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USE OF TECHNOLOGY TO IMPROVE LANGUAGE LEARNING OUTCOMES EVALUATIVE REPORT

MILESTONE REPORT 6

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EXECUTIVE SUMMARY

Learning Languages is a new curriculum area in the 2007 *New Zealand Curriculum* (Ministry of Education 2007a) for use in schools where the medium of instruction is English. The *New Zealand Curriculum* document states that *'interaction in a new language, whether face-to-face or technologically mediated introduces* (students) *to new ways of thinking about the world and their place in it.'* It recognises the importance of ICTs and appropriate pedagogy in teaching and learning, acknowledging that *'ICT has a major impact on the world in which young people live'*, and that appropriate use of ICTs can help students make connections, overcome barriers of distance and time, learn about other cultures, and allows them to hear native speakers of the target language.

These documents state that student learning is enhanced by effective pedagogy and effective use of ICTs is a key factor in creating an effective 21st Century learning environment for the learning of languages.

CORE Education Ltd (CORE) was commissioned by the Ministry of Education to conduct an evaluative study of current effective practice in the use of information and communication technologies (ICTs) to support the learning of languages other than English in English medium schools. This report outlines the findings of that evaluative study.

The key questions guiding the study were:

- How are various ICTs currently used to improve language learning outcomes for students in New Zealand?
- How effective is the use of various ICTs in improving language learning outcomes for students?

The main findings of the study are:

The range of ICTs used

Taken together, the teachers and students in the study used a wide range of different ICTs in their language learning classes, although there was a tendency for individual teachers to use a relatively small range of their 'favourite' ICTs with any given class.

The ICT hardware available to the teachers and students included desktop and laptop computers, digital still and video cameras, and data projectors and screens. A few had the use of an interactive whiteboard (IWB). In three of the schools, students were able to use computers in the normal language classroom or in a workroom adjacent to the normal classroom. In the majority of cases, however, students used computers in specialist computer labs elsewhere in the school.

All classes had access to printers and a school-wide network through which students could access the Internet, although the extent to which the networked computers were usable in any given lesson varied from school to school and lesson to lesson.

The most commonly used pieces of software used for language learning were:

- Language drills, tutorials and games, either downloaded from Internet sites such as *Linguascope*, or in the form of proprietary language tutorials like *Language Market* or *Rosetta Stone*.
- Online enquiry tools such as *Webquest* and information websites such as online radio stations, *YouTube*, tourist or art gallery websites, and so on.
- Open ended or content-free production and presentation tools such as Word Processors, *PowerPoint*, digital video editors, and *Comic Life.*

There was little use of either asynchronous (e.g. email) or synchronous (e.g. *Skype*) online conversation tools, and little or no in-class use of Web 2.0 social software. Only one class reported using mobile devices (e.g. MP3 players), and there was no use of cell phones for language learning.

The language learning outcomes of ICT-based activities

The New Zealand Curriculum states that the major goal of learning languages is to develop students' 'communicative competence' in another language. This involves building knowledge, awareness and

respect for that culture through its language, as well as building accuracy and fluency through exposing students to, and having them use, the language.

In learning language, the learning outcomes of accuracy, fluency, and understanding are directly related to how, and how much, students listen to, read, view, speak, write, present, perform and interact with and in the language.

This study was to focus on the ways in which engaging in ICT-based learning activities might improve student learning outcomes with respect to four key elements of the language learning process:

- Input (students' exposure to the language);
- Output (students' use of the language);
- Interaction (reciprocal communications with others in the language), and
- Cultural reflection (students' understanding of, and respect for, cultural similarities and differences).

i. Input

The use of ICTs for language input was extensive in the observed classes. In most of the ICT-based activities, for example, students were able to listen to the language, read it, and view visual cues about the situation at hand, all at the same time. Much of the language input that came through the ICTs, moreover, was from native speakers, and in several instances only the target language was made available.

ii. Output

Student use of ICTs for language output was also extensive. Again the multimodal aspects of this were obvious. Using various ICTs, students were able to speak, write, present and perform in the language all as part of the same activity. A number of the programs used, moreover, also provided instant feedback on accuracy, fluency and understanding of meaning.

In practice, all aspects of both language input and language output tended to be integrated into the one activity. They were not separated out in the lessons, either as tasks or as learning outcomes.

iii. Interaction

There were much fewer observed instances of teachers or students using ICTs with a focus on interaction in the language. Interactions in the language tended to be of the controlled production kind, and quite brief. Most often these consisted of simple, one or at most two, question-answer dialogic interchanges involving single words, phrases or sentences (formulaic expressions). There were one or two examples of extended conversations in the language at the year 10 level, but even these were tightly-scripted and left little scope for free production or spontaneity.

Most teacher-student task instructions, and all student-student interchanges about the language or the task, were conducted in English.

Many ICTs were seen as having the potential to improve extended and extemporary interactions in the language, especially open-ended production and creative tools like video editors, word processors and slideshow makers, or online conversation tools like email, and various Web 2.0 'social software' sites. However, none of the classes were observed using them for these outcomes in any significant way.

iv. Cultural reflection

Cultural content was often integrated with language content in ICT activities, at all Year levels. At the lower levels this tended to involve the simple acquisition of cultural knowledge, especially from websites in those countries. Reflection on culture, especially spontaneous reflection on culture, was observed with some of the older students.

The particular contribution that ICTs were seen to make to cultural learning came from the ability to expose students to 'authentic' cultural practices, interactive images and information, in a variety of forms, often in the target language.

Although our brief was to focus on four key principles of language learning (Input, Output, Interaction and Cultural Reflection) there are many accounts in the body of this report of a focus in the use of ICTs on: building a rich repertoire, especially of formulaic expressions; on making meaning and investigating form, and on taking account of individual's different cultures, abilities and learning dispositions. There is significantly less evidence in those accounts, however, of using ICTs for the development of comprehensive implicit knowledge, or the development of free production and expression in the language.

ICT-based activity as effective pedagogy

It is important when evaluating the impact of new technologies on teaching and learning to acknowledge the plurality and multivariate nature of the technologies, and the different pedagogical contexts in which they were being used. Different ICTs, used by students or teachers in different ways, were seen to have different relative benefits and limitations as effective pedagogy.

The teachers in the study were critically selective in their choices of ICTs. They did not use ICTs with classes 'for the sake of it', or because they felt obliged to in order to 'keep up' with current pedagogical fashion. The pedagogical rationales given by teachers for their choices of ICT-based activity were consistent with most, but not necessarily all, of Ellis's (2005) 10 principles of effective pedagogy in language learning.

