. This research suggests that in order to really allow the intent of the 2007 New Zealand Curriculum to flourish the constraints (or in economics terms – market distortions), of trying to stay within subjects and learning areas needs to disappear. This means teachers shifting their thinking away from how they were taught at school. University Entrance also needs to be aligned with the principles of the curriculum instead of in contradiction with them.

In July 2013 the Educational Review Office (ERO), published a report focusing on the way schools were responding to the needs of their students in relation to preparing them for future work and study. ERO based this report on 74 secondary and composite schools visited in 2012 as part of the schools cyclic review process. They defined a school as **responsive** if it adjusted what was being offered to the particular needs of cohorts of students. Curriculum **innovation** was understood to be a change in the way a school offered the curriculum which was different than what was normal prior to the change. ERO found limited examples of innovation in academic learning programmes; in particular very few examples of across learning area courses. They saw the traditional structure of schools set up into faculties or departments as an inhibitor to this occurring. This report also commented 'it may be easier for larger schools to have a wide range of in-school programme options' (p.13). Small responsive schools were being innovative in other ways. They were using multi-level classrooms where more than one level of NCEA was taught simultaneously and utilising distance learning and STAR courses. A recommendation to the Ministry of Education from this report was the need for increased support in helping schools develop more responsive school curricula; courses need to become more creative in meeting the needs of the students.

The 2012 ERO reports finding of limited innovation in academic programmes is significant as this is one of the few reports based on information gathered from numerous schools after the alignment of standards and the removal of unit standards derived from the national curriculum. This highlights that many of the innovations in traditional subjects observed in earlier reports were utilising previously available unit standards. As at 2012, schools could be seen for the most part to have folded back to more traditional approaches for academic learning courses in response to the alignment. This would appear a reasonable response while teachers coped with changes to standards and assessments and revaluate the possibilities. Hipkins and Spiller's 2012 report balances this slightly by showing what three schools had implemented in a both innovative and responsive manner. Given EROs significant access to schools this innovation found by Hipkins and Spiller does appear to be the exception.

Place Based Education

Many of the examples of innovations in NCEA cited in the reports by NZCER and ERO, talk of contextual courses; course that are designed around local themes. For example, the science teacher at Newlands College designed her programme around contexts of interest to the students (Hipkins & Spiller, 2012) These types of design could be viewed as a type of place-based education. Place-based education can be summed up by "what is this place?" and "what is our relationship to it?" (Penetito, 2009 p.5). Gruenewald (2003), proposes five dimensions to place-based education: the perceptual, the sociological, the ideological, the political, and the ecological. The perceptual component is concerned with the students' awareness, appreciation and connection to a place. Sociological refers to the impact humans have on a place; the spaces we change and the spaces we protect. Ideological is the way the space reflects ideology. This could be observed in the public spaces of town and the way they reflect their importance (schools, library, church, parks, reserves etc.). Similarly the political element of space reinforces political ideas; the way in which neighbourhoods for example, are designed to include and exclude. The shift in New Zealand from building state housing in concentrated neighbourhoods, to being more distributed throughout neighbourhoods (mixed communities) is a manifestation of politics on place (Housing New Zealand, 2013). Gruenewald's fifth dimension of ecological is the most recognisable as place-based education. This is where the environment including flora and fauna are situated in his model (2003). Penetito (2009), offers a New Zealand perspective on place-based education. He identifies the particular benefits to the indigenous people of New Zealand, the Maori, who have a strong connection to place and a long history of place-based education within their culture. Penetito expands this to identify the benefits to all students participating in the compulsory New Zealand Education system.

The question then rises of how do schools bring about more place-based learning? To attempt to answer this question, literature on curriculum change will now be explored.

Leading Curriculum Change

Holmes, Clement and Albright (2013) found evidence in their research into successful change leadership that aligned with characteristics they identified from numerous studies;

" the need to develop a shared goal or vision for the school; the development of relational trust with staff; the need to be able to solve complex problems; a clear focus on teaching and learning; and a willingness to engage with the wider community " (2013, p. 271).

The study undertaken by Holmes et al. was small; they looked in depth at two schools over a two year period (2013). It is consistent with Robinson's view (2010). Robinson highlights the need for effective school leaders to understand both pedagogical and curricular knowledge (2010). When creating a new course this knowledge would be particularly important as the principal would need to evaluate the overall benefit to the students and potential consequences. Given the complex structures described in chapter one of this thesis, to facilitate the development of innovative courses it could be deduced that a full understanding of these structures is also necessary. The principal needs to hold to overreaching view of the students learning opportunities and how these coordinate to benefit the students in the current local environment and future pathways. Truly achieving successful curriculum innovation across a school is going to require a knowledgeable, problem solving orientated principal with high levels of relational trust with the wider school community.

Facilitating Teachers to Develop Innovative Courses

In her 2015 book centred on place-based curriculum design, Demarest emphasises the need for school leaders to provide the setting and remove the obstacles for teachers. One of the largest components toward progress in place-based education is providing time to teachers: "Time to talk, time to plan, time to think and reflect and time to learn new things" (Demarest, 2015, p 161-162). This reflection and talk-time was reinforced in what Hipkins observed at Wellington East Girls College history department where the congenial atmosphere and learning community assisted in the development of contextually relevant units of learning (2012). Fullan concluded that "schools change when teachers change their thinking: it's as simple and complex as that" (as quoted in Demarest, 2015, p150).

Edwards, in her reflections on her involvement during the implementation of the 2007 New Zealand curriculum, commented on the benefits and phases of professional learning communities (2011). She observed the benefits these groups have towards building capacity, particularly in smaller schools where the depth of experience in the teaching staff is more limited. Professional learning communities could exist within a school or across schools and other agencies. Edwards described three phases in the operation of a learning community: establishment (where individuals with diverse ideas come together), converging (where shared experiences and research bring ideas together) and diverging phase (where participants apply the new knowledge to their individual situations), (2011). Edwards' observations and conclusions align with Demarest's views on making progress toward curriculum change (2015). Both recognise the need for interaction and reflection time. New Zealand has seen professional learning communities as an established part of the teaching environment for many years (Edwards, 2011).

Summary

Some examples of NCEA course innovation have been presented within the findings of recent studies. These examples include instances where schools have: altered their timetable and course length, mixed achievement and unit standards within a course, run courses with standards from different levels, utilised organisations outside of school and mixed standards from different learning areas. Some schools have utilised their local area or used contexts within their teaching which hold the interest of students. Innovations centred within a local context can be viewed as place based education. Innovations were restricted or altered in order to meet endorsement and University Entrance criteria. Since the alignment of standards, there has been limited research covering NCEA course innovation. A report published by ERO in 2012 found few examples of design innovation within academic programmes; most innovation was occurring within vocationally orientated courses. There was no specific research available on how decisions relating to NCEA course innovation occurred. Research conducted into successfully leading curriculum change indicates leaders with a strong understanding of both pedagogy and curriculum (Robinson, 2010) along with high relational trust, complex problem solving abilities and engagement with the wider community (Holmes et al., 2013). This thesis aims to contribute to this literature by considering what the decision making factors leading to

curriculum innovation are, thereby bridging the gap between research in leading curriculum change and NCEA course design.

Chapter 3

Methodology

This chapter aims to explain the methodology used in this thesis to explore decision making of curriculum innovation in medium sized secondary schools. This chapter will cover the theoretical approach taken and research design and will then go on to examine how the data was collected and processed. The chapter will finish with ethical considerations and the limitations of this research.

Socio-Material Theories

This research is grounded in socio-material ontology. When considering curriculum decision making in schools there are many contributing factors. A large number of these factors will be human as these are the 'clients', managers and deliverers (for the most part) of education. There are however many factors which are not of human origin. For example if a school is located near to a ski field it may decide to include skiing within the curriculum of an outdoor education programme. It is the presence of the ski field (material) which has influenced the decision and may additionally be influenced by a desire within the community to provide employment opportunity for youth within the region.

When examining the decision making process in schools it was therefore important not to have any fixed assumptions about who or what may drive influence and the degree of influence. Socio-material is a term cautiously used by Fenwick, Edwards and Sawchuck (2011) to describe research approaches which bring the material to the foreground. The material could broadly refer to anything not social or human. This approach lays existing preconceptions bare concerning the presumed importance of teachers in decision making. Using the socio-material disposition as a baseline provided a platform to form a fresh view of what is really going on when curriculum is altered.

Networks

A network is "A group or system of interconnected people or things" (Oxford, 2014). This could be used to accurately describe a system of socio-material factors interconnected by the decision to implement a new course in a school. Networks can also be graphically displayed in a

multitude of ways. The ability to display research findings graphically holds great appeal as it may make understanding the findings more accessible to a larger audience (this will be further expanded in the data analysis section of this chapter).

Network analysis or more specifically social-network analysis also contains some very useful considerations for this research. Knoke and Yang (2008), characterise three main underlying assumptions within social networks:

- Structural relations are important for understanding observed behaviour
- Social networks affect perceptions, beliefs and actions
- Structural relationships should be viewed as dynamic processes

These assumptions along with the network concept of defining the boundary of the network (what are the limits of the data collection?) all contribute to the approach taken.

How this research differs from social-network analysis is the inclusion of the material as already discussed, along with the rejection of the mathematical analysis component of social-network analysis. Given that the decision to implement a new course was historic, during data collection it is not realistic to expect an accurate recall by participants of the strength or frequency of interaction with a factor in the decision. It would also have been a subjective rating and would not have offered a reliable comparison with other participants. Overall the mathematical component of social-network analysis as offered by Knoke and Young (2008), does not offer any reliable contribution toward answering the research questions.

Actor Network Theory

Within the social-material approach sits Actor Network Theory (ANT). Fenwick and Edwards are prolific writers in ANT's recent applications to educational research (2010, 2011, 2012). They describe ANT as a sensibility. "ANT traces how different human and non-human entities come to be assembled, to associate and exercise force, and to persist and decline over time." (Fenwick & Edwards, 2012, p. iv). One of the original describers of ANT, Bruno Latour, later stated: 'If I were you, I would abstain from frameworks altogether. Just describe the state of affairs at hand' (Latour, 2005 p. 144).

Along with the mechanisms described in the introduction, this concept of a black-box will also be adopted. This is a network which behaves as a single actor (Fenwick & Edwards 2012). For example a Parent-Teacher Association (PTA) at a school may influence a course design. The PTA itself is a network but for the purpose of analysing the effect on the course design, the PTA behaves as a single actor.

Research Design

This research looked at the network of actors which influence the decision making process with regards to the introduction of new courses within a medium sized secondary school. Within this process there is always one actor or a group of actors who in the end determine the presence and design of the course. They will be called the *Executive* for this research. The actors which influence the Executive in making their decision will be included in this research, as identified by the Executive. This will mark the boundary of the research (This thesis will look at the identified direct actors in the decision, but not what influences those actors outside of the Executive).

As this is now a bounded system of which a detailed examination is required, Johnson & Christensen suggest a case study approach becomes an appropriate method (2012). As there is more than one case being examined in order to gain greater insight, this is a multiple case design.

Research Methods

Now that the approach for this thesis has been explained, the methods for data collection will be described.

Selecting Participants

In order to identify medium schools who had implemented some innovations within NCEA courses an online survey was conducted. This information was used for case study selection.

Innovation in NCEA Survey Results

On the 23rd of June 2014 an email was sent to all schools with 401 to 700 students inviting the principal to participate in an online survey (Appendix A). The survey was conducted using the tool Qualtrics. Email addresses and school sizes were accessed from the directory of New Zealand schools (Education Counts, 2014). The data was correct as at the 15th of May 2014.

Participation

87 schools were emailed. 19 schools started the survey of which 8 completed after 7 days. The low completion rate of 9% prompted a revision of how the survey was administered. Many of the email addresses from Education Counts were the generic school office contact. Through examining schools' individual websites, the principals direct email address was gained for 32 of the principals who had not opened the survey on the first distribution (the remaining not being available on their website). A second email was then released using the updated details. The email was also amended to communicate the survey had been previously completed by some schools with an average completion time of less than four and a half minutes. An extra option was added to the survey allowing for schools to indicate they wished to receive a summary of research findings. This was prompted by contact made by one principal who did not participate in the survey due to not believing the school had any innovative courses, but who requested the results of the research. These changes were made to encourage participation. Amending the survey posed no statistical implications as the aim was to identify potential case studies; no statistical conclusions were to be drawn from the survey.

On the second distribution on the 30th of June, a further 12 schools opened the survey with 4 completions. The survey was closed on the 18th of July (left open over the school holiday period of 7th to 18th of July in case some principals cleared emails during the holiday period).

Total completion was 12 out of 87 schools (13.8%), with a further 19 schools opening the survey without completing (21.8%).

The survey is very short, however 19 schools that opened the survey failed to complete it. Schools that opened the survey could be identified while the survey was active and further research was conducted using publicly available information. Of these 19 schools some had their senior course guide online. These were examined to identify any signs of innovation. None of the criteria used for innovation in the survey were present in the course guides. This leads to a hypothesis that these schools read the survey and when their school could not tick yes to any of the criteria put forward for innovation, they choose not to complete. The other possibility is the schools already recognised there was no curriculum innovation present and opened the survey out of curiosity. Schools did not appear to want to be identified as having no innovation in senior course curriculum. This is reinforced by zero nil responses; every school that answered had what they termed innovation.

Data Collation

The substantive part of the survey asked schools to identify their most innovative NCEA course.

Of the 12 responses:

- 4 were part of employment skills or vocational pathways.
- 1 contained Unit Standards only
- 1 used individualised themes for assessment
- 6 used an innovative mix of standards from different learning areas or from both inside and outside of the NZC. All contain at least one achievement standard.

There were some changes in timetabling and individualised programmes for students. No schools identified a NCEA course they had trialed and disbanded. Although two schools were nominated as innovative, neither school was close to the target size of 401 - 700 students.

The case studies were selected from the six schools running courses with a mix of standards as these schools had made decisions to create a course with content previously not combined in New Zealand schools. This is in line with Cohen and Ball's definition for innovation as being "It is a departure from current practice –deliberate or not, originating in or outside of practice,

which is novel" (2006 p. 2). The five courses were purposefully selected to provide contrast. Two courses were located within the same school.

Data Collection

Schools were first approached by a phone call to the Principal followed by an email. The research was explained, permission to participate was requested and a suitable time for data collection was requested. The Principal was also asked to identify who the main decision makers in the course design were (the Executive).

Each person identified by the Principal was then interviewed. These were semi-structured, face-to-face interviews that were scheduled for 30 minutes. 30 minutes was targeted as an achievable length of time for a participant to sacrifice from their day balanced with enough time to gain sufficient data. The participant was asked to explain how the decision to introduce the course came about. Clarification questions were asked during the interviews. Each interview was recorded. Following the interview a summary was written. This was returned to the participant to check for accuracy. Any further knowledge required was requested from participants by phone call or email.

The table below summarises who was interviewed for each course.

Table 3.1 Interview Participation

Course	Positions Interviewed
Agribusiness	• Principal • Deputy Principal
Fitness for Living	• Principal • Deputy Principal • Head of Physical Education • Physical Education Teacher
Viticulture	• Principal • Deputy Principal • Teacher
Sea Sports	• Principal • Deputy Principal (course developer) • Deputy Principal (school curriculum leader)
Pasifika	• Deputy Principal • Teacher • Teacher Aide/confidant of teacher

Data Analysis

The data from each case study was analysed and the actors identified.

Within the actors the Executive were identified (this did not always match with who the Principal identified as the Executive).

The actors were laid out in an interconnected network diagram. No arrows were placed on the connections as there is insufficient information about the volume and importance of each interaction. It was only reasonable to demonstrate a link.

Ethical Considerations

Prior to data gathering ethics approval was sought and granted from the Victoria University of Wellington, Human Ethics Committee (approval reference 21104).

Informed consent was gained from both the Principal and each participant. Each was provided with a full information sheet describing the scope of the research along with the timeframes, data management and time period in which participants could withdraw their participation. There was a high level of interest in the research by the participants which made negotiating participation easier.

Intellectual property rights were also carefully considered. As there had been significant effort placed into the design of the courses, the participants were able to determine the level of detail able to be released.

The initial ethics application assumed there would be a large enough number of similar innovations across medium sized New Zealand secondary schools that schools anonymity would be able to be maintained. Following the survey results this was reconsidered. The courses investigated were unique enough that identification would be possible without a school's name being given. An amendment to the ethics approval allowing for this was sought and granted (approval reference 21104). This possibility was explained to the participants. The Principals signed another consent form outlining the possible identification of their school. The Principals involved were all very proud of the courses and did not require anonymity. Some of the other participants potentially could be more comfortable with as much privacy as possible (fewer

enquiries following the research, less restraint in describing the frustrations they experienced etcetera). Schools and teachers were therefore not named.