As a question of effective pedagogy in general, three benefits were highlighted with reference to almost all of the observed ICT-based activities:

- High levels of student *motivation* and sustained student *engagement*.
- The opportunities afforded for simultaneous and comprehensive *multi-sensory and multimodal access* to, and performance in, the language.
- The opportunities provided to expose students to more *authentic language and cultural experiences* than were practicable in text-dominated and teacher-centred pen-and-paper based activities.
- More *student-centredness* in languages lessons.

Other teaching and learning benefits, identified in relation to several of the ICTs and contexts, included:

- Increased personalisation through being able to work at one's own pace.
- Rapid access to comprehensive cultural information and scenarios.
- Compensation for English-speaking teachers' lack of language proficiency – especially in primary and intermediate schools.
- Access to a comprehensive range of language activities, resources and teaching ideas, both interactive (ICT-based) and non-ICT-based.

The teachers and students in the study were 'incorporating' or 'integrating' ICTs into their classroom teaching and learning programmes, but few, if any, of them had fully 'assimilated' ICTs as a matter of natural and unexceptional routine. Student use of ICTs was relatively frequent, set at appropriate levels of difficulty, and scaffolded clearly with previous lessons and prior learning. However, ICT use was also usually heavily scripted by the teacher and often regarded as 'different' from, and on occasion even 'disruptive' in some way to, the 'normal' classroom teaching routine. Accessibility issues seem the major barriers in this regard.

There was more use of ICTs for highly focussed, relatively brief, and often 'lower order' language acquisition and practice activities, than there was use of ICTs for open-ended, longer term, task-based or enquiry-based projects involving higher order thinking and more comprehensive applications of the language. There were no observed instances of genuine *ako* – students and teachers working together in partnership to identify and select appropriate contexts and resources for language learning. Nor was there evidence of them reaching a shared understanding of students' intended learning outcomes.

Several of the teachers in the study used their experiments with various ICT-based activities in class to critically reflect on, and to improve, their pedagogical practices generally. Some used ICT activities in ways

that reinforced their current pedagogical practices and beliefs; for others, integrating ICT activities involved significant (self-) critique and even change in 'the way they taught'.

School infrastructure

All of the observed lessons were dominated in content by language rather than technical (ICT) learning, and the majority of them proceeded without significant technical failures or difficulties. Nevertheless technical, or more accurately, accessibility issues were high on the teachers' and students' lists of barriers to learning in ICT-based activities.

The extent of such difficulties varied from school to school, and even from lesson to lesson. Sometimes the issues were of a strictly technical nature: computers breaking down, network signal strength, computers with insufficient specifications for multimedia applications, and so on. Sometimes, they were more organisational or logistical in nature, such as having to pre-book specialist computer rooms, or organise rotations when there were only one or two computers in the classroom. And sometimes the issues were related to central policy decisions and procedures, most notably particular schools' regulations on openness of Internet access, use of mobile digital devices, and so on.

Most teachers in the study reported a desire for further professional development in relation to integrating ICTs into their classrooms. For the secondary language specialists this was specifically around the use of ICTs for language learning. However, for the primary or intermediate teachers the need for PD around the use of ICTs was intermingled with their even greater need for PD to improve their own proficiency in the language and the pedagogy of teaching languages generally.

INTRODUCTION

The purpose of the present research is to identify, describe and evaluate good practice in using ICTs for learning languages, and the extent of integration of ICTs in the language learning environment at intermediate and junior secondary levels (Years 7 to 10). We were contracted to investigate how ICTs can support good language teaching pedagogy, to identify the characteristics of current good practice, and to suggest ways to build on it in the future. To this end, we focused both on effective second language teaching and learning, and the potential for successfully integrating ICTs in learning languages. Alongside this evaluative research, we gathered material and video footage that illustrated good practice in using ICTs in language teaching and learning in New Zealand schools. The purpose of this was to create a web-based resource for language teachers working with year 7 to 10 classes that illustrates what other teachers are doing in their classrooms. The intention is that these web cases will stimulate Years 7 to 10 teachers to experiment with ICTs in their classes.

The research described in this report is based on case studies of 12 schools that were identified by language advisers as exemplifying good practice in the use of ICTs in language teaching and learning.

The ICT hardware most commonly used in language teaching consisted of desktop and laptop computers. It appeared that in secondary schools, student access to computers occurred mainly in purpose-built computer labs; whereas in primary and intermediate schools, students tended to have more flexible access. Most teachers used data projectors and loudspeakers to share materials from sources such as the Internet, or CDs designed to accompany textbooks and IWB's are increasingly being used in language classrooms.

As far as software is concerned, most secondary language teachers used a form of proprietary language learning software such as *Language Market.* Such software provided games that could be used to reinforce language content learned in the classroom. Language learning in both primary and secondary classrooms also frequently used generic software such as Microsoft *Word, PowerPoint* or *Excel*, both for input and for output. In some cases, students use software such as *Comic Life* to produce creative output.

Both students and teachers made extensive and creative use of the Internet to access authentic language materials, including Chinese material focused on the Beijing Olympics, and French online fashion catalogues and popular songs.

It was interesting to note that we saw little evidence of systematic use of the opportunities afforded by communications applications such as email and VoIP.

The Learning Perspective

Communication is the core strand of the Learning Languages area of the *New Zealand Curriculum (2007*). Judd, Tan and Walberg (2001) emphasise comprehensible input, opportunities for genuine communication and practice, learning strategies, and comprehensible pronunciation as key general principles of communicative language teaching.

We have observed a wide range of ways in which ICTs have been used to provide spoken, written and cultural input. In a more formal classroom setting, we have observed the use of textbook linked CDs to provide simultaneous written and spoken input to support student use of the textbook. Less formally, students and teachers have used online resources such as *YouTube* videos, news bulletins, and translation sites to access language and cultural resources in the target language. Most teachers made considerable use of free programs available on the Internet, building much of the learning round these in early language acquisition in intermediate schools or loading such programs onto the school server for access beyond school hours for older students.

In many cases students emphasised the importance of being able to hear native language speakers, often commenting that this is preferable to spoken input from their teachers. As mentioned above, Judd Tan and Walberg (2000) regard comprehensible pronunciation as being important. Although one might interpret this as implying use of a simplified vocabulary spoken at a slow to moderate pace, several students commented on the speed with which they manage to understand native language speakers talking at a natural pace.

Language learning software provided students with a variety of ways and ample opportunity to practise vocabulary, reinforce grammatical points and learn how to write Asian scripts. Whilst most software did not support students' oral communication, programs such as *Rosetta Stone* gave students the opportunity to practise target language pronunciation by using a voice recognition feature.

As mentioned previously, we observed little systematic attempts to use Web 2.0 applications for communication in the target language. Teachers reported that barriers such as restricted student facility with the language, time differences, timetabling and lack of Internet access in overseas schools were difficult to overcome. Notwithstanding this however, some individual students reported communicating with peers in other countries using applications such as email and *Skype*.

Teachers used a range of strategies to support students' language learning with ICTs. In secondary schools, some teachers used resources that they had created themselves such as interactive *PowerPoint* displays to support the teaching of vocabulary and grammatical points. In one classroom, extensive use was made of a CD designed to complement the textbook. Other proprietary software was used mainly as a support for conventional classroom teaching. Most of the teachers observed, spent considerable time making resources tailored to their desired outcomes in the form of *PowerPoints*, interactive games and quizzes on the IWB, *Hot Potatoes* exercises and cloze passages, or exercises on sites hosting programs for teacher created resources.

In some cases the emphasis in Years 7 and 8 was more on fostering students' enthusiasm for the language and culture rather than developing specific and detailed language knowledge. Thus students were often involved in producing *PowerPoint* presentations, comics and other artefacts that demonstrated their knowledge of the language and understanding of the culture, using a wide range of internet and teacher made resources. Students often worked together on these projects, but communicated about the task and about how they were going to present their language and cultural knowledge in English.

The communication strand is supported by language knowledge and cultural knowledge. The development of language knowledge requires extensive L2 input, opportunities for output, and opportunities to interact in the target language.

We have seen above how use of ICTs, especially access to the Internet, can provide students with extensive L2 input, which is authentic, current, and topical. As one teacher said, '*the Internet brings the world into the classroom*'. Another example of authentic input in the target language was provided by the use of *Sing Star* for French language singing competitions in a secondary school. This also provided students with the opportunity for oral output.

ICTs also provide a range of modes of student language output, unavailable without this technology. For example we saw several instances of students preparing *PowerPoint* presentations to illustrate their knowledge of L2 and appreciation of the target culture. In other cases, students produced comics and video productions which they had written, produced and directed themselves. During these endeavours, students appeared fully engaged in creating a creditable production to show off what they had learned.

In several schools we saw students using proprietary language learning programs to interact with the computer, by entering text or selecting alternatives provided by the program.

We saw no examples of student to student interaction **through** ICTs, although some students reported private use of VoIP communication to contact friends overseas. The best examples of oral interaction using ICTs were seen where students were involved in video production. This kind of activity was considered to produce significant gains in oral production.

In other situations, multimedia materials such as CDs or videos were used as stimuli for paired or group speaking activities away from the computer.

Liddicoat et al (2003) refer to learners developing an understanding of their own languages and cultures in relation to an additional language and culture. The Internet makes available a vast range of video, audio and pictorial material, which gives students an authentic taste of the target language and culture that would otherwise be impossible. In most cases students were engaged predominantly in acquiring cultural

knowledge rather than a deep exploration. Students did however reflect upon, and were frequently fascinated by, the similarities and differences between target cultures and that of New Zealand.

During our interviews and conversations with teachers, they frequently commented on a greater rate of progress of students in learning languages when using ICTs than in the past when ICTs were not available. Students were more able to 'personalise' and make decisions about their learning through ICTs by reinforcing and revisiting learning, using image and text simultaneously, receiving specific feedback, pursuing areas of interest or perceived strength or weakness etc at their own pace, thereby improving learning outcomes. In addition, ICTs lead to a greater level of student engagement in and enjoyment of the target language and culture, because of the range of authentic material available, and the variety of activities which students could engage in.

The teaching perspective – effective integration of ICTs

In looking at the integration of ICTs with classroom practice, Ham and Wenmoth (2004a, 2004b) developed five tests of effective pedagogy with ICTs. We used these tests to analyse the use of ICTs in language teaching and learning.

With regard to *ubiquity*, the use of a range of ICT-based activities to meet a range of objectives, we found that the largest number of teachers made regular or routine use of around three to five different ICTs. We saw a number of ways in which the use of ICTs in language teaching *challenged* students. These included students working at their own pace, setting their own success criteria, working with authentic language materials, receiving input and producing output in a range of formats etc.

The third test relates to *connectedness* in time, place and content to other classroom learning. In most cases language classes in secondary schools needed to move to a separate computer suite for students to be able to use ICTs in their learning. By contrast, computers tended to be more readily available for use by students in primary and intermediate schools for example in the form of mobile trolleys of laptops (sometimes referred to as COWs).

Despite the fact that we saw a wide range of pedagogical approaches to the use of ICTs in language teaching and learning, generally teachers have devised ways to use technology in ways that are *congruent* with their pedagogy. However teachers' pedagogy is not static, and several commented that they were consciously using ICT-based activities to change the way they teach.

Transparency refers to the degree of taken for grantedness of ICT use in the classroom. It appeared that the use of ICTs in language teaching and learning required more planning and preparation by teachers, and was sometimes seen as a special occasion, especially where classes had to move to a computer room. We saw little evidence of spontaneous decisions of students to use ICTs.

Barriers to using ICTs

Using ICTs in language teaching and learning means working around similar barriers to those that are encountered in using ICTs in other subject areas. These include availability of and access to ICTs, availability of technical support, professional development and time issues.

i. Availability and access

   In most schools teachers reported that issues of access to and availability of ICTs limited their use in language teaching and learning. Such issues included the need to book computer suites in advance, lack of data projectors in classrooms, and school policies which restricted access to the Internet. Teachers also reported issues with school servers, slow Internet connections, and equipment breakdowns.

ii. Technical support

   In a few of the schools, the level of technical support was good. However many schools were poorly provided with technical help, and in these cases teachers could feel unsupported when the technology crashed. Some schools used students to provide technical input with programs that teachers were not so familiar with.

iii. Professional development and time issues

Teachers frequently commented on the amount of time that was necessary to design and plan language programmes to make best advantage of ICTs. This was especially necessary in the early stages of creating resources and activities. Most teachers also reported a need for professional development in using ICTs in language teaching and learning, especially with such technologies as IWBs and Web 2.0. This need for professional development was being met to some extent by language teaching associations.

A snapshot in time

The evaluation research reported here reflects language teaching and learning with ICTs in Years 7 to 10 classes during 2008. The field is rapidly changing. Thus during recent months we have become aware of more language classrooms acquiring data projectors and interactive whiteboards, and teachers investigating the relevant application of Web 2.0 technologies and multi-user environments such as *Second Life* to language learning. There is much as yet untapped potential with Web 2.0 to pursue increased opportunities for input, output, interaction and cultural exploration. The ongoing evolution must be borne in mind whilst reading the subsequent pages.