Limitations of this Research

This was a small sample of case studies which was never intended to be generalised to a larger population. The concept was that other schools would be able to learn from the experiences of these case studies when planning their curriculum. This research raises questions and possibilities concerning patterns of behaviour in school decision making but is unable to make any firm conclusions that would transfer to other environments.

There are some limitations of the data.

- The decisions being analysed were historic. This meant the researcher was relying on the participants' recollection of past events. For some case studies this process started more than ten years earlier. It is not reasonable to expect a perfect recollection of factors influencing their decisions over such a delay.
- Some key members of staff or Executive had left the school. These people could not be interviewed so the case study lacks the same level of reliability achieved from having different perspectives.
- Interviews were of limited time so the level of detail was fairly surface.
- Participants may present the public story of what occurred and may not have expressed any factors which would negatively affect the school or community.

Summary

An Actor-Network Theory sensibility has been used with a multiple case study approach. Semi-structured interviews were used to collect data. This approach was considered sufficient to answer the research questions. Ethical implications of this thesis were considered and informed consent gained. This was particularly important given the potential for schools to be identified. There are limitations with the data collected, particularly as the questions asked concerned participants view of past events. Other limitations have also been identified.

Chapter 4

Findings: Case Study Summaries

This chapter will tell the story of the decision making process for each school. The information gathered from the interviews has been merged into a chronological sequence. As the sequence progresses the network diagrams are given. Each diagram includes a timeline indicating the stage in the process. The diagrams show what actors were considered by the participants to be influential as time progressed. Some actors were present for the duration of the decision making process; some only appeared at one stage of the process. The final diagram for each case study shows all of the actors together that had been identified.

Case Study One: Agribusiness

Agribusiness was first taught in 2014 at NCEA Level Two. The Principal identified himself and a Deputy Principal as the key developers. The Deputy Principal was one of the teachers for the first year of the course in 2014.

Sequence of Events

The first event in the timeline of decision making for this school was the appointment of a new Principal in 2009 and the subsequent appointment the following year of a new Deputy Principal. Both of these teachers observed that although approximately 50% of the parents and guardians of the students were employed in the agriculture sector, agriculture was not taught at the school.

In 2012 on direction of the Principal a Science teacher introduced and taught a NCEA Level One Agriculture and Horticulture course. This teacher had previous farming experience. This was expanded to include Level Two in 2013. There was a significant uptake for these courses demonstrating an interest in this industry amongst students.

The same year the school employed a consultancy firm to survey the school community covering the performance and potential improvements of the school. This was a comprehensive survey not specifically focused on curriculum.

Relevant to the decision to implement this course, the survey report showed a desire by the community to widen the selection of courses offered and a strong interest in the agriculture area.

The consultancy firm was then employed to canvas the community concerning the willingness to assist in funding a variety of programs at the school. The feedback for this was positive and identified a particular interest in assisting if there was further advancement in the agricultural curriculum area.

> They went to 50 people who were influential in our wider community and asked them would there be general support in the community if the school went out and asked for money on programmes and a lot of the feedback that came from that was that they would but they would be even more supportive if the school did something about the ag[riculture] area and the delivery of the ag[riculture] curriculum. (Principal)

The school secured the finals of the regional Young Farmer of the Year competition to be held within the school grounds in February 2013. This was done to increase the profile of the school. There are over 70 Young Farmers clubs throughout New Zealand. These are non-profit groups, held together by a national body, which aims to improve the leadership, networking and personal skills of young people in the agriculture industry. The regional final brought together many organisations from the industry; within the grounds of the school. When the Principal and Deputy Principal saw the list of those attending the Young Farmers event they took the opportunity to speak with key leaders from the agriculture sector concerning an intention to further develop Agricultural Science and Business curriculum. At this point the Deputy Principal describes the course as a 'seed of an idea'. There was informal conversation at this event indicating a high level of interest from the industry and many suggestions for content.

This interest was harnessed by the school inviting key stakeholders to attend a think tank held in March 2013. The purpose of this was to determine the needs of the wider sector to inform the course design.

> We held that discussion at the Young Farmers and asked people that were interested to come back to a think tank. (Principal)

Following this think tank an advisory group was formed approximately one month later. This included representation from tertiary education institutions, NZ Beef and Lamb, Dairy NZ, banking, communications, veterinary, farm equipment and farmers. The intent was to refine the shape of the curriculum of the Agribusiness course. This advisory group met repeatedly over 2013.

> From that advisory group we looked at some things that were important to deliver in the curriculum so it is sort of industry led rather than school led. (Principal)

Following the advisory group meetings the concept of having Principal Partners was developed. These partners offered a higher level of financial and curriculum support and would have their brands associated with the course. For this two industry good organisations were negotiated with; NZ Beef and Lamb and NZ Dairy (these organisations are motivated by improving outcomes in their overall industry). The discussion for this began in term 4 of 2013. NZ Dairy was a principal partner by term one, 2014 and NZ Beef and Lamb by July 2014.

> We've succeeded in tying in two principal partners…They have also had strong feelings about what shape the curriculum should be to best serve the sector. And we've also, at this stage linked up with five business partners and also have an influence if you like at what are the key things we want young people to come out with and have experienced during their time at high school. (Principal)

Within this innovation there is also a second and third tier of partners. The second tier is comprised of business partners. Their association has some perceived benefit to their business (ultimately profit motivated). The intended third tier will be scholarship partners. They will provide scholarships to individual students to attend the school (the school is fully private, part boarding). They would have a specific interest in the students they provide scholarships for (possible future employees, interest in the education of a particular group etc.).

> …scholarship partner, the aim there is that you will get businesses that will want to sponsor a student to come and have the opportunity of going to this course who otherwise would not have been able to go to [school]. (Principal)

With the introduction of partners came the need to trademark the course. The organisations associated with the course have vested interest in ensuring the quality of the programme meets their expectations and consequently protects their brands. This also affects the release of information to the public and other schools and there is a requirement to work within the marketing goals of the organisations.

The intent for Agribusiness is to design new standards which encompass the key areas of learning identified by the advisory group. In the immediate future, existing standards will be used where possible with agribusiness contexts. The realignment of standards has helped with this course as it is the analysis and thinking not the context that is assessed meaning this course can use contexts/case studies straight from industry. Areas of learning that don't fit assessments are still taught.

> We are picking out an achievement standard that is giving us a context that we can assess then we can apply the content to that context. And that actually fits - NCEA, we would not have been able to do this four years ago… under the realignment, this fits perfectly with NZQA... you pick the context. Now we are in a situation where by luck or design NZQA's changes fits nicely into this course. (Principal)

Over the next few years the plan is for the agribusiness standards to be developed and included. There is a separate teaching and development position being funded by industry and located at the school starting in late 2014. This person will work on bringing these new standards onto the framework, preparing resources and teaching aspects of the course.

They need for easy access to industry advice was noted by the deputy principal. This included having a delegated point of contact within the industry organisations.

> It's really important that you have a structure also as part of this process that enables you to have that communication back and forward. (Deputy Principal)

Content

The description in the 2015 course information guide put out by the school is:

> Agribusiness 201 is the introductory course for our new Centre of Excellence in Agricultural Science and Business programme at Level Three. The course is designed to engage and expose tertiary capable students to the wide range of opportunities, skills required and career pathways available across the Agribusiness sector and is primarily for students with strong Sciences and/or Commerce backgrounds.

> A key focus is looking closely at the Value Chain, from farm to fork. The virtual classroom will allow us to bring the sector to the students through a variety of online links, directly from farms, through virtual field trips to key industry businesses, accessing speakers from across the sector and linking in with tertiary institutions. Course material comes from, but is not limited to, newly created Agribusiness units of work, Agriculture, Science, Digital Technology, Sustainability, Biology, Business Studies and Accounting. (reference not given due to identification of school)

This is for the Centre of Excellence program for which students also take both Chemistry and Biology (science stream), or Economics and/or Accounting (Business stream) at Level Two. This leads through to Level Three course with similar aims as those stated above for the Level Two Course. In Level Three there is planned a combined Chemistry/Biology course with an Agricultural view. This course along with the Level Three Agribusiness will total together to offering University Entrance requirements of 14 credits in an approved subject for both Chemistry and Biology. This is an intermediate step until Agribusiness becomes a recognised University Entrance subject.

The school is reluctant for any further detail of what is in the course to be released. This discretion allows the school time to develop the course properly prior to roll out and protects the brands of partners.

> We are going to give it away, but not until we're ready and not until its right. (Deputy Principal)

Implementation

The initial plan was to begin at Level Two in 2014, following with Level Three the following year. Due to considerable interest from Level Three students, both Level Two and Three were offered in 2014. The school would have preferred to consolidate Level Two prior to moving on to Level Three.

> We were only going to offer level 2 agribusiness, but what happened was we had a whole lot of year 13 students who wanted to do it, and so we ended up having offer agribusiness level 1, level 2 and level 3. That, from a resourcing and stress perspective that wasn't the best outcome. Because we really wanted to get one level embedded and then move to the next. So instead what happened was we had to rapidly deliver two levels of the curriculum and differentiate the learning outcomes of level 2 and level 3. (Principal)

In 2015 the school planned to refine the course. In particular the timing of standards to coincide with significant events in agriculture will be amended (in 2014 there was changing backward and forward between teaching standards to take advantage of events).

It is intended students would engage in an overall program from Level Two with either a Business or Science base complementing the Agribusiness (details left out due to intellectual property at this time).

With all of the industry contact during the teaching of the course, a new facility is being built with state of the art conferencing technology (hence the communications company as a 2nd tier partner). This will mean fewer field trips and less disruption to other school subjects. The facility will be available in 2015.

> It's really hard to take kids out of school when they are also doing other subjects, so we want to bring the sector into us and that is the virtual classroom idea. (Deputy Principal)

Student Voice

Student's had no direct input into the original course design. It is planned to seek student feedback at the end of the 2014.

> We were just trying to start something; we are only one step away from delivery in the classroom we are having to write it the week before delivering it. We are not

> ready to hone it. When we are ready to hone it we should go to the students. (Principal)
>
> We want to strongly evaluate the course and receive their [student] feedback on what was a strong area of engagement. (Principal)

Agribusiness on the Directory of Standards

Nationally the number of students taking Agriculture has declined. This school felt this may be due to the lack of relevance in the way it is presented in the classroom. Some of the deficiencies in the curriculum identified for Agribusiness may in fact be better placed in Agriculture and Horticulture domain (e.g. soil and plant science). The school also noted a lack of leadership from the Ministry of Education concerning the decline of Agriculture and Horticulture, accelerated by the removal of Scholarship exams for a period of four years. They found this surprising considering the size of the industry. The vision of the advisory group is not to rely on the Ministry of Education but to use Cabinet support to instruct the Ministry based on the private/public partnership model. The sector along with the school will provide the government with a well-designed and resourced program. The advisory group intends to relook at the curriculum periodically in order to keep it relevant. This idea of continuous development initiated from industry is new and it remains to be seen how this will be accepted/resourced by the Ministry of Education.

The school's point of difference (their benefit), in this planned curriculum change is as the initiator and centre of excellence. It should provide significant benefit to the school's reputation and their demand for enrolments.

> Our point of difference is we have taken a leadership in it… we are happy to share all intellectual property associated with the curriculum change… the benefits of that change will be for all schools but we will be recognised as the school that introduced the new curriculum. (Principal)

> We believe it will have a really positive spinoff especially for boarding enrolments…we think that is where we will have the real benefits, the boarding enrolments. (Principal)

National Roll Out

The school recognises the Agribusiness course needs to be accredited quickly so it qualifies for University Entrance as this would currently slow the uptake by other schools.

> But the disadvantage at the moment is that we are only a [school] agribusiness course. So that is a risk because that means that that course does not qualify for university entrance, so we can't continue that, and schools won't want to come into the programme unless the government agrees that there is a national agribusiness course….won't be able to get momentum unless we get that curriculum change. (Principal)

The design of the national roll out of this course has had a large input from the principal partners. Both principal partners (NZ Dairy and NZ Beef and Lamb) are national, industry good organisations. A lead school in each region (5-6 schools) will be selected and provided with training for delivering the course during 2015. In 2016 these schools will be able to provide the course in their schools and become regional point of knowledge. In 2016 there will be a national conference to get other schools on board. Schools may become a centre of excellence (full program with science/business base), just deliver the course or pick some standards from Agribusiness to include in their existing courses.

The planning hinges primarily on the process of getting the new standards on the framework and secondly, accepted as a University Entrance subject. There was no doubt from the school that this will happen as there is already significant support from very powerful organisations and Members of Parliament.

Conclusion

> It's sort of fortuitous; that what's happened is you've had people in the industry connected to a school that's highly focused… branding itself as a leader in the rural

area…. The industry are really supportive of funding, so you sort of have a three way thing …the perfect storm. (Principal)

The aim is to have tertiary capable agribusiness students from New Zealand secondary schools going off to uni[versity], the aim is to change school and community perceptions of the sector, and the aim is to change government perspectives of national curricula. (Deputy Principal)

Agribusiness Network Diagrams

The series of diagrams below show the development of the decision making network over time (dynamic). The actors within the large central rectangle are the Executive. The final diagram shows the static network with all actors present and is larger to facilitate clearer viewing. This format will be repeated for each case study.

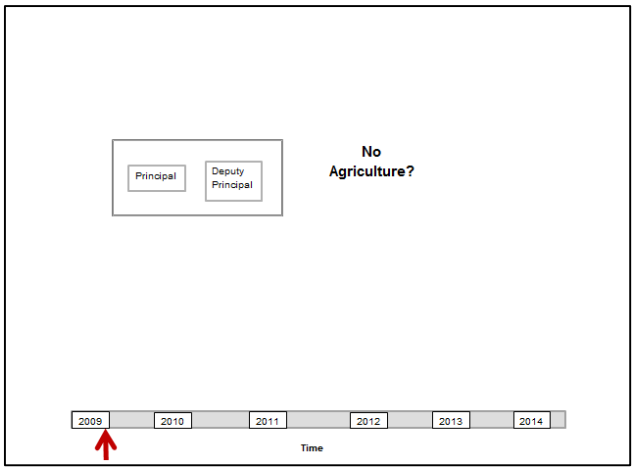
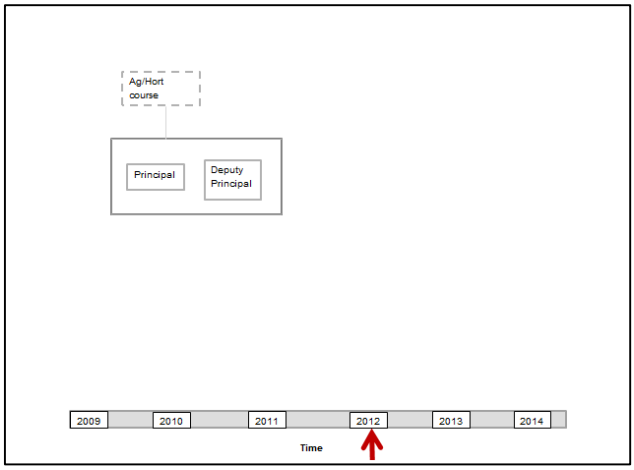


Figure 4.1 Agribusiness Network 2009

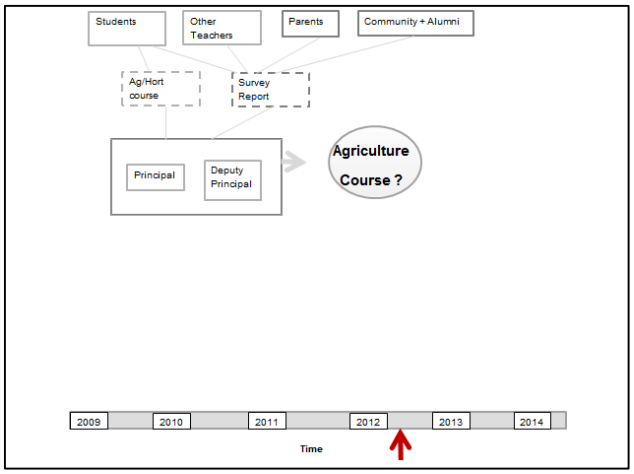
This network shows the Principal and Deputy Principal (the Executive) recognising the absence of Agriculture as a course at the school.