EVALUATION QUESTIONS AND METHODOLOGY

Evaluation approach

The key purposes of the report and case studies are:

1. To identify and evaluate student language learning outcomes in respect of a range of ICT-based activities, undertaken in a range of language learning contexts, given a range of language curriculum objectives, and across a range of languages.
2. To identify and describe some of the effective pedagogical practices employed by teachers in generating those student learning outcomes.

Traditional pre-post intervention evaluation designs, or goal-analysis evaluation methods, did not seem appropriate to fulfil these aims. Rather, they suggest a 'case study' approach, in which a number of instances of the use of ICTs to enhance language teaching and learning are investigated in a range of classes over time.

As part of the research, a selection of 'effective practice' instances was made that could provide useful exemplars for other teachers wishing to integrate ICT-based activities into their teaching and learning programmes. These exemplars were developed into a website that other teachers will be able to access for professional development purposes.

At the beginning of the project, it was anticipated that some of the teachers involved would be engaged in their own action learning enquiries around their own practice with ICTs from another Ministry funded project. In the event, none of these teachers became engaged in action learning enquiries at a time that coincided with this research, and so their data was not available to complement the present evaluation. Hence, the data about student learning outcomes and effective teaching practice were all gathered directly by the evaluators during observations of classroom activities, and from interviews with teachers and students.

Analytical frameworks

The framework used for analysing *student learning outcomes* was based on the Language Learning *New Zealand Curriculum (2007)* strands and objectives, and the work of Ellis (2005) and Newton (2008). It was agreed that the report would describe and evaluate the use of ICTs to improve language learning outcomes specifically in relation to four of Ellis's Ten Principles, namely:

- Exposure to target language (input).
- Student use of target language (output).
- Opportunities for interaction in the target language.
- An exploratory and reflective approach to culture and culture-in-language.

Observations of student learning were made to describe the extent and ways in which these were (or were not) demonstrated in ICT-based contexts and were evaluated by mapping student learning against the key concepts summarised in the *'Generic Framework for Teaching and Learning Languages in English-medium Schools'* (Ministry of Education 2007b).

The second framework, used to analyse and describe effective *teaching practices with ICTs* was a rubric drawn from the Ham and Wenmoth 'tests' of effective ICT integration summarised above. Each activity in the evaluation studies was described and evaluated according to the extent and ways in which it met or did not meet each of the 'tests' of effective ICT integration.

The Research Questions

The key questions that form the basis of this report are:

1. How are various ICTs used to improve language learning outcomes for students?
2. How effective is the use of various ICTs to improve language learning outcomes for students?

Sampling and Data Collection

The purpose of the evaluation is to identify effective language teaching and learning with ICTs for Year's 7-10 students. It was necessary to identify and select schools that were considered likely to be using ICTs effectively in language classes. For budgetary reasons, we initially restricted our selection to schools within the Auckland and Christchurch areas.

The Language Advisors and National Coordinator of Languages Teacher Support were consulted regarding suitable schools and teachers to approach. In order to maximise the opportunity for cross-case comparison, the original case study sampling plan included instances of classes, activities and units of work involving ICTs in language learning drawn from:

- At least two of each of Māori/Pasifika languages; Asian languages; European languages.
- A range of school types (decile levels, single-sex and co-ed schools).
- A range of classes/students from Year 7 to Year 10 (this ensured coverage of primary/intermediate and secondary sectors).
- A range of ICTs (software and hardware).

Initially 18 schools were identified that fulfilled these criteria. Of these, a number were not willing to participate, or proved unsuitable, and our final list comprised 12 schools. In several of these schools we observed more than one teacher working with different languages, or a single teacher working with more than one class studying the same language.

Despite the assistance of Advisors and the National Coordinator, we were unable to find a school teaching a Pasifika language with ICTs through the medium of English. We also had some difficulty with Te Reo Māori. Initially, we identified a teacher in Christchurch who was willing to be involved. However, he withdrew before any data could be collected. Fortunately, with the help of the CORE Education network, we found another teacher in Napier who was keen to participate.

Appendices 1 and 2 provide lists of the schools that participated in the present study. They give a demographic breakdown for each school, decile levels, the languages taught, and the main ICTs employed in teaching and learning languages.

Data sources

Four researchers took responsibility for data collection. They visited the sample schools up to six times between April and December 2008. Lesson data was collected by observation, video and audio recordings of teaching and learning, and student and teacher interviews. The teaching and learning sessions recorded took place in a variety of venues including classrooms, computer rooms, and school grounds. As well as the recordings, field notes were taken based on the criteria given in the analytical grids shown in Appendices 3 and 4.

In addition to direct lesson observations, the researchers carried out semi-structured interviews with teachers and students, to gather their perspectives on their uses of ICTs for language teaching and learning. Sets of interview focus questions were developed for this purpose. These focus questions are outlined in Appendices 5 and 6. In some cases, we also recorded or collected examples of student work.

Meetings were scheduled with a Sector Reference Group of Learning Languages Advisors and the National Coordinator for Learning Languages. Three 'meetings' of the SRG were held in 2008, either as audio conferences or individual contact with members of the group. The purpose of these meetings was to the review progress of the evaluation, and to discuss preliminary findings and the choice of web cases. In Term 2, 2009, the group provided feedback regarding the draft website and to review the draft evaluative report.

Data Analysis

Data collected during observation of lessons, or by videoing classes, was analysed qualitatively using an analytical grid based on the four principles drawn from Ellis' work with regard to student learning *viz*: exposure, use, interaction and reflection on culture. Similarly, the evaluation of effective integration of ICTs, teacher pedagogy and schools' infrastructures was carried out using another grid based on the Ham and Wenmoth 'tests' of effective integration of ICTs (ubiquity, coverage, challenge, congruence, transparency and accessibility). These two analytical grids are reproduced in Appendices 3 and 4.

Additionally, and less formally, we noted elements of the teaching and learning relationship in the light of *ako* – a valuing of students and what they bring to the learning situation, and the sharing of knowledge and expertise between students and teachers.

Ethical Procedures

Ethical approvals and consents were managed through the CORE Education Ethics Advice Group. This group consists of a number of academic researchers and members of CORE staff who review research projects and offer ethical advice on their conduct. The project plan was reviewed by one external academic and one senior CORE Education researcher.

Candidate teachers and school principals were informed of the nature of the project and their commitment should they agree to participate, and informed consent was obtained from those agreeing to participate. Parent letters, consent forms and information sheets are given in Appendix 7. Teachers were asked to handle the gathering of informed consent to participate, and for still and video images of students to be gathered. A further round to confirm publication consents was carried out in relation to school and student images published on the website.

FINDINGS

This section starts by outlining the range of ICTs that we saw being used in Language Learning in the schools involved in the evaluation. We then make evaluative assessments of the effectiveness of such activities from three perspectives. These perspectives are:

i. The learners and the language learning outcomes of such activities, drawing especially on data from lessons and activities directly observed and from student interviews.

ii. The teachers and what they were finding about effective pedagogy when integrating ICTs, drawing especially from lessons observed and teachers interviewed.

iii. The 'school' infrastructure perspective, outlining 'barriers and enablers' at the school level as observed or identified by teachers, students or principals in interviews.

Which ICTs?

In general, by ICTs we mean digital technologies. Accordingly we have included instances of student use of digital video and still cameras, but have excluded analogue technologies such as radio, TV and tape recorders. We have divided the types of ICTs being used in language learning into three sections: hardware, software, and networks.

Hardware

As expected, the most commonly used ICTs were computers. These included desktop machines and laptops. In many of the secondary schools, language classes used computer rooms and suites which generally had to be booked in advance. In these cases, access could be an issue because of competition from other teachers. Some secondary teachers had managed to assemble a small number of desktop machines which students could access during their language lessons in their normal classroom, and their use tended to be more fully integrated with the whole language programme. An example is the teaching of Te Reo at Napier Boys' High School, where the teacher had a suite of five aging computers in the Māori Studies room. Rangi Ruru had a suite of about a dozen desktops in a room adjacent to the French classroom, and at least one other teacher talked of the school's intention to build a dedicated languages department computer facility.

Where secondary schools used a computer suite to support language teaching, a considerable proportion of its use was with proprietary programs such as *Language Market*, to reinforce learning activities in the 'normal' language classroom. Another use tended to be for special projects, such as the creation of *PowerPoint* presentations for students to demonstrate their language learning.

In some schools, students had access to mobile suites of laptop machines. Examples of this were Westburn, where the teacher had made a regular booking of a mobile 'pod' of laptop computers to support French classes, and Papatoetoe Intermediate where students had constant access to a pod of laptops in the classroom. Te Atatu Intermediate School had a purpose built ICT "Cybercafe" with 60 computers and two IWBs. This doubled as a language teaching home room and a shared teaching space.

All teachers used their own laptops to support their teaching. Some ways in which they did so were by creating quizzes and other teaching resources, by printing large Chinese characters to decorate the classroom, by browsing the Web to find useful news sites and *YouTube* movies, and by linking the laptops to data projectors or interactive whiteboards during their lessons. In some cases, teachers allowed students to use their laptops, where sufficient access was not available for the whole class.

Many teachers were observed to use data projectors in their lessons. Several used them to display material that they had produced themselves, or that had been made by their colleagues. Such material included full screen images of Chinese characters and 'fill the gaps' *PowerPoints* to illustrate French grammar. Teachers also used data projectors to show cultural material, such as movies, news sites and international language resources. Student *PowerPoint* presentations were also shared with the whole class using the data projector. Several teachers identified their data projector as the *'favourite' or 'most essential'* ICT they used.

Few language classrooms were equipped with IWBs. Some teachers used the IWBs for planning and homework outlines at the beginning of class and setting out lesson goals in the target language. Activities involving IWBs included dragging and dropping words to match to pictures, simultaneous viewing of static English lettering and moving Asian script, interactive games and quizzes made by teachers (some using inbuilt features of that IWB to produce stunning results), and projection of *PowerPoints* with voice-over, videos, and other material from the teacher's laptop. A particular advantage of the IWB was the ability to display teacher-prepared material or Internet pages which then could be written on to draw attention to particular features. Student use of the IWB to create ideas and sentences in a group meant that teachers using the boards felt they were an indispensable adjunct to their teaching. In some cases, classrooms had recently been equipped with IWBs, and the teachers had not had time to learn how to use them to their full effect, partly due to lack of time or resources for professional development.

A number of classes used video and/or digital still cameras in their language learning. For example, at Christchurch Boys' video recording was used for students to practise a bargaining role play, while at Auckland Girls' Grammar, students created video plays based on a Japanese folk tale. Similarly, students at Napier Boys' took still photos of family members for their illustrated whakapapa, while students at Westburn took photos for French comics that they had written, edited and published.

Many schools made good use of digital audio technology. Loudspeakers and headsets were used to expose students to native speakers of the languages. Students appreciated listening to authentic accents, and valued the variety that listening to their own teachers could not provide. They also liked listening to language spoken at 'normal' speeds.

In terms of less frequently observed hardware, the Māori teacher at Napier Boys High School made creative use of an MP3 player, onto which he had personally recorded passages in Te Reo, and which he used in conjunction with an old Listening Post to increase student exposure to the language. In another instance, the French classes at Riccarton High School were observed using a *Playstation* to sing along to French popular songs and to play a French version of *Trivial Pursuit*.

In most schools, language teaching and learning involved single classes with a sole teacher. However, the availability of competent language teachers, especially at primary/intermediate level is limited. Takapuna Normal Intermediate School has begun to use videoconferencing technology to teach Spanish simultaneously to two classes at the school, and plans to extend this development to a group of local schools, sharing their language teacher resource across the schools through videoconference classes.

All teachers used colour and black and white printers in their language teaching. Observed uses included the production of large characters in non-Roman script for display in the classroom, production of worksheets and resources, and printing of student produced comics.

One noticeable feature was the lack of examples of use of the hardware that is almost ubiquitous amongst Year 7-10 students – the mobile phone. This is, at least in part, due to the bans which most school administrators place on their use at school. The mobile devices are a powerful piece of technology which students use for text communication, photography, recording video clips, and which can record audio clips and access the Internet. There have been several studies of the use of mobile phones in schools in New Zealand (e.g. Twiss 2008, O'Neil, Wright and Winter, 2008), and overseas researchers have studied the use of mobile technologies in language learning (Chinnery 2006). They could form a useful part of a language programme.

Software

Most secondary language classes we observed used some form of proprietary language learning software. These appear to fall into two main groups: resources such as compact disks (CDs) produced by publishers of text books and designed to complement their use in the classroom, and interactive language learning drills, games and tutorials which are usually loaded onto school servers for students to access.

An example of the first group is the CD that accompanies the *Ni Hao* Chinese language text, which can be used to display text using a data projector. Successive sentences are picked out on the screen, while Chinese native speakers speak the text. Students using this also reported using the CD individually at home.

The teacher using *Ni Hao* reported an important limitation of using textbook linked CDs. The material displayed on the screen is the text from the book. A consequence of this is that when a new edition of the textbook was produced, the text of both the book and CD was altered. As a result, the material projected on the screen from the old CD did not match the text being read by students with the new edition of the book. The ideal would be to replace the class set of texts with the new edition, but the cost of this (approximately $80 retail per copy) makes this prohibitive.