Figure 4.2 Agribusiness Network 2012a



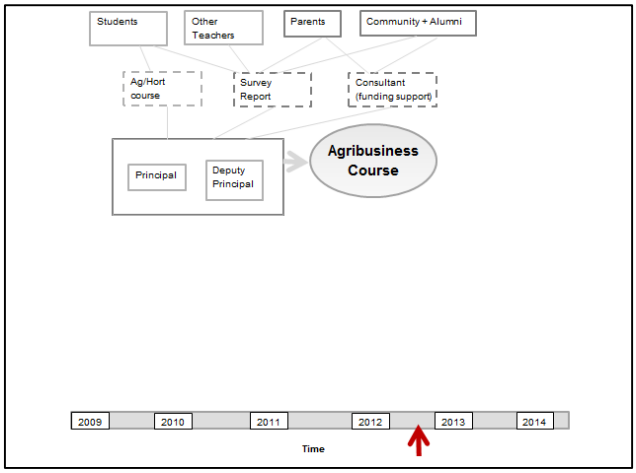
This network shows the implementation of an Agriculture course and the positive student feedback for the course.

Figure 4.3 Agribusiness Network 2012b



This network shows the information being considered from various groups by the Executive via the survey information on school performance.

Figure 4.4 Agribusiness Network 2012c



This network shows the consultants canvassing the communities willingness to financially contribute identifying a desire for further agricultural curricula.

Figure 4.5 Agribusiness Network 2013a

This network shows the informal conversations which took place at the Young Farmers Competition held within school grounds.

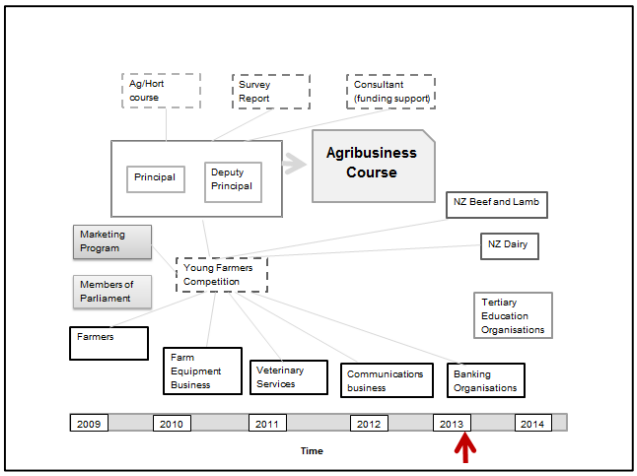


Figure 4.6 Agribusiness Network 2013b

This network shows the presence of a think tank following the Young Farmers Competition which first formally discussed the possible content of the course.

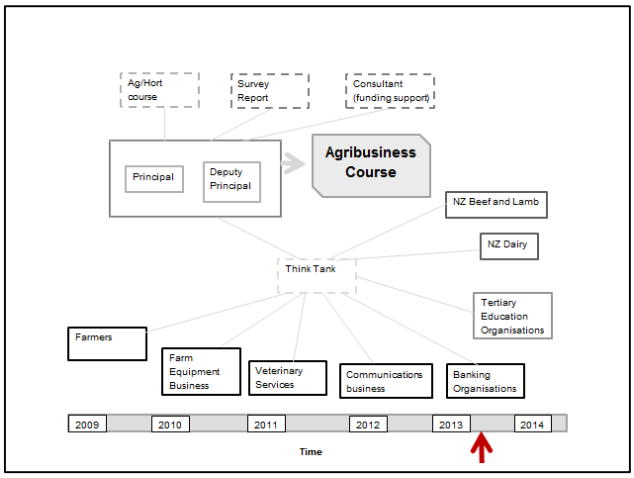


Figure 4.7 Agribusiness Network 2013c

This network shows the formation of the advisory group.

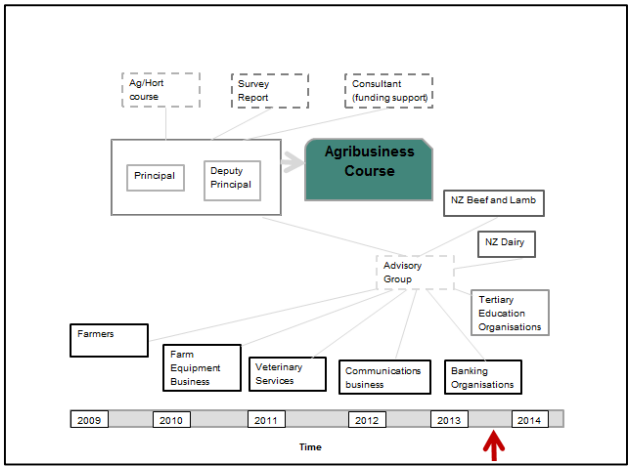
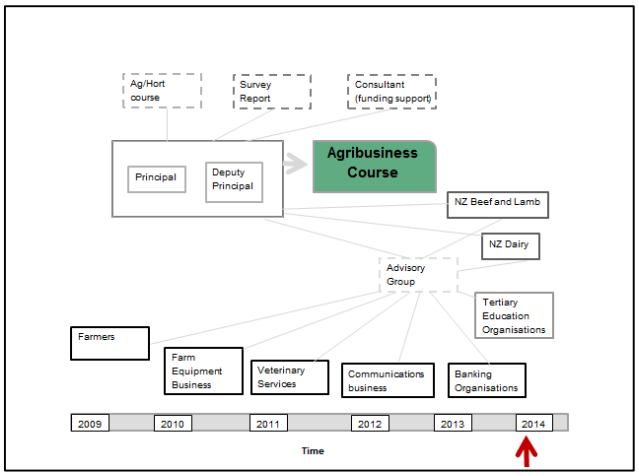
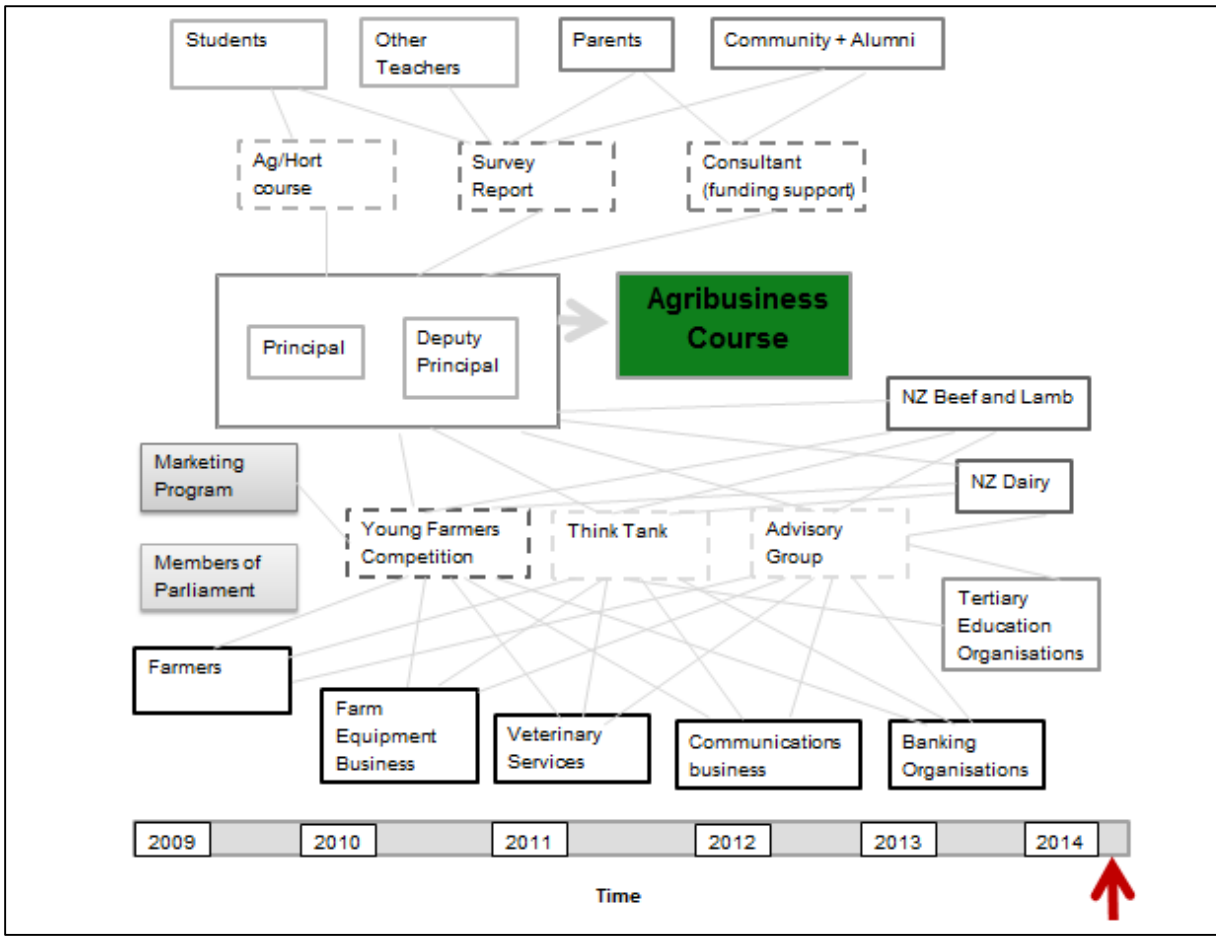


Figure 4.8 Agribusiness Network 2013d



This network shows the industry good organisations of NZ Beef and Lamb and NZ Dairy becoming principal partners.

Figure 4.9 Static Agribusiness Network



Case Study Two: Fitness for Living

Fitness for Living is a combination of Physical Education and Home Economics. This course was first taught in 2014 with a multi-level NCEA class. The Head of Department was identified by the Principal as a key developer. She identified another Physical Education teacher as also being crucial to the design of the course.

Background

Within the Physical Education Department prior to 2014 there were two NCEA courses at Level One, Level Two and Level Three. All three Levels had a course with anatomy, which is generally seen as more academic (101, 201 and 301), and one without anatomy (102, 202, 302), which is seen as more suited to the highly practical students.

Sequence of Decision Making Events

In early February 2013 the students' NCEA results from 2012 were examined by the Physical Education staff.

At a meeting of the Physical Education department (three core staff), early in 2013, it was discussed that there were many students with literacy issues coming into Physical Education classes who wanted to just do practical lessons (minus the theory as much as possible). Many students complained during theory lessons, voicing their preference for practical activities. This was mainly in the 102 and 202 classes where some students also did not pass many standards due to incomplete or not submitting written component of assessments. The Physical Education staff also recognised a group of students coming into Year 11 in 2014 who were highly physical and who already had literacy support (students with diagnosed dyslexia and reader writer support for assessments).

> Last year we had a really large bunch of kids in all the 02 classes… right through from level 1 to level 3 that were really struggling to get the credits. They just wanted a course that was really practically based that they could turn up throw a ball around have a bit of fun burn off some energy…we knew that a lot of the students would be boys that were going to take this course. (Physical Education Teacher)

It was suggested in the meeting that maybe they could do another course with a little theory component as possible. Further discussion led to the idea of some Physical Education combined with Home Economics lessons. The Head of Department had previous experience teaching Home Economics.

> We had a team meeting with all the PE staff and we decided there were a lot of kids who just…, none of the kids like written work at the best of times, but there were some kids who had lots of literacy issues and just wanted to do practical lesson no matter what they were. We decided maybe they needed a broader spectrum of what they were being taught, so that even if it was to do with food it was a practical lesson. (Head of Department)

The Principal became aware of the thinking towards this course through reading the Physical Education meeting minutes. His main consideration at this point was that it would be distinctly different from other Physical Education courses being offered and that there were at least 14 – 16 credits available.

The idea was presented to the Department Head Meeting for response from other Heads of Department and Senior Management (as the Head of Physical Education understood the process to be).

> Because it was a new course we had to put it to the other HODs at a meeting and put it through the Deputy Principal who is in charge of NZQA and see where it went from there. (Head of Department)
>
> At the HOD meeting people were quite positive about it, [name] our Principal thought it was a great idea. (Head of Department)

It was seen as a positive course, meeting the needs of the students. The course was also discussed further in the staffroom with a variety of staff (mainly middle and senior management). This affirmed that the general consensus was that the course was a good idea.

At the next Physical Education department meeting the concept for the course was further developed. The standards to be included were discussed. There was a lot of input from the other two Physical Education staff as they had previously taught 102 and 202 classes and understood

the dynamics of the students. The standards were selected which enabled credits to be gained with mostly practical activity and limited theory or written work.

> We knew they had limited literacy so all the standards we choose were mainly the practical ones or had limited writing; or we altered them so they were doing as little [writing] as possible. (Head of Department)

The students for which the course was targeted at were named and examined in the meeting. It was clear the course would probably be multilevel (encompassing Level One, Two and three students). The difficulties this would present were acknowledged. The criteria for the course were discussed in preparation for the senior subject selection booklet along with the course descriptor.

> We named the kids, we looked at the students and saw that four might be from level 1, 3 might be from level 2 and 2 from level 3 we thought we already knew it could be a multilevel class and that could make it hard. (Head of Department)

After the students made their initial subject selection during Term Three of 2013, numbers of students who selected Fit were examined and staffing allocated. The addition of this course to the Physical Education department (along with a new Year 9 course) meant the existing Physical Education staff could not cover scheduled classes. The implication was that there was a teacher not trained in Physical Education added to the department for some Physical Education classes from another area of the school.

The Head of Department was troubled by this lack of experience in teaching a specialised practical class and the lack of interest in this subject area by the staff available to teach the extra number of classes. The initial reaction from the Head of Department was to withdraw the new course, thereby keeping specialist teachers in front of Physical Education classes. The senior management decreed that as they put it in the subject selection booklet and enough students had selected it, it would run and the Head of Department should have been aware of this implication.

> This was really important… when we divvied out the classes we had too many classes and not enough PE staff and so a non- trained PE teacher was added to our department and if I had known that…at the beginning we will cancel the Fit [Fitness for Living] class then. You don't want a non-trained PE teacher taking PE classes – it's a nightmare. (Head of Department)

The Head of Department had believed the subject selection gave a guide of what was wanted by students and was not a fixed commitment to run the course, dependant on numbers and staffing combinations. There was a different understanding from the Deputy Principal responsible for curriculum. This different understanding caused some tension between the Deputy Principal and Head of Physical Education at this point in time.

The next step was allocating the specific teachers and lessons. There was a little flexibility in this process which is a negotiation between Heads of Department and the teacher responsible for developing the timetable. The Physical Education department decided on a 3:1 split between Physical Education classes and Home Economic Classes (four 55 minute classes per week). One of the other Physical Education teachers took the three Physical Education lessons and the Head of Department took one Home Economics class per week (which put the Head of Department over code by one hour per week). They each took on the responsibility for organising the separate components of the course. The standards initially discussed were the ones that were planned for and taught in the final course; there was no change.

Students had no direct input in the initial course design. Once the students were enrolled in the course the students negotiated the sports they would use as context for the standards and the food that would be prepared with the teachers.

> Their choices arose this year [2014] when they [students] choose what sports they wanted to do and what they wanted to cook in the cooking section and things like that. (Head of Department)

> I kind of like to have a theme for each term and then fit the achievement standards in to it. I go: ok, this is the achievement standards these students can do that are the most practically based. When in the year am I going to fit it? And then what content do I to fit to it? Do I give them the choice? (Physical Education Teacher)

> We are trying to give students more and more choice. At the start of the year I asked them for term one - I kind of had planned out what achievement standards in what term and then tried to make it as real as possible to them by giving them choice. So term one I gave them a lot of choice. They sat down and chose basketball. (Physical Education Teacher)

During this process the Head of Department found several aspects challenging. The first part being the misunderstanding of at which stage a course was committed to run. The second was

the populating of the course. Students were placed in the course who did not meet the intent of the course by the Senior School Dean on their arrival at school in early in 2014 (many of these students slipped through the normal process by not coming to the confirmation day and therefore weren't checked by the Head of Physical Education). These students had enough literacy skills to be able to achieve results in the other Physical Education courses; they were just trying to avoid 'work'.

> I didn't have any input as to who was going to do the course; which students were going to do it. They came down to [senior dean]…. When we got the list there was 30 kids in the class and I thought some of them should be doing PE 202 courses and not that course because their reading was fine. (Head of Department)

This meant there were initially close to thirty students in the course. This was quickly whittled down to between 15 – 20 students through amicable communication between the Senior School Dean and the Head of Physical Education.

> As long as she [senior dean] kept me in the loop I felt better about having those kids in there or not. (Head of Department)

The final course roll was a near match to the original list of students drawn up when the course was first suggested at the Physical Education meeting six months earlier.

A third complication was the lack of availability of the cooking room. The only time the Home Economics lesson part of this course could happen is last period on a Friday. Given the physical nature of these students, this has been challenging.