More common than textbook-linked CDs was the use of language learning tutorial programs and activity collections such as *Language Market, Linguascope, Linguarama* and *Expo Électro*. These contain a range of activities such as matching written or spoken words and images, spelling exercises and vocabulary games; often including a competitive element. They can capture student performance statistics for subsequent perusal by the teacher – a useful formative assessment tool. Asian language versions of such programs also indicate the sequence of strokes needed to produce written characters. These programs were often used in computer suites to complement language learning in the 'normal' classroom, and students looked forward to these sessions as a break from the usual classroom routine. One student even voiced the opinion that his teacher could be replaced by one of these programs, but later conceded the value of the personal experience and stories she shared!

Many teachers used productivity software, such as Microsoft *Office,* with their classes. For most of the languages taught in schools, there are available language-specific fonts for Microsoft *Office* and *Open Office* applications. The software is also able to transcribe automatically text typed in roman characters into Chinese or Japanese script. Word processing and spreadsheet software were often used by teachers to produce ICT based exercises such as mix-and-match vocabulary exercises, and were used by students to produce written work. Such software was also used to produce large font A4 posters to display text in the classroom. This proved especially useful for Chinese and Japanese scripts.

PowerPoint and similar presentation software was used by most of the teachers to prepare classroom material to be presented to the class by data projector. It was also often used by students to produce presentations about subjects such as *mes routines,* or to showcase their language learning over the year. These presentations included still images captured from the Web, or, occasionally, video clips produced and edited by the students themselves using applications such as *Movie Maker* or *iMovie*.

Some classes used more specialised production software for more specialised purposes, such as the French class at Westburn which used *Comic Life* to produce cartoon strips on the theme *j'aime.*

Networks

All teachers used the networking potential of their computers to a greater or lesser extent. Secondary teachers and students usually had access to their schools' intranets, and used this network for access to proprietary language software such as *Language Market*. Several teachers also used their intranets to post resources and links for students to access both in class and from home. Students were also able to store work on the schools' servers, and to place completed assignments into drop-boxes for teachers to access later. However, in some schools, server crashes and loss of pre-loaded software caused significant problems.

Both students and teachers made extensive use of the Internet. Teachers accessed a range of Internet resources including news and current affairs programmes, cultural videos and movies from *YouTube*. Students showed a great interest in topical themes – thus the Beijing Olympics provided a special impetus to Chinese language students. Another example of Internet use was in a French class, where students used French online fashion catalogues to construct a virtual wardrobe and the class that took a virtual reality tour of the Louvre. In at least three of the schools, students made regular use of a language translation website to translate phrases they wished to use in their *PowerPoint* presentations or other work.

The Internet provides a window into every culture. Many students reported using the Internet at home to access sites in their target cultures. Thus students at one school combed *YouTube* for French pop songs, and their teacher suggested setting students the task of finding specific resources to support their learning. Another teacher commented on the power of the Internet to *'bring the world into the classroom'* and spoke of the wealth of material available.

One, perhaps surprising, finding was the lack of use of Web 2.0 and social software such as *Skype*, email, blogs, online discussions, and the like. In some cases, notably in the secondary sector, where schools arranged exchange visits with schools in the target cultures, a limited amount of email contact occurred between New Zealand and overseas students. However, it appears rare for this type of contact to be exploited to the full for its language learning potential. In some cases students continued limited contact after they had visited their overseas hosts, using email or *Skype*. Only one school seemed to be using blogs and online discussion forums, and one other was planning to video-link with a school in Spain for some cross-cultural and cross-language peer tutoring among students. Barriers to this type of contact from the classroom included time zone differences, differences in school calendars and different levels of access to ICTs in New Zealand and overseas schools.

There is an increasing global interest in using virtual worlds such as *Second Life* to support language learning. The second *Second Life* languages conference (Slanguages 2009) took place in May 2009. As far as we can determine, this use of virtual realities has not yet been explored in New Zealand schools, although one teacher interviewed did express an interest in experimenting with this type of technology.

The learning perspective - the learning outcomes of ICT based activities in learning languages

This section examines the range of observed or identified ICT-based activities according to the learning outcomes involved. The section is designed to highlight the ways and the extent to which the activities conformed with each of the four language learning principles (Ellis 2005) specified for the research.

- Exposure to the language (input).
- Use of the language (output).
- Interaction in the language.
- Reflecting on culture (i.e. how reflective were students when engaged in 'culture' activities).

We summarise our findings in these areas, and briefly discuss them in relation to a number of the Achievement Objectives of the Learning Languages Curriculum Area (Ministry of Education, 2007a).

In doing so we should note that the limited time which had elapsed between students starting to study a language and the visits undertaken by the research team; and the limited time available to teachers for instruction, may have some bearing on the results of the investigation. In the case of intermediate and primary schools in particular, most of the students were beginning their study in Year 8, and three schools had a combined beginner class of Year 7 and 8 students. Even in the case of some of the secondary schools, some students were considered beginners in Year 10, since they had had only limited exposure to the language in a “taster” course in Year 9. The teaching time for primary/intermediate classes often averaged two 45 minute slots per week, while students in other schools had two to four, one-hour periods per week in Year 9, and two to four, one-hour periods a week in Year 10. Most students observed were thus working at Achievement Levels 1 and 2 of the *New Zealand Curriculum* (2007a), and only a few, who were generally in the second year of language courses at secondary school, were beginning to work at Level 3.

Language outcomes based on the four selected Ellis principles

1. *Exposure to the language (Input)*

   During our data collection visits to schools, we observed, or were told about, various uses of ICTs to promote the skills of reading, writing, listening and speaking, and to give students the chance to experience aspects of another culture. In most cases, two or more methods of exposure were employed in the same lesson, and exposure to, use of, and interaction in the language occurred together rather than as separated activities.

   Exposure to another language and another culture involves listening, reading and watching content in the target language. Obviously, listening is an auditory skill, whilst watching and reading are visual activities. Ideally, exposure also involves experiencing the culture – which brings into play other senses such as kinaesthetic, tactile and even olfactory and gustatory. Experiencing another culture in the classroom in this way is difficult to achieve, but teachers often did their best to simulate such an

experience by having posters and artefacts from the culture around the walls, talking to students in the target language, setting up role play activities to simulate being in another country, practising exercise regimes from those countries, and so on.

The teacher as the source of authentic language input

Before the arrival of ICTs in our schools, the main source of exposure to oral target language was teacher speech or videos, and, in the case of the written word, textbooks or miscellaneous "handouts". One of the most striking things observed in this study was that a major source for authentic pronunciation was the Internet or language tapes and CDs. The teacher was not necessarily the expert on pronunciation and intonation, and indeed, in many cases dedicated teachers with minimal experience in the language were able, with the assistance of ICTs, to expose students to accurate or 'correct' language input. This was particularly clear in the case of the Japanese teacher at Te Atatu Intermediate, for example, who had spent only one and a half years in Japan teaching English before teaching the language, and of the teacher at Papatoetoe Intermediate who had only four terms of learning Spanish herself at the time of observation. This Spanish teacher saw the advantage of using the Internet for giving the students access to authentic sites and authentic pronunciation. She knew she still sounded like a foreigner and believed it to be important for students to hear and emulate the correct pronunciation which she herself could not necessarily provide. Not all intermediate teachers observed in the study revealed the same awareness of their own limitations, though most did, and arguably the use of ICTs to reinforce correct pronunciation in such cases became even more important.

Use of ICTs to teach languages through technology when a qualified teacher is not available

Some teachers with little or no language experience who had become involved in language teaching, such as the French teacher at Takapuna Normal Intermediate School, also turned to ICTs as a means of actually teaching languages in Years 7 and 8. In this school the French teacher with little French language background used the self-tutoring *Rosetta Stone* program for students to gain knowledge of French, enabling students to listen and respond to native speaker input in a controlled fashion. In the same school, a good example of teaching languages *through* technology was seen in the use of video-conferencing where one Spanish teacher taught two classrooms simultaneously. In the latter case the language input observed consisted primarily of formulaic expressions used by the teacher, as most of the work in both classrooms was paper based, although students were listening to and watching the video conference as well.

2. *Advantage of using ICTs to model a range of authentic language input*

Repetition and Range - important factors in second language acquisition

The opportunity to listen to the target language repeatedly on authentic websites was shown to be a real advantage for learners. In an interview, the girls at Rangi Ruru Girls' School mentioned that they found this particularly powerful for pronunciation as the sites gave them the opportunity to repeat words and phrases '*over and over in my head*', as one girl explained. The girls also felt that they were '*surrounded*' by French culture when doing activities relating to French websites.

With regard to listening, students and teachers valued the unique ability of ICTs to bring native language speakers into the classroom. Students appreciated listening to a variety of native language speakers, rather than only the teacher. As one Chinese language student noted: *'You get a bit bored sometimes just listening to the teacher. It also gives the authentic Chinese accent – so it's not his accent. You get a feel for it.'*.

Students at this school, and others, commented on how difficult it was initially to understand native speakers using the language, including unfamiliar vocabulary, at normal speed. However, they persisted in concentrating on the language presented in the media, and found that soon their understanding improved. This contrasted with cases where a 'live' fluent language specialist teacher used unfamiliar vocabulary and rapid delivery. In this situation, the teacher lost the attention and interest of the students. Classes where ICTs were used to access authentic target language input, seemed to show significant gains in pronunciation and intonation.

It was interesting to note a word of caution given by Papatoetoe students who pointed out that student-created videos from other countries on *YouTube* often had poor pronunciation and inappropriate words. The fact that they were aware of this can be regarded as a result of the amount of authentic oral input they had received through other media.

In most cases listening occurred simultaneously with other input – for example written material in Chinese from the *Ni Hao* CD, stimulus cards as with *Linguaphone* material, or images and text with proprietary language programs such as *Language Market, Rosetta Stone* and Internet based programs. All involved a mix of textual, visual and auditory cues.

Accessing resources beyond the classroom: student self management techniques need encouragement and guidance

ICTs were widely used by teachers to produce reading materials and other resources for students. A number of schools also made resources available through the school's Intranet outside school hours. Students could use these resources outside the classroom context, as they were able to access them from home.

Students at Westburn Primary School who were beginning their language study were full of enthusiasm and reported frequently accessing sites from home, (often web-based translation sites). Students at Takapuna Normal Intermediate also reported accessing the *Rosetta Stone* program at home. Interestingly these students were also those who were doing the most self-tutoring and had the least conventional 'teaching' in their programmes, in one case due to lack of teacher expertise. Similarly, at the same school, students talked about their use of the school intranet for homework tasks and to contribute to forums and discussions set up by the teachers. Most of the input from the teachers in the forums was in English, and input-output from the students was reported to be about 60% in English, and 40% in the target language.

By contrast few of the older students said that they didn't bothered to access resources made available to them from home unless specifically directed to do so by the teacher for homework or for preparation for the next day's lesson. Additional measures to encourage secondary students to visit these sites deserve investigation. These may also help students develop their self-management skills.

Benefit of using ICT to give greater variety of input sources leading to more successful acquisition

In most of the schools, teachers drew on a wide variety of ICT resources to expose students to the language. Such use was limited only by teachers' imaginations, access to technology and time to search out resources on the Web.

Students agreed with teachers on the value of ICTs in exposing them to language and often commented that the association of visuals with audio and text input had a significant learning advantage over non-ICT class work. Thus an Edgewater student said that "*Using computers helps greatly. The sites are my favourite because they have suitable pictures to go along with the words or phrases we are learning.*"

Simultaneous visual reinforcement of input leads to improved outcomes

Asian language teachers, in particular, commented on the usefulness of the availability of non-Roman script when using ICTs for making resources. For example, the Japanese teacher at Riccarton High School commented that "*it's been wonderful to have Japanese script... (we) use big images as flash cards*." The Chinese teacher at Christchurch Boys' High School made particularly good use of hanzi characters. He printed them out to make cards related to the theme of the current lesson, hanging them up in the classroom. He said: "*When they are in China, they see them (characters) everywhere*." This teacher also projected single large characters using the data projector in order to discuss their makeup, and used the CD based written material from *Ni Hao* with the whole class for reading and comprehension. Students also read, pronounced and typed in material in the target languages when using programs such as *Expo Électro* or *Language Market*.

All teachers in the study regularly used a data projector with the teacher laptop in their language classes to increase input by projecting *PowerPoints* with authentic voice-over, for illustrating

grammatical points, for showing authentic target language videos, for showing pages from the Internet, and to project other language resources which had been stored on a computer.

The Māori teacher at Napier Boys' High School, for example, made extensive use of the data projector to project the words of karakia, and to share models for student work. The observed example was a *PowerPoint* illustrating members of his whanau, and their likes and dislikes. Other schools provided authentic input through foreign language online news items, cultural documentaries, *YouTube* clips, and popular songs.

Students at Rangi Ruru Girls' School appreciated working from a variety of sources such as *YouTube* clips, movies and websites with sound files. They used these sources to reinforce and revise learning, replaying them as often as they needed in order to ensure understanding. Students felt that their learning was less effective when the teacher *'just talks'*, and similar comments were made by students from other schools. Having the sound, pictures and words available, both independently and/or simultaneously, provided multi-modal input to students, and allowed their learning to proceed at their own pace.