Reflections on how the course is developing

There are some complications with the course which will be reflected upon and amended for the next year. The student's significant lack of literacy skills was underestimated in the context of their ability to read a recipe. This will be more carefully approached; recipe reading will be specifically taught prior to beginning cookery. All of the standards in the Home Economics component still require some theory/written work. The students have been unsuccessful in gaining credits in this part of the Fit course. The students are learning to cook and read a recipe but are unlikely to gain credits in the Home Economics part of the course due to the lack of time to cover everything during one lesson a week. On the Physical Education side, the students are

gaining credits. There is still some theory but with the three Physical Education lessons per week this is more distributed time wise.

The Physical Education component teacher had reservations about continuing the course. The students were not placing much importance on the course which had been quite frustrating (some students were reluctant to actively participate). She believed consulting more with the students at the beginning of the year on the plan for the year could help them understand the importance.

> The students' need more and more buy in so it's almost like we need to sit down and consult with them right at the start of the year before developing a program and saying right what do you want to gain out of this year, how many credits do you want. Almost like an individual education plan we need to sit down with them and say well this is what we can do. But at the same time part of me thinks all they want to do is play games and do we just offer them that as that one release and they have to focus on their other five subjects without giving them any credits. (Physical Education Teacher)

The multilevel nature of the course was quite difficult as the students need constant attention and were struggling to manage themselves while the teacher was dealing with another level. She was using Facebook to assist with communication and reminders to students. This teacher acknowledged the large variability from one cohort of students to the next and thought there would be consideration given to this when it was decided whether to continue the course in the future.

The Head of Physical Education would like to see the course run again the next year. There are many aspects which she has reflected on and is looking forward to trying a different approach the following year.

> You get a little bit excited because you think well now I know I can do that first and I can do that… (Head of Department)

There remains the question of how to distribute the course between Home Economics and Physical Education; and between theory and practical. There is a possibility of including the cookery component without aiming for any credits in this area. The Head of Department recognises to gain credits in the Home Economics part, there would need to be more theory

lessons (currently one in four lessons is theory). However this defeats the initial intent of the course which was to have more practical and less theory.

There is a student survey planned at the end of the year in order to gain feedback on the design and conduct of the course.

Process at the School

Both the Deputy Principal and the Head of Physical Education believed there was a specific process for introducing a course which began with the idea being presented at a Head of Department meeting. What they each believed differed in when a course was committed to run which caused the issues mentioned above.

The main role of the Deputy Principal responsible for curriculum in the course development for Fit was to ensure the correct information was supplied for course selection as well as the detail was present for the course to run effectively. From his point of view the most important factor for course introduction is meeting specific needs of the students that are not currently filled (as opposed to a personal interest of the teacher).

> The key thing in my view is, is it going to meet the needs of the students? If it is something that is going to meet the needs of the students it really needs to be considered. On the down side is what could suffer because of it? (Deputy Principal)

He recognised the equity issue between staff when there are some staff with many smaller classes and others with many larger classes which influences the teachers overall workload. The Deputy Principal found it frustrating when a course was suggested close to course selection time. It was preferred that the course design was well under way and widely communicated during Term Two of the year prior to the course beginning. The school had recently changed to online course selection which requires less lead in than the previous paper based selection. The Deputy Principal recognised this could reduce the cut off for a new course being introduced. He recognised that the lead in time practically required for introducing a course was not widely understood by staff and may need further communication.

The Principal stated there was no specific policy for curriculum introduction although there was currently a curriculum review taking place which includes looking into the process for course

introduction. Currently it is quite ad hoc. The main factors the Principal took into account when a new course was suggested were: staffing (did the school have the skills to plan, teach and assess it within existing staff?), student need (did it seem like 'a wise and relevant idea'?), resourcing (no extra funding available), effect on other curriculum areas (would the introduction cause another course to falter?), number of students selecting the course, potential to lead to Level Three/University Entrance qualifying course and availability of credits within the course (must have a reasonable number of credits for a course to run). Diversifying the curriculum is a marketing consideration for the school. There is a tension between diversification of the curriculum and maintaining the traditional academic subjects expected by the community. The academically focused students are more susceptible to changing schools if there is any doubt of the availability of academic subjects. There is some pressure from the Ministry of Education to have a responsive curriculum as a way to meet the Ministry of Education goal of 85% gaining NCEA Level Two. The Principal does not discuss planned curriculum change with other Principals in the area due to competition between schools. It is occasionally discussed with tertiary institutions and the Board of Trustees.

The Principal wishes the school to head towards a course orientation rather than subject bound (cross-curricula courses) such as the Fit course. There was acknowledgement by the Principal that some courses had continued to run in order to keep the curriculum offered by the school a broad one, despite there being less than 10 students in the course (which is the stated minimum for a course to run) and this was not understood by some teachers who resented the small classes in other areas pushing up their class sizes.

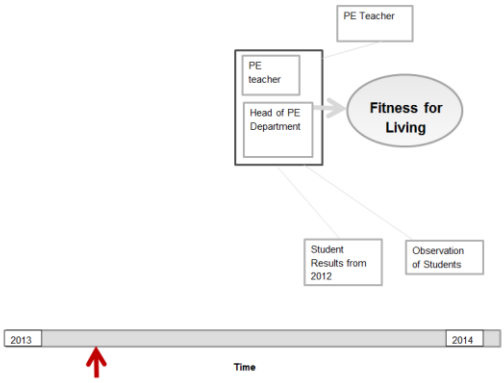
The limitation of staying within the number of classes the specialist teachers in an area can teach is a problem for schools of this size. There is a level when a course is introduced which swells the courses over this level but does not justify the appointment of new specialist staff. This was recognised by the Head of Department as a deterrent to introducing something new.

The Principal recognised the University Entrance requirements as inhibiting course design along with many of the staff's perception of what education should look like and perpetuating the same type of education structure they went through and were trained to teach (rather than rethinking how courses could look). He perceived the realignment as making innovation more difficult with the disappearance of many standards from the framework.

Fitness for Living Network Diagrams

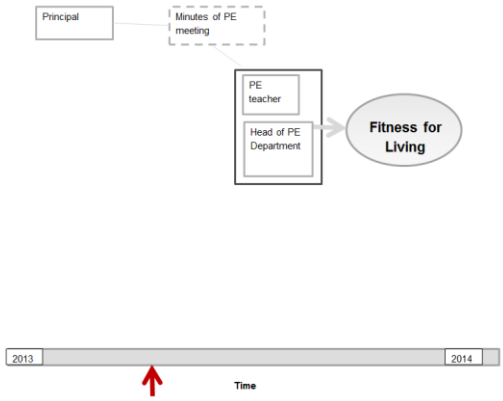
As in the previous case study, the series of diagrams below show the development of the decision making network over time (dynamic).

Figure 4.10 Fitness for Living Network 2013a



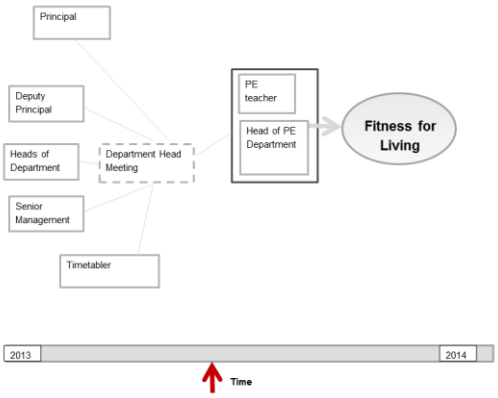
The initial idea for Fitness for Living came after analysing student achievement results and observing students within a Physical Education environment. The Head of Physical Education and a Physical Education teacher were the Executive for this course as is shown in the central rectangle.

Figure 4.11 Fitness for Living Network 2013b



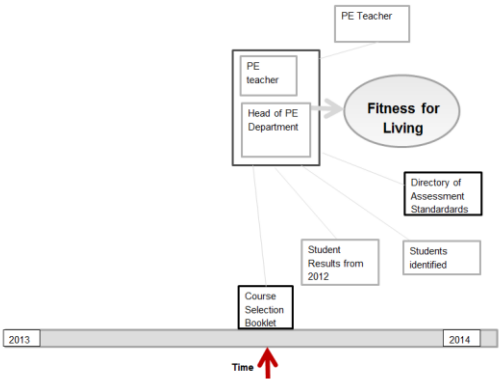
The Principal became aware of the development of this course via reading minutes of a department meeting.

Figure 4.12 Fitness for Living Network 2013c



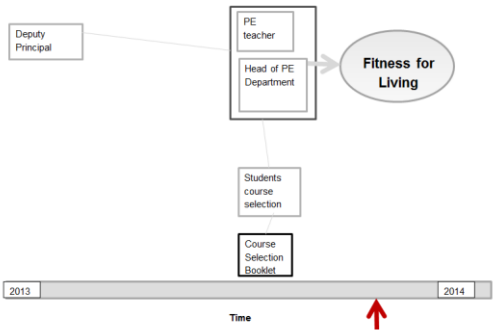
The proposed course was then discussed at a Head of Department Meeting.

Figure 4.13 Fitness for Living Network 2013d



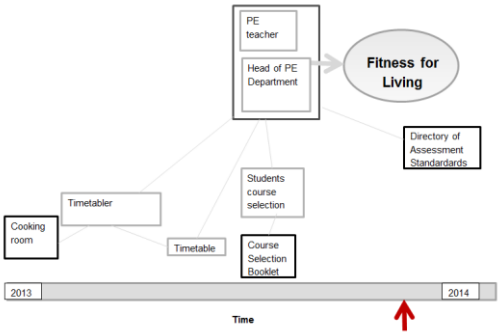
The course was then refined in order to be advertised in a course selection booklet provided to students. The standards to be taught were selected at this time.

Figure 4.14 Fitness for Living Network 2013d



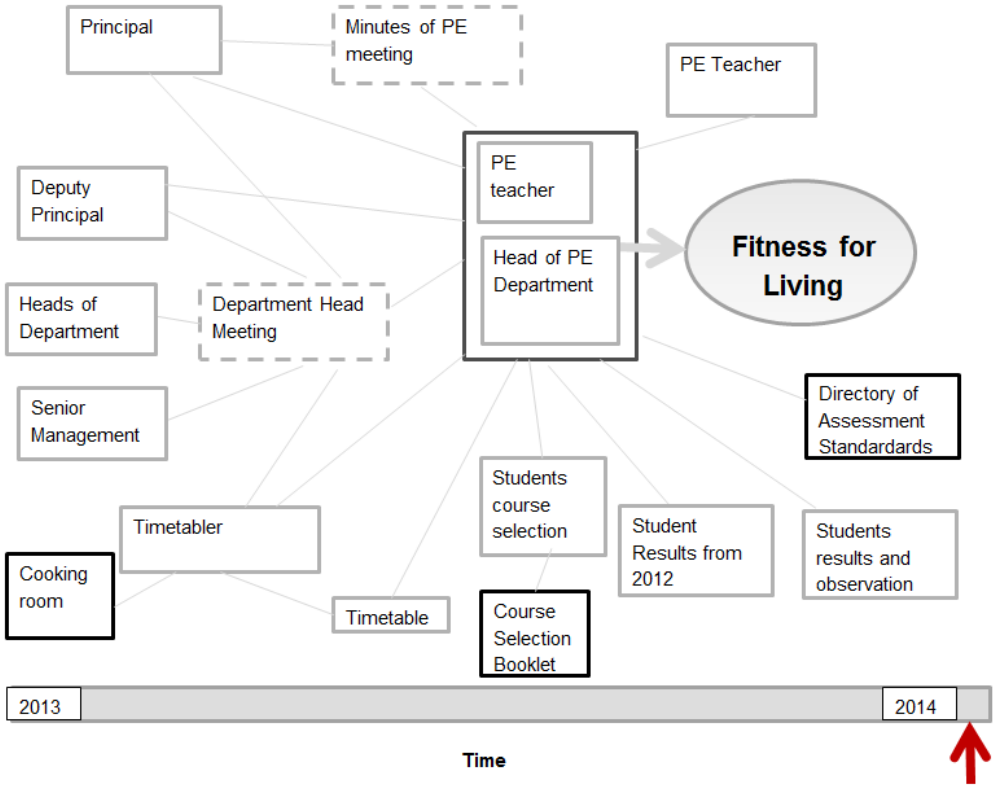
The students then made their initial course selection toward the end of 2013 for their 2014 program. This gave an indication of who would be in the course. At this time it became apparent this course would lead to a teacher not trained in physical education taking a physical education class. This caused tension between the Executive who wanted to withdraw the course and the Deputy Principal who instructed it would remain.

Figure 4.15 Fitness for Living Network 2013e



The course was then timetabled with consideration to the specialist cooking room required for the home economics component.

Figure 4.16 Fitness for Living Static Network



Case Study Three: Viticulture

Viticulture was first taught in 2009 at NCEA Levels Two and Three. The Principal identified the Horticulture/Agriculture/Viticulture teacher as the main developer of this course.

Background

This course was driven by one teacher in particular. This teacher previously worked with children of gang members in Wanganui as part of a Ministry of Education innovation fund. He then went on to become a development officer in South Auckland with the Ministry of Education, developing programmes that were suited to schools. His job dissolved in 2009 with

a change in education policy. He had been working with the case study school as part of his development officer job due to a high suspension/exclusion rate. When he became available the then principal, asked him to work at the school (5 years ago, 2009). The teacher already had a deep understanding of the disengaged learners. The Principal asked him what he would like to teach.

> He said what do you think we need to do? And I said we need to look at the surrounding areas; what the community is, what they want and what they need. (Horticulture/viticulture teacher)

Building, landscaping, viticulture and hospitality are the local industry (This is an area with many holiday homes; 8000 permanent residents; only 1/3 of the houses occupied permanently; there is a need for people to look after grounds). The local area has a very diverse range of family backgrounds and incomes. There is now a new Principal who also shares the community based philosophy.

This teacher doesn't see these courses as innovative or alternative. They are logical and community based.

> Viticulture is not an innovation, it's something that's here already in the community. (Horticulture/viticulture teacher)

The Course

Viticulture was already present but unsuccessful. When it was restarted no students were allowed at vineyards due to their behaviour. Viticulture was due to be disbanded. There was a one year gap between the previous version of viticulture discontinuing and when the new course started.

Horticulture was started as an alternative to Science at Level 1. The students then go into Level 2 and do a practical viticulture course. They learn how to prune and pick. They then move on to a full University Entrance viticulture program in Level 3, made up of 14 credits of Agriculture and Horticulture Achievement standards studied in a viticulture context. The teacher commented that the realignment has made it easier as the standards can fit any context.

> Just completing the two internals now; most of them looking at merit. They will fly through that because they are doing it. They've done the picking, pruning, everything. They actually know it inside out, they can actually write it on the bits of paper; not in perfect English, but they know what's happening. So that's the main goal. (Horticulture/viticulture teacher)

The new course involves a lot of experiential learning within the vineyards. This was initially difficult as the relationship with the vineyards was badly damaged through the previous poorly run course. It would have been easier for the teacher if the earlier course had not operated and the relationships with vineyards hadn't been damaged.

It took several years for the relationships to be built with the local industry. The teacher got the students onto a large vineyard through a long standing rugby connection with the vineyard manager. The new teacher has very clear expectations of the students, which the students have responded to.

> They do know if they mess around they are not coming in the van. They get left behind. Keep it real simple for the kids and they respond. (Horticulture/viticulture teacher)

This has helped grow the reputation of the class. Now the vineyards are approaching the school to get the students on their vineyards. The students get to go on extensive field trips to other vineyards at no cost, funded from their picking. This money also pays for logistics and equipment.

> We are seen as skilled cheap labour force. I mean the way it works is, they did 34 tons, they give a donation to the school, they get tax back for that donation and it goes into the viticulture budget. (Horticulture/viticulture teacher)

The Level 3 class has international students and students who have chosen mostly practical courses (often combinations of Physical Education, Hospitality etc.). Students who had not previously aimed for University Entrance have changed their aspirations when they realise through studying viticulture that it is possible for them to reach this.

> All of a sudden they can see - oh shit I could go to University. (Horticulture/viticulture teacher)

The teacher has complete control over who is in the course but rarely declines to a student. Parents have rung trying to get their children into the course. The students are aware of the behavioural expectations, and that failure to meet them will result in their inability to attend the practical sessions in the vineyards.

The teacher is very open with the staff about them approaching him with any concerns on students missing classes due to being at vineyards. The students know they must catch up on any work missed.

> This vintage we had two picking crews; we had 24 kids at two different vineyards picking. They come back once they've picked and are expected to go to class. They have to make it up [missed classes]. I always mention up in the staffroom - if you have any concerns come and see me. (Horticulture/viticulture teacher)

Last summer 26 past or present students were employed at vineyard. At least one student a year goes into a viticulture apprenticeship. There are links with Manukau Institute of Technology distance learning (2 students are studying towards a diploma in viticulture at Level 3).

> We have 6 boys who work permanently up at [vineyard] during the summer that have put themselves through university through viticulture. (Horticulture/viticulture teacher)

Frustrations

Moderation has been time consuming. Due to the poor management of the previous version of viticulture, the industry training organisation were going to take the schools accreditation off them. Moderation with NZQA was terrible from the previous course. Moderation is also difficult as the agriculture moderator doesn't have in depth knowledge of viticulture and therefore doesn't always understand the student's work. The teacher has to travel for moderation with both the horticulture and viticulture ITO 'experts'. The school has had an 100% agreement rate with the ITO for last 3 years.

Professional Isolation – there are no other school teachers at ITO moderation. The constraints for a school are very different then for a polytechnic or other training organisation. There is a lack of understanding of how teaching viticulture in a school actually works.

> I have no one who understands what I am doing; there are no other horticulturalist in the teaching field doing viticulture in [region] or anywhere. (Horticulture/viticulture teacher)

Other teachers at the school lacking understanding of the purpose and functioning of the course has also been frustrating. They also don't understand the amount of face to face contact needed to liaise with the vineyards. Other opportunities also come up with face to face communication.

> There's people involved in working outside who don't like talking on the phone. You've got to go out and talk to them. So I would spend at least two hours a week visiting vineyards, even with no agenda – just to have a catch up and talk. Like now [vineyard name] now want to do something with their composting on a large scale and they want us involved. (Horticulture/viticulture teacher)

> No one can see that huge amount of hours that goes into popping around (Horticulture/viticulture teacher)

Sustainability

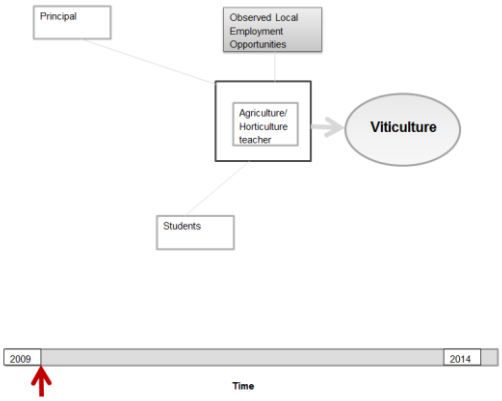
The programme is organised and has systems written down. Another teacher with the right skills could have a short handover and continue to sustain the programme. Although the teacher has been key in starting the course he has developed it in such a way that it will carry on without him. He believes this is essential.

> The program is watertight. In the fact that I know a teacher could just pick it up this program and they could just go with it and I could spend an hour with them and I know and I know if they wanted it to succeed it still would because of the content. Because if it is based solely around one teacher that is not fair on the kids or the program or the community or anything like that. (Horticulture/viticulture teacher)

The teacher believed teachers starting a new course have to be resilient. It won't always work perfectly; mistakes will be made. The teacher needs to be reflective and self-evaluate constantly. The ultimate aim has to be developing the systems that enable the course to keep going in the form best for the students.

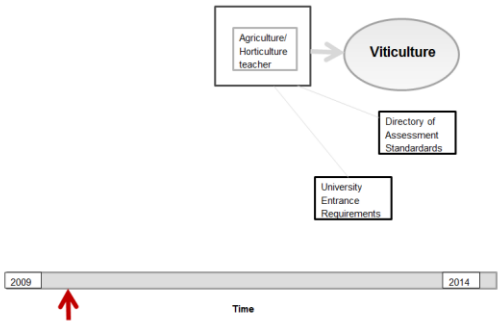
There is a high level of community support. The teacher believes the community would protest vehemently if viticulture disappeared.

Figure 4.17 Viticulture Network 2009a



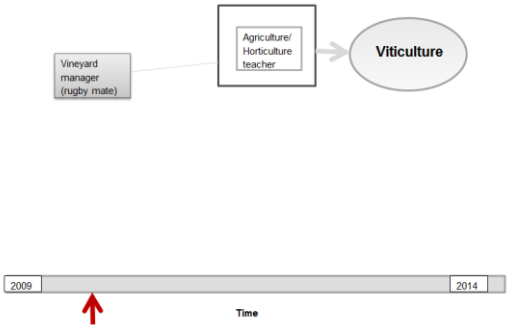
The first part of this network was the conversations between the teacher (Executive) and the Principal concerning local employment opportunities for the students.

Figure 4.18 Viticulture Network 2009b



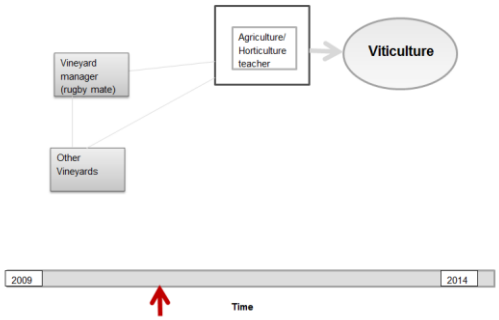
This shows the creation of the course using the directory of assessment standards while ensuring level 3 met University Entrance requirements.

Figure 4.19 Viticulture Network 2009-2014a



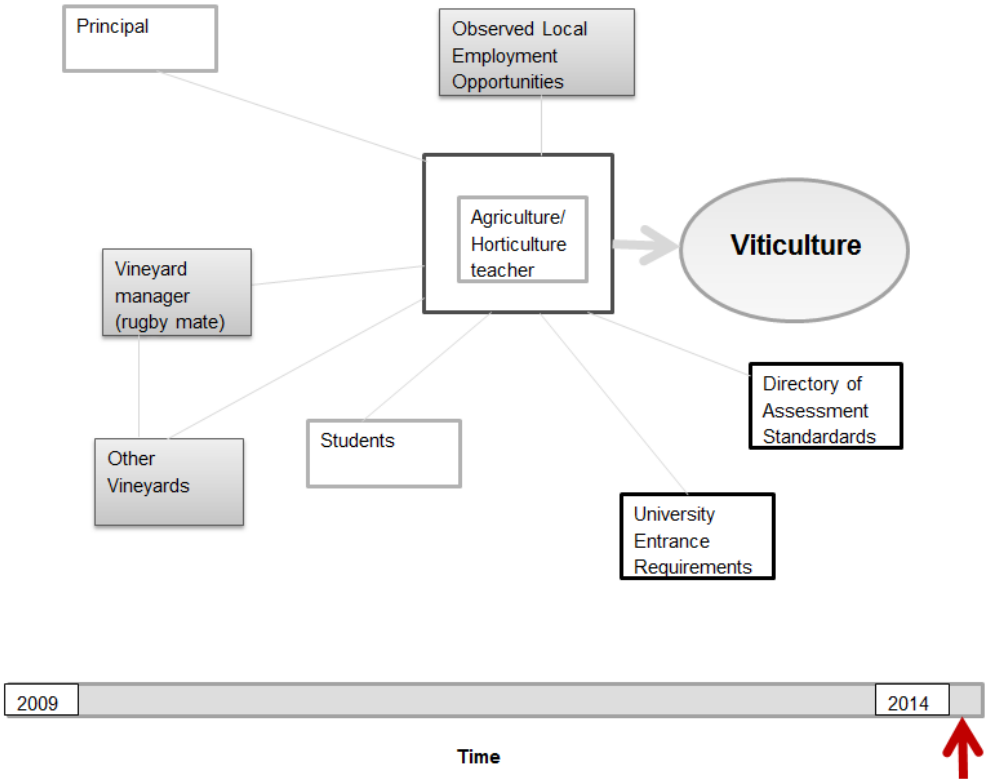
The Vineyard manager, who was a personal friend of the teacher, was communicated with in order to get the students work experience on the vineyard.

Figure 4.20 Viticulture Network 2009-2014b



Other vineyards observed how well the students were working and requested them for labour on their premises.

Figure 4.21 Static Viticulture Network



Case Study Four: Sea Sports

This course was first taught in 2003 at NCEA Levels Two and Three. The Deputy Principal was identified by the Principal as the key developer of this course. The Deputy Principal also acknowledged a Physical Education teacher as part of the development.

Sequence of Events

In 2001 the Deputy Principal was appointed who was an outdoor marine enthusiast. This coincided with a world class sailor appointment to the role of Chair of the Board of Trustees. The Chair of the Board expressed a desire to incorporate a course that reflected the unique

location of the school; something utilising the coast. In 2002 the Deputy Principal, Chairman of the Board of Trustees and another teacher with a strong interest in sailing, met and talked about the possibilities for a course.

> [We] sat round over a beer at my place and devised the sea sports course….Started with the idea that we wanted to give our students an exciting marine/ sea sports course….We weren't really worried about what qualifications they were going to get out of it. (Deputy Principal)

They outlined the basic components of the course – windsurfing, sailing, snorkeling, day-skipper, kayaking. These were activities that occurred in the local coastal environment and there was expertise available from the local community to assist teach it. The course was intended to be for all students; potential university students to disengaged students. The Principal supported the concept of the course and left the Deputy Principal to manage development.

Requests for support from the community were sought via public meetings. These were advertised at school prize giving and in the local newspaper and occurred toward the end of 2002.

> We called a couple of meetings and we invited community participation, and we discovered that we had people that could teach snorkeling, scuba diving, and windsurfing (Deputy Principal)

It was decided the first course would be limited to 12 students for health and safety reasons as supervising more students in a marine environment was considered too difficult.

> Then we looked to see what qualifications we can build in.…looked around for credits as we don't want to disadvantage the students. (Deputy Principal)

The qualifications were then matched into the context and extra knowledge such as reading the weather, VHF radio operation and first aid were included to increase the number of credits offered.

Students that have completed this course have gone into the Navy, maritime industries and water based tourism. The Deputy Principal was proud that the course had potentially contributed toward their careers.

A Physical Education teacher taught the course in the first year. There was help for snorkeling (deputy Principal), sailing (Chairman of the Board of Trustees), windsurfing (local contractor), kayaking (local contractor). Later the Physical Education Teacher left and the Deputy Principal took over the teaching. Some aspects of the course are taught by outside providers. This has decreased as the school has upskilled the staff and found which activities are most suitable.

> Windsurfing was a pain because it was so weather dependent. You need this window where it is between 5 and 15 knots of wind. Any less and people are sitting there; anymore and they just get knocked over. It used to be the hardest of the components to do…. So we killed windsurfing and replaced it with paddle boarding which we can do at any time of the year. If it's wavey we turn them into surfboards and they go surfing; if it's calm it's beautiful and we can teach it ourselves or have a volunteer. Also it's cheaper. (Deputy Principal)

> We are taking on more and more of the teaching as opposed to having paid instructors but I would never like to lose that connection. One of the beauties of it is that there has been that community involvement. I would hate to lose that. A community looking after its own. (Deputy Principal)

The school has gained accreditation to take snorkeling, first aid, kayaking, pleasure craft, windsurfing and some other maritime activities to Level 2 NCEA. Volunteers are seen to be an essential part of the program. They provide the extra assistance needed to teach highly practical skills and supplement the skill base of the teachers.

> I have a group of people who have been doing volunteering with paddle-boarding, and power boating, and sailing for years. We are really careful that we don't introduce other people into that group who won't get on with them. We could introduce one person and lose five. At the same time we are conscious of the fact that some people have been doing it for a while and are happy to do it while their kids are at school and when their kids leave they think it is time to back off and pursue other areas.

Sea Sports is timetabled to enable the classes to have extended time on the water. Each year they are allocated one period a week after lunch and 4 periods other times (This school has one class only after lunch). The after lunch period is used to go out and complete the practical aspects. The students could be out from lunch until 5pm on that day. The other four lessons are filled with theory.

> One line has their practicals on a Tuesday and one on a Thursday. We have found those days work best. They are the days when we can get volunteers. Kind of works; Monday is a bit tricky because they can't remember, or if you want to tell them tomorrow - you have to tell them on Friday. Friday people are switched off and ready for the weekend. So Tuesday and Thursday is the day we have used this year and it seems to work fine. (Deputy Principal)

In the second year, three students wanted to carry on into Level 3. The staff sat down with the students and they negotiated what the course would include. Sea Sports does not offer enough Achievement Standards to enable students to count it towards University Entrance and is not an 'approved subject' for university entrance qualifications.

> We are really careful about kids; making sure they have got enough if their intention is to go to university, making sure they have enough credits in other subjects to go to university. (Deputy Principal)

When University Entrance requirements changed from two approved subjects to three it became more difficult to balance Sea Sports within a student's academic programme.

> We would like to see sea sports as an academy but it is hard for a clever kid to do. If they are very clever, and they know they can get UE from their other four subjects, fine. It was designed for all kids, not just kids that don't want to go to university. (Deputy Principal)

Funding

Sea Sports is a costly course to run. There is a lot of equipment, outside instruction and logistical costs.

In the first year all 12 students were sponsored (about $300 per student) by local businesses. The idea had been that the students would report back to the businesses and maybe work part-time for the businesses. This was not sustainable. The local boating club is now the only sponsor, supporting one student. Currently the students pay $400 each and the school subsidies the remainder (costs around $1000 to do course). This school subsidy draws on international student fees, who pay $2000 to do sea sports which makes the model sustainable. The school did not want it to be a subject where the fees were too high that locals were excluded.

> If we didn't have international students doing sea sports we couldn't afford the course. If you ask them why they came to [this school] that's a big consideration. The international students we have subsidise the local students. (Deputy Principal)

International students are enticed to the school in part by this course. It is a point of difference between this school and others in the region. A large proportion of the students on the course are international students.

In 2014, when this study was carried out, there were two first year level 2 courses with about 25 in each plus an advanced group in level 3 with about 8 students.

The local community is fully supportive and the Deputy Principal believed there would be resistance if the course were ever disbanded.

Frustrations

One of the challenges with this course is the weather. Marine activities are most conducive to calm and warm conditions. This means it is particularly hard to complete practical activities during winter. The course is planned so there are trips into maritime school, coastguard etcetera during winter in order to make up for the lack of practical classes.

> It is pretty hard to do sea sports in the winter…it's too cold. If there is a bit storm coming we just have to say 'no, we can't go out today'. (Deputy Principal)

The Deputy Principal did feel that the detail this course is their intellectual property and has come about through a lot of work and trial. He would be disappointed to see another school try and replicate it.

Future

The school is considering offering marine studies and developing a marine academy. This would include the environmental, biological, geographical and economic side of things along with sea sports. There is aqua culture locally and controversy over extending local marine reserves.

Curriculum Review Processes

The development of the Sea Sports course did not follow a particular process. The school has learnt from the success of this, and a number of other courses at the school. The school now conducts regular review processes involving teachers, students and parents to identify course requirements which respond to the needs of the students. It was recognised that courses need to change in order to meet the needs of particular cohorts of students coming through the school.

> Year groups differ hugely, particularly in a small pool…. when you have only 80 students the needs and interests can vary hugely and our curriculum needs to reflect that. (Deputy Principal, Curriculum)

The school was particularly attentive to exposing the students to opportunities outside of their experience. This was also supported by the large number of international students integrating with local students.

> Important to show them the opportunities… you don't know what you don't know right? (Deputy Principal, Curriculum)

The current Principal who had been newly appointed to the school in 2014 was highly orientated toward the school reflecting the community and cross-curricula opportunities. The two Deputy Principals and the Principal all spoke of how important it was for the school to reflect the character of the community during their interviews. The positive manner in which they spoke of each other suggested a high level of relational trust.

Sea Sports Network Diagrams

The series of diagrams below show the development of the decision making network over time (dynamic). The actors within the large central rectangle are the Executive. The final diagram shows the static network with all actors present and is larger to facilitate clearer viewing.

Figure 4.22 Sea Sports Network 2001-2003a

This shows the chairman of the Board of Trustees interest in incorporating the local coastal environment within the school curriculum. It was considered that this may raise the profile of the school, attracting more domestic and international students.

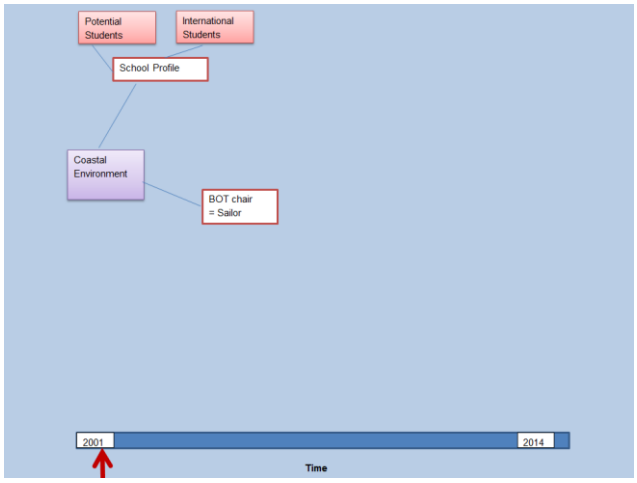


Figure 4.23 Sea Sports Network 2001-2003b

This shows the communication between the chairman of the Board of Trustees , the Deputy Principal and another teacher. It also indicates the consideration of the students in their early development of Sea Sports.

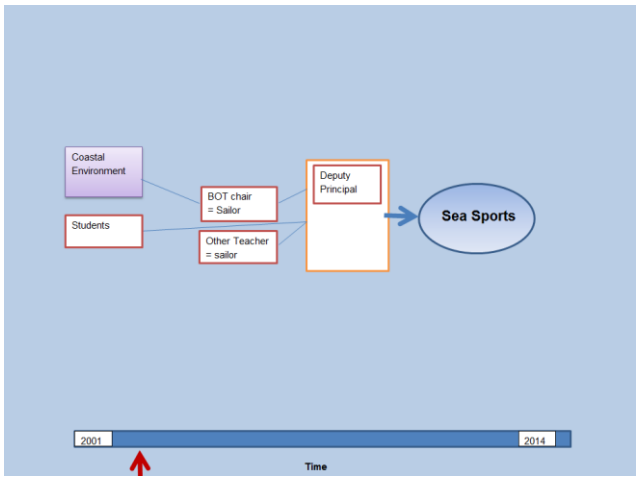


Figure 4.24 Sea Sports Network 2001-2003c

This shows the Principal considering the proposed course and the effect on the school profile. The Principal sitting outside of the box containing the Deputy Principal shows it was the Deputy Principal who was the Executive and the Principal had delegated course development to him.

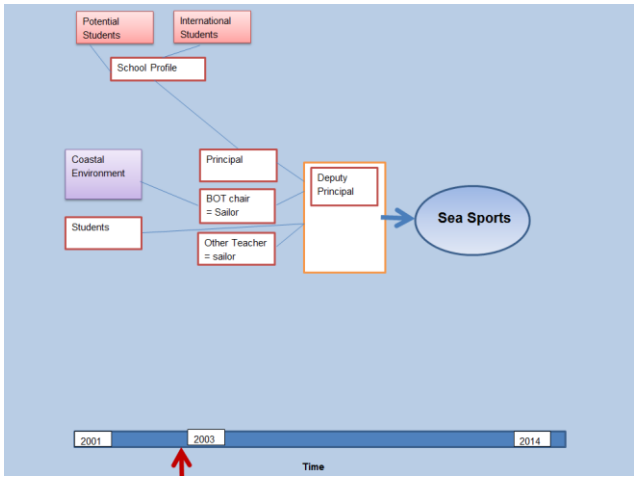


Figure 4.25 Sea Sports Network 2001-2003d

This shows the communication with local individuals and organisations as well as the contemplation of where credits were going to be gained and how this would fit with University Entrance requirements.

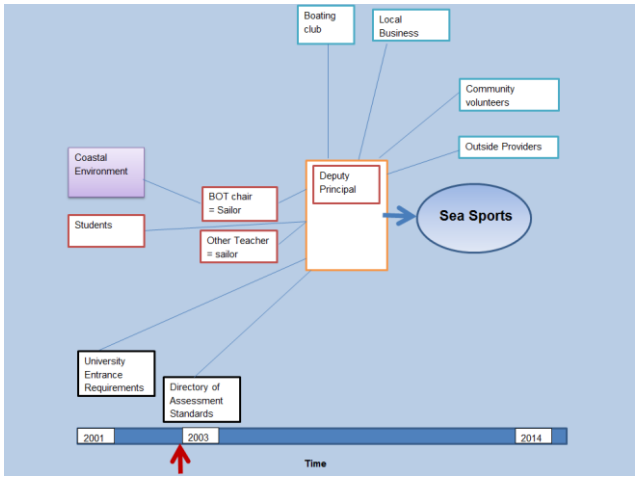


Figure 4.26 Sea Sports Network 2001-2003e

This shows the consideration of timetable, weather, logistics and equipment. It is also at this point the Physical Education teacher is included in the Executive as her teaching expertise and planning for the teaching of the course are incorporated.

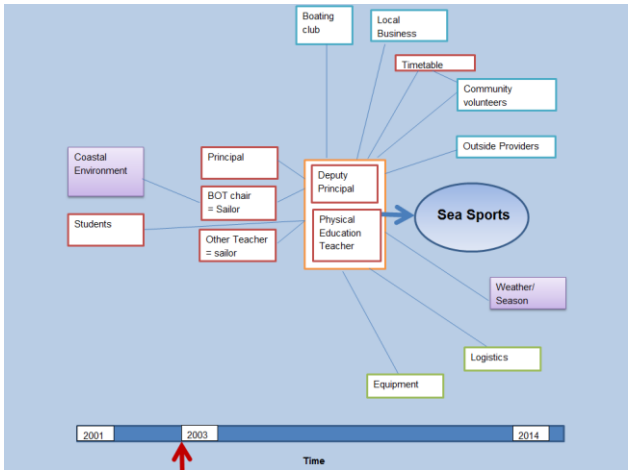
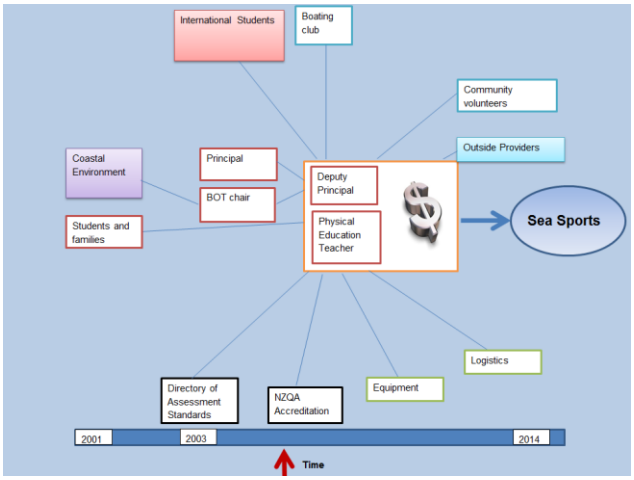
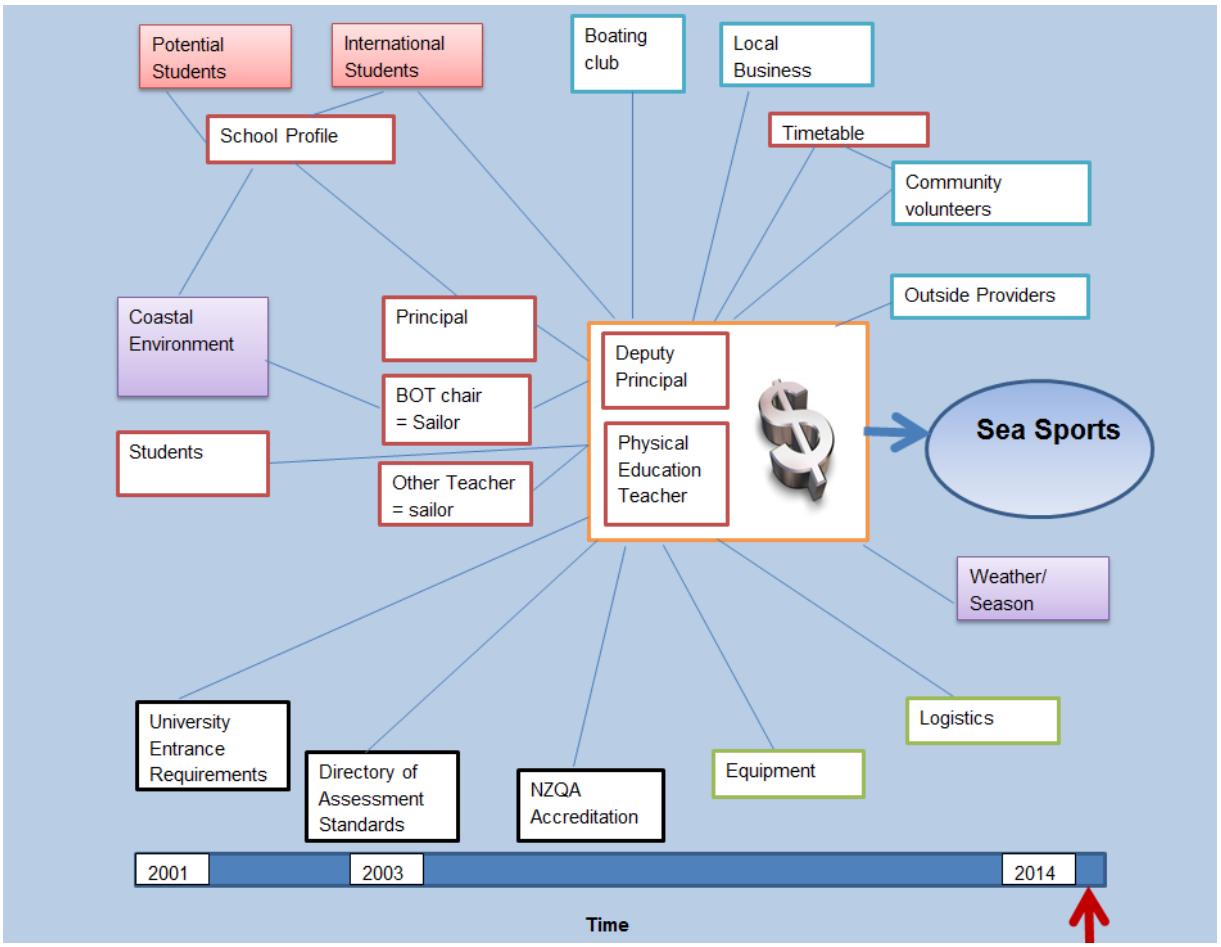


Figure 4.27 Sea Sports Network 2004 – 2014



This shows the funding of the course becoming a part of the Executive. International students became a direct consideration of the Executive due to their ability to subsidise the course. Funding considerations drove (in part) less reliance on outside providers. This manifests on the network as accreditation to teach further content.

Figure 4.28 Sea Sports Network Static



Case Study Five: Pasifika Studies

The Pasifika course was planned to start in 2015. The Principal identified the Deputy Principal and a teacher as the key developers. The teacher will be identified as the 'Pasifika Teacher' during this commentary. This is a reference to the course rather than her ethnicity. The Principal was unavailable for interview during the school visit.

Sequence of Events

Between 2010 and 2013 many Pasifika (and other) students from the school participated in the Polyfest event. This is a non-competitive festival showcasing Pacific cultures. Teachers at the school commented on how committed these students were and the flow on improvement in personal discipline through to their schoolwork.

> Polyfest; we saw the commitment that the kids were showing us and the discipline that they had and that was transferring into their actual classes. So they were coming to class on time, they were in uniform, they were showing us that they were taking responsibility for it. And then the teachers actually said …it's great to see the kids showing you guys the commitment and stuff pity there wasn't any credits off it. Then I kind of thought why can't they get offered because they are doing a dance thing aren't they? (Pasifika Teacher)

The Pasifika teacher had also observed many Pasifika students with a lack of cultural identity. She had discussed this at length with a colleague who was support staff at the school. This colleague was also Samoan and had a deep understanding of the local students.

> How they can value their own identity and appreciate themselves; building their own characters, not just it school but when they leave. The kids here are lacking cultural identity big time. (Pasifika Teacher)

They did not want to just inspire these students to pass; their concern was centered on students losing their identity and culture.

> You don't want to have kids that will pass school but then lose their identity and language and then when they come to the Matai [chiefly system of Samoa] stuff they don't know anything, so it's lost; the tradition is lost….and then when it comes time, they can do it for their family. (Pasifika Teacher)

These students need to be able to take up their roles in the Pasifika community. This involves an understanding of Maitai ceremonies, Pasifika churches, proverbs and history, language and performance. The aim would be to maintain Pasifika traditions so students could comfortably move in their culture in the future.

> We will probably start each class with a prayer or a hymn, so the kids are familiar with them. Just prepping them up for whenever they go to different scenario after school. Because there is nothing worse than going to a conference or stuff and seeing an islander that doesn't know the songs. (Pasifika Teacher)

The concept for the course was based on using what the students were doing anyway (Polyfest) and adding to that an understanding of their culture and language. Term one would be based upon performance using Polyfest in mid-March as the basis for the assessment. Term two includes the ceremonial aspects. This would involve support from the community to teach the students Fono and Avo ceremony leadership as a Matai (Matai are the holders of the family Chiefs titles in Samoan culture). Term Two was selected for this as it gives time to ensure the community support is organised. During Term Three the focus will be on proverbs and history moving into language ready for NCEA examinations in Term Four.

In selecting the content, order and community support, the Pasifika teacher used her very extensive network. There was no clear chronological sequence to this as she is personally of Samoan heritage and very active in the Pasifika community. She regularly attends church, homework club at the local primary school, weekend sports and also has friends and extended family in other schools, tertiary organisations and government departments. She has a very exuberant and infectious personality and frequently discussed this course with many people. Her teaching expertise is in the history subject area.

> Your links and your networks are really important. (Pasifika Teacher)

> They're all mates; it's like over league or something or at netball, or all our kids are together and we will talk about it over a feed. That's what we want the next generation to have. We want to have a bunch of educators working together; their kids will grow up and see success. (Pasifika Teacher)

During this development time the Pasifika teacher had informal conversations with the Deputy Principal responsible for curriculum and with the Principal. The senior leadership had observed a lack of success within the NCEA system for many Pasifika students (not gaining NCEA qualifications and leaving school early) so were receptive.

> This is a direct response to if we do what we have always done with the Pasifika kids, we will get what we have always got. Which is to say they sort of muck around for a couple of years and then if we haven't kicked them out they have all sort of drifted off and gone and done something else; but very few of them come right through to the senior school. (Deputy Principal)

> The facts are that their achievement rate in NCEA and our retention rate with them is not as good, it's not up there it's not on a par with the other levels… especially going through to year 12 year 13, getting their NCEA and moving into good career pathways. We are just not seeing that. Especially with our Pasifika boys; girls not so bad, but the boys are just falling of the perch in terms of focus on academic achievement it's just not there. (Deputy Principal)

There is no formal process for the introduction of new courses at this school. The Deputy Principal commented that a curriculum committee had been disbanded as teachers on the committee tended to think within their subject area and often failed to see the curriculum as a whole. The school intends on breaking down these subject silos in line with vocational pathways and the Ministry of Education intent.

> If we think the time has come, that it's a good idea, that it will meet the needs of certain students then we will give it a go. (Deputy Principal)

There is recognition that in smaller school things need to be more fluid to allow for the variable cohorts. A course is presented in the option booklet and if there are enough confirmed enrolments in January the course runs. There is no particular number of students for a course to run; some courses with only five or six students will run if resourcing is possible. It was not known what the effect of introducing this course on the subscription to other courses would be.

From Term Two 2014 the idea started to become more formal. Initially it was pitched at Level Two. The Deputy Principal thought Level One would be more appropriate to catch the students before any failure. Once the number of possible students at Level One and Two were looked at

it was decided the school couldn't sustain both levels and settled on a Level Two course only. Expanding the course on the timetable to the equivalent of two other subjects was also considered. It was decided this would limit the students too much on their options for Level Three subjects which could help them gain University Entrance. The concept was finalised in Term Three when it was entered in the course selection booklet.

The senior management saw that this course would benefit the students in a number of ways. Firstly it would help some students become more successful with NCEA. It would also mean a large volume of interaction between the Pasifika teacher and the students which would have pastoral benefits. The Deputy Principal saw having a teacher of Pasifika ethnicity as essential. He also recognized that the course would not be possible if the Pasifika teacher was not on staff. She accepts this in a modest way. It is her intent that once the course is established another teacher could take over although she acknowledged they would need to be part of the local Pasifika community for this to occur smoothly.

> We now have Pasifika teachers here at school; hard to put to together a Pasifika course, or an indigenous studies course, call it what you like, unless you've got a person to actually drive it. That's another thing I have discovered over years of running curriculum committees, if you've to the person who says I will run this course I will create this course, this course will happen, then it will; if that person ever leaves than you're basically screwed. (Deputy Principal)

Pasifika Network Diagrams

The two diagrams below show the development of the decision making network for the Pasifika course. The diagrams for this network are quite different to previous case studies. This is due to the Executive (Pasifika teacher) already having a large Pasifika network in place prior to developing this course. She used her network to assist in the progress of the course design. As the network was already for the most part established, it is not possible to tease out what occurred first with any accuracy.

Figure 4.29 Pasifika Network a

This shows the observation of the students in the lead up to Polyfest.

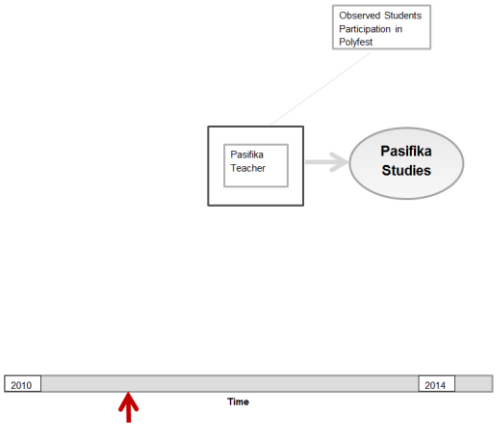
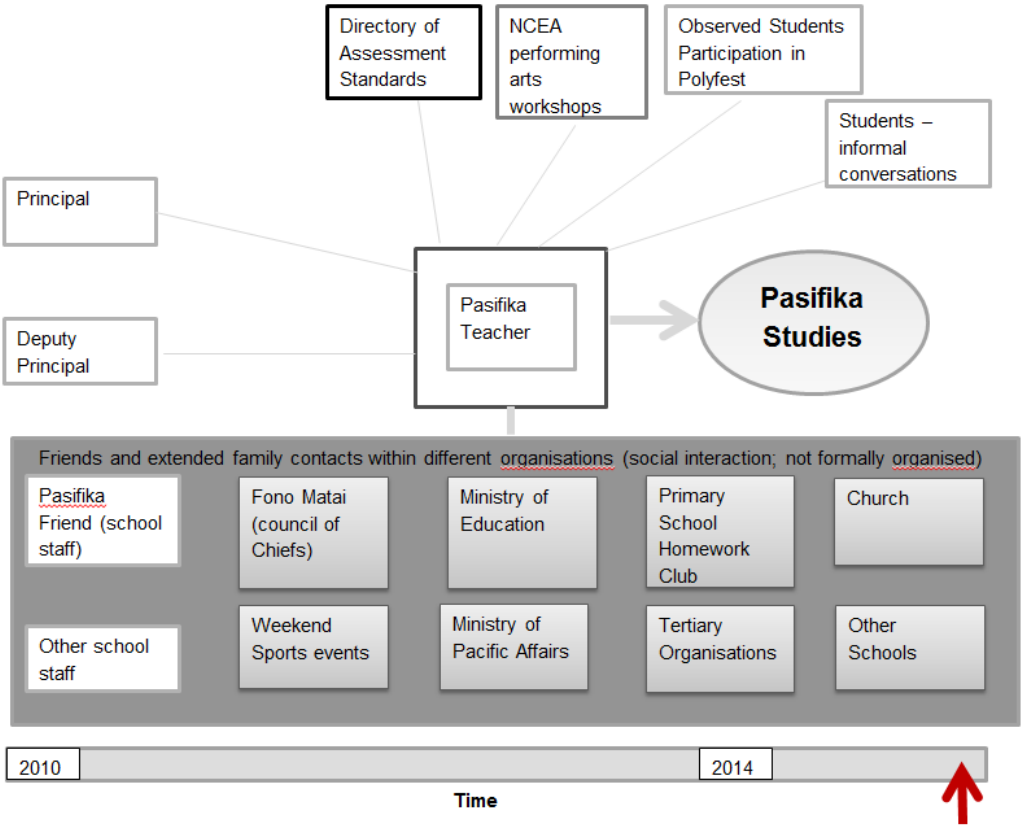


Figure 4.30 Pasifika Network b



Note: This figure also represents the static network for this course. In this network all the actors appear almost simultaneously and are repeatedly included in informal discussion throughout development.

Summary

The five case studies show a wide variety of actors involved in designing innovative NCEA courses. These actors had differing levels of influence over time. The main decision makers were situated in a range of roles within the different schools. The schools generally displayed a high level of communication and relational trust. The development of each course followed a different process. The commonalities across case studies will now be discussed in detail.

Chapter 5

Discussion

The purpose of this study was to examine how decisions were made around NCEA course design. The study focused on three research questions:

- Who are the main decision makers for course development within NZ medium sized secondary schools?
- What considerations guide the decision making process?
- What formal or informal processes are used to introduce innovative courses?

This discussion chapter will explore the findings in relation to each research question.

Who are the main decision makers for course development within NZ medium sized secondary schools?

The first research question centred on identifying who the decision makers for each course development were. In each case study there was a distinct group which determined the final configuration of the course. This group has been called the Executive. The Executive filtered all information and determined what was significant for the design of the course. In the first instance the Executive were identified by the Principal on the initial contact with the school. These were the individuals the Principal deemed most involved in the development of the course. During the course of the interviews the identification of the Executive was confirmed or refined. As the story of how the course came into being was explained, those actors who made the final decisions were determined. In each of the case studies the interviewees statements supported the same selection of Executive. Many actors held a view on what the course should entail; the Executive had the authority by either position or mandate to decide.

Due to the presence of an Executive within the findings, the networks examined are all highly centralised; 'relations are focused on one or a small set of actors' (Carolan, 2014, p.107). The networks as presented in this study also demonstrate low transitivity; the links *between* actors outside of the Executive are not given (Carolan, 2014). These links may be present; it was outside of the scope of this research to investigate all connections. For these reasons, the diagrams offered within the findings appear as a hub (the Executive) with spokes leading to

other actors. Other actors may have discussed the course design and presented their conclusions to the Executive; it was simply not possible to capture this within the confines of this study.

Table 5.1 provides an overview of the executive in each of the case studies. The origin of the mandate varied from the particular teacher's expertise to the responsibilities that are part of the position the individual occupied within the school.

Table 5.1 The Executive and their Mandate

Course	Decision Makers (Executive)	Origin of Mandate
Agribusiness	• Principal • Deputy Principal	Strategic level decision to include course in order to meet needs of students. Principal benefactor of strategic information and responsible for strategic planning. Deputy Principal had delegated authority due to expertise and interest.
Fitness for Living	• Head of Department • Physical Education Teacher	Issues with student performance and behaviour within department courses made this a department responsibility. Head of department had experience in teaching both physical education and home economics. Other teacher held expertise on particular cohort of students and workings of physical education standards.
Viticulture	• Agriculture/Horticulture Teacher	Teacher had experience in designing courses to meet the needs of the students from previous employment with Ministry of Education. Former Principal gave teacher opportunity to revive viticulture based on teacher's experience and interpretation of community need.
Sea Sports	• Deputy Principal • Physical Education Teacher	Deputy Principal had personal friendship and communication with the chairman of the Board of Trustees who initiated idea. Deputy Principal had local knowledge of sea sports along with knowledge of NCEA and positional authority within the school to progress design. Physical Education teacher had further subject specific expertise.
Pasifika	• Pasifika Teacher	Teacher had knowledge of the students and identified the need for course along with connections within the community to support the course. Principal and Deputy Principal gave support and authority to teacher to design course.

The determination of the Executive in part supports a moderated Actor-Network Theory viewpoint. There is a range of positional authority forming the different Executive in the case studies, from class-room teacher to Principal. The positional power of an actor does not predict their influence on course design. This supports the Actor-Network approach of 'learning from actors with imposing on them an *a priori* definition of their world building capacities' (Latour, 1999, p.20). All of the decision makers are however human. It is not possible for a material actor to *decide* on course design. The radical view of general symmetry is not applied in this study. Material and social cannot function in the same manner within the decision making process being examined. The blind equality applied to human and non-human actors in some studies is a common criticism of Actor-Network theory approaches (McLean & Hassard, 2004).

It is also remiss to ignore the effect of positional authority within the Executive and in mandating the Executive. Although hierarchical position did not predict who the Executive were, the Executive could not implement a new course without the support of senior management within the school. The Executive which comprised of senior management had one less hierarchical stage to pass through when developing a course. It may be argued that the senior management are always the Executive as they always have the final say on course design. In these case studies this was not the finding; the way in which the course was designed was determined by the Executive. The senior management placed trust in the Executive and their ability to determine the best course given current information. This ability of the leadership within a school to form high relational trust with staff in order to facilitate curriculum change is consistent with Holmes, Clement and Albrights' findings discussed within the literature review (2013). Robinson's view of leadership requiring a high level of pedagogical and curriculum knowledge is also supported as senior management all held a comprehensive understanding of what each course studied comprised of, along with the benefits of the course on the student population of the school and the way the course interacted with other courses offered (Robinson, 2010).

Despite this moderated adoption of symmetry when applying Actor-Network theory to the decision makers, the concept of symmetry is nonetheless useful when examining the influences taken into consideration by the Executive.

What considerations guide the decision making process?

The second research question aimed to identify what the considerations that guided the decision making process were.

The concept of symmetry was beneficial in the identification of influences on course design. Symmetry allowed for influences to be considered based upon what *effect* they had on course design, not on their origin in either the social or material. Any attempt to categorise these actors (influences), diagrammatically based on origin as a collective across case studies did not provide a clearer understanding of influence. The way in which the actors mix to influence decisions is specific to the timeplace and combination: 'if different objects are introduced to a situation, then different associations and effects can be expected to follow' (Mulcahy & Perillo, 2011, p. 140).

There are some common themes in what was mentioned by interviewees and more curiously perhaps, what was omitted. These can be viewed as potential ingredients to a decision making process involving course design.

The Local Community (needs and opportunities)

A common theme within the actors present for each case study was the community and environment in which the school sits. Based on what was observed within the case studies, this can be broken into three categories expanded below.

Employment opportunities

For two of the courses a demand for skilled employees were actors within the decision making process. The Viticulture course (case study 3), was introduced after the executive observed a shortage of skilled workers in this industry. The students from this course assisted in filling this need. It has proven to be advantageous as ex-students are employed in the vineyards, both full-time, and part-time during their university holidays. The Agribusiness course also looks to fill a need for skilled employees in the agriculture industry. For both these courses specific local employment needs within industry are driving the course.

Physical features

The physical features of the local area performed as actors. A Sea Sports course can only exist where the natural environment allows for it. In case study 4, the school was located adjacent to the ocean. The climate was also favourable for regular access to the water. This is also true for the Viticulture course where the local geographical environment supported the production of grapes.

Cultural and social resources.

The Pasifika course in part exists due to the knowledge and skill of the accessible local population. This is also true for Sea Sports, Viticulture and Agribusiness. All of these courses utilise local people to demonstrate a depth of skill not attainable from the teaching staff, along with extra numbers which make the instructor to student ratio at a level commiserate with a highly skilled, practical component. This appears to be particularly important in the beginning of a course and may diminish as the teaching staff became more skilled. There are other benefits of a high local population involvement including school profile and student connections/networking.

The presence or absence of a local resource did not predict its consideration by the Executive. More the Executive and subsequent network were formed with the utilisation of a particular resource in mind (Sea Sports started with a view of utilising this particular coastal and climatic resource). For example the case study containing the Fitness for Living course was also located within an area with a high concentration of vineyards, yet this industry had not yet been considered for possible inclusion in course development at the school in any visible way. This could be due the absence of another actor in the Viticulture decision making process of skills shortage. The labour market profile of the two areas is quite different. This supports the view that it is the combination of actors at a particular time and place which inform the decision.

Within the case studies there were different ways in which interactions with local resources were organised. The Pasifika course relied on informal interactions for the most part, conducted at gatherings not initiated for course design (sports side-line, church, family relationships). The Viticulture course made progress in interaction with the community by utilising an existing social relationship between the executive and a Vineyard manager. Agribusiness had took

advantage of an industry event (Young Farmers' Competition) to initiate contact. Sea Sports Executive had an initial relationship with the coast due to their personal participation in water sports. In the initial instance the communication between geographically local actors and the Executive was informal. From this point the norms of communication developed in different ways between the school and local actors. This varied from community meetings and comments within local press (Sea Sports), to formal advisory groups and surveys (Agribusiness), to face to face visits (Viticulture and Pasifika). This aligns with research conducted by Gegoric covering the interactions with two south Australian high schools and the community (2013).

She found interactions with organisations within the community are varied in both type and success; Gregoric concluded that complexity thinking provided a way to conceptualise these interactions. There was no one right way of organising and managing community involvement within a school. This did not detract from the need to ensure these interactions are organised and well administered; what this entails is completely dependent on the context (Gregoric, 2013). One of the recommendations of Gregoric's study was for community organisations and businesses to join together to address common concerns in dealing with the school.

Student Input

When designing a course the Executive in the case studies considered the students' needs. There was no formal input from the students in the design phase of any of the case study courses.

None of the interviewees saw the lack of consultation with students as a significant omission. Student input was planned into the way in which the course operated in some instances. The Sea Sports and Fitness for Living allowed for student choice in what sports were used as contexts for learning. The Pasifika course Executive had informal conversations with students about the course and received positive reinforcement of the design through this.

From this students can be considered actors in every course design; the way in which they exerted influence was more passive than direct. The academic results, response to previous courses, future employment and position in the community for students were primary influences.

Within School Resources

Funding

The available financial resources behaved as an actor for the decision making process. Many innovations involved a high level of expense, particularly in the set up phase of the course. How schools were going to meet these requirements and to what level had an effect on the components of the implemented course.

Table 5.2 The Funding of the Courses Studied

Course	Level of Extra Funding required (above an established course)	Source
Agribusiness	Set up very high, sustainability moderate.	Industry and alumni
Fitness for Living	Low	School
Viticulture	Moderate	Students 'work' on vineyards who donate funds to the school which are allocated back to the course.
Sea Sports	High set up, sustainability moderate.	International students pay significantly more to do course
Pasifika Studies	Moderate (yet to be truly determined)	School at set up stage

The Agribusiness, Viticulture and Sea Sports all have a unique way of funding the course which is not a burden on normal school budgets. Fitness for living did not require much extra resourcing removing funding as an actor. Pasifika studies would appear to need resources for

the planned course, but did not yet have a clear way to fund itself. The course would benefit from higher resourcing but could probably cope with a lower level. It was observed that the Viticulture and Sea Sports, both of which had been running for greater than five years, enjoyed success partly due to sustainable funding. Both courses had a lot of practical activities and off school field trips for which the domestic students and school did not have to fund.

Timetable

The way in which a school timetable is constructed is determined by the school. The timetable appeared as an actor for both Sea Sports and Fitness for Living. Within the Sea Sports programme the course was designed to have one lesson per week outdoors. This was positioned to be the last lesson on either a Tuesday or Thursday. The reason for this is it allows students to incorporate lunchtime with the lesson and to continue activities after school. Tuesday and Thursday were days where easy communication with students was possible (remembering correct equipment and judging weather on Mondays was problematic), along with being suitable days and times to coordinate with community volunteers. Fitness for Living assessed timetable in the design by way of availability of the cooking facilities. This actor had a negative effect on course design as the course was constrained to using the cooking facilities last lesson on a Friday which was not contusive to the type of learning planned for these lessons. As the development of the course is considered into the next year this actor of timetable may exert a larger influence in whether the course continues in the current form.

Agribusiness did not have timetable as an actor on the network although the timetable of other courses did effect the planning of the course. As the Executive desired large amounts of interaction with the industry outside of school but were constrained by students need to attend other classes, this prompted the inclusion of video conferencing facilities in the planning; thus allowing students to achieve the interaction without stepping out of normal lesson times.

Policy and Law; the structure of Education in New Zealand as an actor/s

Every course design included the Directory of Assessment Standards as an actor. Each Executive had looked into what standards were available that assisted in fulfilling the intent of the course. For courses that contributed to Level 3 NCEA, University Entrance was also explicitly considered. For Viticulture this meant including enough Achievement Standards to cross the 14 credit threshold. For Sea Sports, which did not contribute as an approved subject toward University Entrance, this meant examining the other courses the students were taking to evaluate the risk of the students not meeting the criteria.

The Executive for the courses did not directly consider the curriculum. As discussed in chapter one, the curriculum informs the content of the Achievement Standards. This aligns with the Actor-Network theory concept of a black box (Fenwick & Edwards 2012). The Achievement Standards are the only visible surface of a much larger network. However the curriculum did influence the courses studied – via the content of the Achievement Standards. The absence of the curriculum as an identified actor within the case studies is supported in previous research; Hipkins commented in her 2010 report that assessment was commonly believed by both Principals and teachers in secondary school as driving the curriculum. The same report by Hipkins also associated support of NCEA with innovative leaders who had aligned the school with the principles of the curriculum. The Principals within this study may have had a larger view of the curriculum when they offered the trust in the Executive and the concepts of the new courses; curriculum may have been part of the background network influencing Principals. There are degrees of secondary influences through black box networks at every actor; no actor stands in complete isolation.

Agribusiness approached the consideration of standards and University Entrance approved subjects actors in an entirely different manner. The advice from the highly skilled advisory group within their network suggested content for which the available assessment standards showed an incomplete match; not everything the Executive wanted to include could be assessed and contribute toward NCEA.

The Agribusiness Executive not only assumed they could ultimately add new standards to the NCEA framework, but also assumed they would be able to make Agribusiness a University

Entrance approved subject and potentially change the process by which standards are reviewed (the advisory group wants continued input in design and amendment of standards). None of the other schools mentioned anything which indicated contemplation of this type of change.

> *"God, grant me the serenity to accept the things I cannot change,*
> *The courage to change the things I can,*
> *And the wisdom to know the difference."*
> Reinhold Niebuhr (1892–1971)

What formal or informal processes are used to introduce innovative courses?

The innovative courses examined evolved in non-linear ways. An idea developed according to who or what it was presented to. Although some schools within the study claimed to have a policy, the innovative courses examined didn't follow a particular development process.

> If we think the time has come, that it's a good idea, that it will meet the needs of certain students then we will give it a go. (Deputy Principal, Pasifika Course)

The school in which the Sea Sports course was located now use a regular review process in order to determine the needs of their students. Students along with the wider school community are regularly surveyed. This also reflects the recognition that in a small school cohorts of students can demonstrate huge variability in interests and ability from one year to the next.

> Year groups differ hugely, particularly in a small pool… when you have (only) 80 students the needs and interests can vary hugely and our curriculum needs to reflect that.(Deputy Principal, Sea Sports)

Within the school where Fitness for Living was created there was a misunderstanding of what the process was for implementing a course. This lack of clarity caused disagreement between staff. It would appear that a ridged process is not necessary if there is good communication and leadership within a school. As this study only included medium sized schools, this effective lack of process may not apply to larger schools who are coordinating a bigger group of staff and courses.

Actor-Network Theory Across the Case Studies

Each course is created by a network. A simplified network has been captured for each case study. When viewing the construct of each network as a whole, certain patterns emerge. Each actor in the network has a particular motivation for their involvement. When a crucial actor (such as the Executive) or large group of actors have a similar motivation for joining the network this could also create vulnerability. If that motivation alters, the network could fail. For the material actors this could be a change in their makeup (for example change in weather patterns for the Sea Sports course or alteration of a marine reserve boundary).

For some of these courses the largest initial vulnerability is the Executive themselves. In the initial implementation of the courses studied, there were one or two people (the Executive) who were essential to the courses' success. If they were to be removed from the school, the course could not run. This is a vulnerability which was recognised by both the Viticulture and Sea Sports courses. Both courses planned for the Executive to be replaceable after an initial setup phase.

The Viticulture teacher ensured that he could step out of the course and someone else could take over with a limited hand over. This has been tested when he went on extended leave. Sea sports has also had a change in the key members of the network and survived.

The Pasifika course hinges around one individual who links the entire network together. If she was to leave the school, the network and course would falter. This was recognised by the school. The Agribusiness course had enough momentum that it could survive staff changes.

The second type of vulnerability is common or base motivations for the existence of the network. These are patterns that have emerged in the findings and were not specifically enquired about during data collection. Each course had a core reason for existence. This is the motivating factor for enrolment in the network for many of the actors. The successful enrolment of an actor into a network requires the translation of their interests into the course (Gaskell & Hepburn, 1998). If that core interest changes, their enrolment and the network fail. Not all of the actors have the same interest in the course; they may be complementary and exist simultaneously quite comfortably. A possible interpretation for the motivations around enrolment into the networks of each case study is now discussed.

The Agribusiness course is designed to improve inputs (graduating students) into a profit driven industry, hence economic profit could be seen as the key driver. If there was no tangible benefit to the industry many (if not all) of the current actors participating in the advisory group would not enrol in the network.

For the Pasifika course it aims to improve outcomes for Pasifika students and the wider Pasifika community. There is an underlying cultural motivation. Without the benefit to the Pasifika community it is unlikely many of the community would enrol in the network. For the deputy principal it is primarily about improving student results. Given the overwhelming enrolment in this network occurred due to the first motivation, even if results weren't improved in the way NCEA measure, the course may still run due to community pressure from the other actors who interests are being fulfilled.

Sea Sports exists mostly to improve the school's point of difference as a boutique school and therefore encourage both domestic and international enrolments. Marketing potential could be viewed as the base motivation. Without the marketing benefits the international students wouldn't come and the course couldn't be funded.

Viticulture exists due to the employment potential. The students are given access to the vineyards as they are needed. If there wasn't the labour shortage in this industry in the school's location it is questionable whether the course would have so much support from both the vineyards and the students. The vineyards are enrolled in the network from interest in obtaining skilled labour.

Fitness for Living exists to provide an option for a particular type of student. Student need is the reason for the actors' enrolment. If students don't succeed on the course in any significantly better way than the next best option, the course won't be deemed as meeting this need and it is unlikely the course will run.

These key motivations and actors can be described as breaking points. If any of these fail the course would be likely to also fail. This would be unfortunate if it failed due to a teacher or other resource being irreplaceable. It is possibly reasonable if the base motivation changed as this could be seen as an indication that the course is no longer needed. To repeat Mulcahy and Perillo's quote concerning Actor-Network theory from earlier in this chapter, 'if different

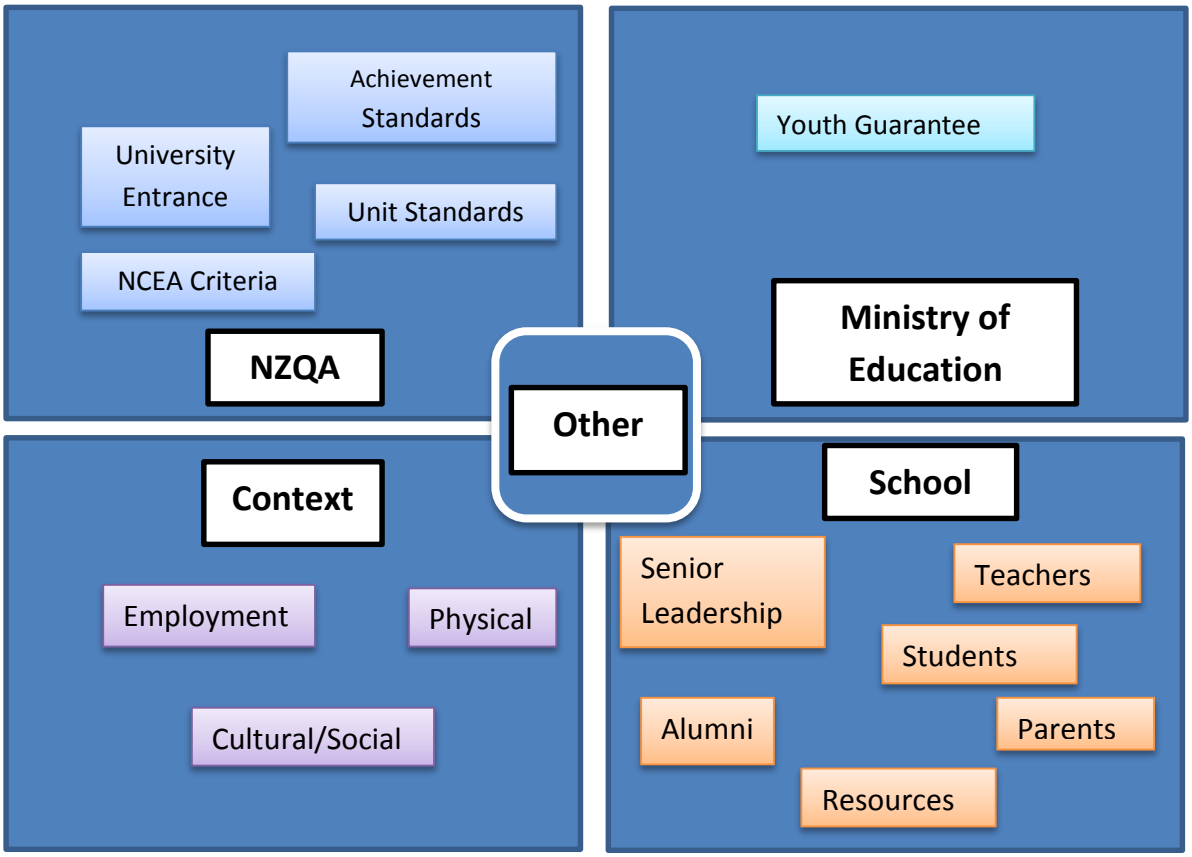
objects are introduced to a situation, then different associations and effects can be expected to follow'(2011, p.140).

Summary

The decision makers involved in innovative course design within this study came from a variety of roles within the school. If the decision makers (Executive), did not hold senior management positions there was a high degree of relational trust between the Executive and the Principal; the Principal did not interfere in the design of the course but was fully aware of the intent of the course.

There was a range of actors enrolled within the network which influenced the Executive's decision making process. The diagram below shows the main groupings of actors that appeared across the case studies. Many of these actors represent the end point of a black box network; there are networks behind the actor influencing it, however only the shown actor had direct influence on the case studies. This is not an exclusive diagram for course design, simply a summary of the five courses studied.

Figure 5.1 Actors in NCEA Course Design



The innovative courses studied did not follow a set process for development or implementation. The combination and timing of the presence of actors in the network dictated the process followed, facilitated by high levels of relational trust between the Principal and Executive.

Conclusions

This study investigated the decision making process leading to innovative NCEA courses over five case studies. Actor-network theory provided a basic framework for approaching the retrospective analysis. The network of actors was displayed graphically, changing over time.

This study adds to the body of research previously conducted on NCEA course design as following the alignment of NCEA with the 2007 New Zealand Curriculum the possibilities for course design changed. This occurred as the achievement standards offered which can contribute to NCEA shifted to focus on thinking skills and allowed teachers to choose their own contexts from which to facilitate learning. There have not been many studies undertaken since this alteration due to the recent nature of the change. There has also not been research undertaken which focuses on how the course design decision making process occurred since the introduction of NCEA. The application of actor network theory to this issue has not been utilised in New Zealand education. In summary the process leading to curriculum change in senior secondary school has only been examined in a limited manner within the current environment, and not with actor-network considerations. Any new research in this area can offer others within the sector an opportunity to view the design of courses with a different perspective; how they interpret the information presented will be contextual to them.

Actor-network theory was critical in the development of this study. The principle of symmetry allowed a fresh objectivity in the power and origin of influences on course design (Fenwick & Edwards, 2011). There were limitations due to the retrospective nature of the decisions and the potential inaccuracy in the recollections of what was considered. Viewing decision making in education with the principles of actor-network theory could offer new insights if it was applied contemporaneously to decisions being made, as it focuses thinking in an objective way toward what is important and therefore influential to this decision. This way of approach removes any assumptions concerning only humans as being influential (social and material considered) and removes positional power. Actors are viewed simply within their capacity to alter the token; in this case the course design. The spouse of a teacher and the format of a classroom is given the same potential as an actor in the network, next to the principal and any Ministry of Education initiatives. The ability to change the course is the focus, not the disposition of origin. Actor network theory can also redefine how collectives impact on a decision; there may be a whole

group of actors but if they behave as one influence they can be viewed as a single actor in the network (they also may expand to a collection of actors or contract to a single actor over time). The perspective that networks are dynamic as applied in this research could also be a beneficial way of understanding a changing, complex system. One aspect of actor-network theory not applied in this research is the way in which the token (course design in this case), alters the actors. This study focused solely on how the course was altered by different influences. The way in which this occurred can inspire a change in thinking or use of the actors which go on to influence other interactions. This could be an insightful avenue to investigate in further research; how exposure to innovation ripples through to other decisions.

In response to the research question, the investigation revealed new insights into how types of NCEA courses unseen previously in New Zealand came into being. For the implementation of each course an executive was determined; the individual or group who had the final say over the design of the course. Many actors could hold differing views of the best design; however it was the executive who critically processed available information. The positional power of the members of the executive logically had an influence over the acceptance and support given to the course.

The courses were all designed with a highly tuned sense of the needs of the local community. Viticuluture, Agribusiness, Sea Sports and Pasifika courses were all formed by teaching staff looking outside of the school and recognising an opportunity beneficial to their students. The input of the local community could be broken into three categories; employment opportunities, physical features and cultural/social resources. Each of these courses utilised something unique within their community. Because of this, the specifics of each course are not directly transferable across schools as each school sits within a unique community within New Zealand. Even Agribusiness, which on the surface can be transferred and in fact is intended to be transferred, cannot be done in the same way as at the original school. This instigating school had significant resources which would be unable to be replicated in all but a few places. Rather their experience of looking around their environment for opportunities is something other schools can learn from.

A commonality between the case studies was the lack of direct input by students. Students held a passive voice as their future needs and place in society were the main consideration for course

design. No course design had planned input from students on the design of the course prior to the course start date. Some course planned for student choice within the contexts in which the learning was presented once the course began. Other aspects of course design were more varied.

The way in which schools viewed constraints was very different. Some schools saw the curriculum and current Achievement Standards available as a fixed constraint; something so unchangeable by them that they didn't even consciously consider it (and therefore was not a visible actor). Other schools saw everything as changeable and used political and financial resources to instigate change. This appears to be a healthy component of New Zealand education. There have been numerous amendments to the Education Act 1989 instigated by individuals working in the education sector for the perceived benefit of students. This lack of acceptance of the status quo could also be viewed as beneficial role modelling to the students and the community; if it doesn't allow for needs to be met, can we change it?

The viticulture course specifically highlighted the need to plan for a course to run regardless of the presence or absence of individuals. This may not be able to occur in the initial stages when the talents of individuals may be what starts a course, but it is required in order to ensure the sustainability of a course in the long run.

Another outcome of this study is the consideration of base motivations underpinning course design. Most of the case study courses relied upon community support, particularly in the initial phase when the support can supplement the specialist skills and knowledge of the teaching staff. In order to mobilise that support it is important to recognise the motivation behind the course, and therefore the motivation driving support. It is possible for a course to have numerous motivations. It did however appear that there could be one driver which was primary, and this advanced the success of the course. If this motivation was not realised in the outputs of the course, the course would be at risk of losing support. Understanding this can enhance the communication between school and community; the school can ensure they recognise and promote the success of the course in a way which aligns with the view of the community (For example, it may not be as effective to advertise the success of the Pasifika course just on academic achievement as it could be to recognise the students involvement in the Pasifika community facilitated by the course).

In conclusion the decision making process leading to innovative NCEA course design is complex and contextual. Every school faces a unique set of needs and resources. Perhaps the best start point for decision making around course design is to view the local community (both social and material), including the components which make up the school, as objectively as possible.

Recommendations

Recommendation 1

Schools are given guidance to assist them in analysing the needs and resources of their community. This assistance could come in the form of a facilitator who leads the school through an analysis of the physical, employment and social/cultural elements of the local community. The facilitator would be able to help the school redefine what influences course design in a more objective social-material frame.

Recommendation 2

When planning and introducing a course, schools need to communicate clearly the intent of the course. This is important to ensure the community, students and staff can support the course appropriately.

Recommendation 3

The course should be nurtured for an initial phase in order to allow the desired culture to develop. This may include incremental introduction of some of the long term goals of the course to allow time for development, restricted entry of students, limited numbers and careful selection of staff.

Recommendation 4

Interactions with organisations or individuals outside of the school need to be negotiated carefully. This includes allowing sufficient time for visits and face-to-face communication, a single point of contact with the school for the organisation and clear expectations/processes for interaction with students.

Recommendation 5

University entrance requirements are re-examined. Rather than specifying specific approved subjects, entry be based upon the quality of the credits students gain. For example the requirement could become: NCEA level 3 including at least 40 credits at Merit level or higher.

This would align the requirements with the principles of the New Zealand curriculum while maintaining a high level of candidate.

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Appendix

Appendix A: Online Survey

NCEA Course Innovation

Q1 Identify the NCEA course you consider the most innovative at your school. Please read question two for some possible considerations for innovation.

- ❑ Course Title _____
- ❑ Target Level _____
- ❑ Number of years offered (including 2014) _____

Q2 Tick the characteristics below which make the course innovative (standards refer to either unit or achievement standards from the NZQA directory of standards).

- ❑ Includes standards from more than one learning area
- ❑ Includes standards from more than one level
- ❑ Includes standards not normally taught in New Zealand Secondary schools
- ❑ Includes outside providers to teach and/or assess standards
- ❑ includes assessment conducted in an innovative way
- ❑ Uses themes or issues to drive the learning
- ❑ Is timetabled in a non-traditional manner
- ❑ Includes different standards for individual students within the course
- ❑ Includes community in the learning
- ❑ Other (please state) _____

Q3 Has your school trialed an NCEA level course which has since been disbanded?

- ❑ No
- ❑ Yes, Please give the name of the course and target level/s _____

Q4 Has your school significantly changed timetable structure since the introduction of NCEA?

- ❑ No
- ❑ Yes, briefly describe how and why _____

Q5 Please name a school of approximately 400-700 students that you believe is offering innovative NCEA courses that could inform this research.

- ❍ school _____

I would like a summary of the findings of this research sent to my email address.

- ❍ Yes, please send
- ❍ No thank you