In this way ICTs made available an unlimited amount of video material in most languages, which gave students considerable exposure to authentic language. When students were *watching* video material, they were, of course, invariably *listening* at the same time.

A number of schools, including Rangi Ruru, Massey High, Papatoetoe and Te Atatu Intermediate Schools also used authentic target language videos in which students were exposed to the language at normal speaking speed, while at the same time absorbing some of the culture. Such videos included a French version of *Don Juan* shown at Riccarton High School and a Spanish version of *High School Musical* at Papatoetoe. These videos were viewed on an IWB, or projected from a video recorder through a data projector. It was interesting to hear how even intermediate school beginner students were picking out words they recognised from a torrent of fast language while watching these authentic videos. Their understanding appeared to be based on visual clues which enabled them to associate the known word and the on-screen action.

The Napier Boys High Māori teacher ensured considerable exposure to the language by recording passages in Te Reo for listening and for interaction, using an MP3 player. Students then listened to the recorded audio using an old Listening Post, which enabled at least four students to listen simultaneously to the audio. This melding of old and new technology made the best use of available resources.

At Auckland Girls' Grammar, students composed *PowerPoint* presentations in Japanese and read them out loud to the class as a 'performance'. Performance in Japanese took the form of both written text composed by students, and reading this text out loud to the rest of the class. Students commented how important it was to their understanding as listeners to read the words, and hear the words spoken, and see visual cues in the *PowerPoint* pictures, all at the same time. This simultaneous multi-modality (which they said they do not experience from pen and paper exercises) actually made understanding of the language much easier and was seen as an important advantage of using ICTs in language learning. This was also commented on by students at other schools. It seemed particularly significant in students studying Asian languages which present the added difficulty of script recognition.

Limitations of audio reproduction

Although it was clear in the classes observed that ICTs were used for a variety of activities, providing wide exposure to authentic language and opportunities for input and output, and answering the need for multiple exposure to language, there were some challenges. One of these related to the quality of audio reproduction available to students using ICTs.

The Massey High School Spanish teacher lamented the poor quality of sound produced by her three year old teacher laptop when showing a number of Spanish language *PowerPoint* resources illustrating family relationships, housing and pets. In this instance, the poor sound quality and

slowness to load meant that students lost concentration, and that the desired learning did not take place.

Students observed to be working well with laptops at Papatoetoe Intermediate were also seen straining to hear dialogues, and frequently went back to listen again in order to repeat or answer questions from the Internet resource. The main problem was classroom noise, as the students lacked earphones and the teacher did not have the resources to buy them. Neither did she have the technical knowledge to allow two or three students to listen to the laptop simultaneously. This was a significant problem as the teacher was keen for the students to work at their own pace, individually or in small groups on self-selected units.

Usefulness of proprietary and Ministry funded resources

Proprietary programs such as *Language Market* and *Rosetta Stone*, which provide a structured sequential program were used by most secondary schools in the study. These programs allow students to work at their own pace and level. According to a student in the Year 9 Japanese class at Riccarton High School: "Language Market *is more useful..., because we could have started from scratch. We would never need the teacher if we had used that program every session we had. That (the program) would be our teacher*." In this way he clearly saw the program as providing successful learning outcomes for himself and others as well as providing an opportunity to go at his own pace. The same student suggested this was much better than listening to the teacher 'going on about it' in class, thus revealing the significance of interactivity as well as self pacing in successful outcomes, a point which was also observed in a number of the classroom visits.

Students at Christchurch Boys' High School were observed matching characters to images and spoken language whilst using *Language Market*, which gave simultaneous visual and auditory stimuli to learning, with improved student assimilation of material. Similar resources used in this class that exposed students to authentic language included the multimedia CD accompanying the textbook. However a mismatch between the recently published latest edition of the text and the teacher's CD has resulted in some students listening without the support of simultaneously reading the script.

French students at Takapuna Normal Intermediate School used *Rosetta Stone*, which provided considerable input from native speaker audio for listening, linked with opportunities for output by voice recognition software. Students using this program liked the fact that the tasks were graded, but challenging, and that no English prompts were available – everything was in French and they had to 'work out' meaning from visual and auditory clues.

Limitations: In some cases, there were unexpected restrictions on the use of proprietary language programs. For example, some schools which had updated their computers to the Windows *Vista* operating system were unable to use the aspect of *Language Market* program which ensures student mastery of one level before moving to the next. One school reported a similar problem some years ago with the update to *WindowsXP*. This kind of issue emphasised the need to obtain platform independent programs specifically linked to the New Zealand Curriculum.

It was noted that there is a lack of proprietary language learning software tailored to the *New Zealand Curriculum* (2007a). Although some textbooks, such as Ni Hao (which is published in Australia) include language CDs, the size of the New Zealand market is probably too small to support tailor made software similar to *Language Market or Linguascope*. However, intermediate schools in the study used targeted websites such as the Ministry of Education funded Hai and Si materials with considerable success, and the Māori teacher at Takapuna Normal Intermediate School reported often developing her own Māori language interactive games using *LingaMate*.

A number of teachers also mentioned accessing resources through the TKI Digistore but attention was drawn by some teachers to the fact that there were few suitable junior Japanese resources available on that site. In the past, other teachers had used resources from the Learning Federation. However, they reported that some resources from both these repositories could no longer be accessed by schools using *Vista*, or newer versions of *Flash* multimedia software.

Using innovative ways to integrate exposure to authentic language with cultural exploration

In an interesting experience, students at Edgewater College took part in the Bunkasai cultural experience run by the Auckland Museum. The teacher downloaded a podcast of the hour long commentary at speaking speed to the students' MP3 players, as well as providing them with a written copy of the script. This allowed the few students without MP3 players not to be disadvantaged, and provided simultaneous input of audio supported by script if required. According to the teacher and students this initiative was very well received. Students felt in charge of their learning, able to pause and go back to hear a passage again if they did not understand the first time, but had script backing if they needed to relate the pronounced word to the written word, which appeared in our observations to be particularly important in Asian language learning contexts. The teacher was delighted with the outcome of this experience, which provided a considerable challenge for students. Within a very mixed ability class all students managed to complete the hour's listening and associated tasks, which required students to do such things as *'open the blue drawer and write down in Japanese the names of three objects you see*'. The teacher believed that students going at their own speed allowed them to be successful, irrespective of their level, without other students knowing that they had to go back several times over the material. The same benefit was reported by the French students using *Rosetta Stone* at Takapuna Normal Intermediate.

Limiting factors: One factor that prevented use of Internet resources such as *YouTube* in the classroom was the policy of some schools to block access to such sites. Schools that make the fullest use of video resources were those that allowed teachers and students full access to these online resources. An example was Papatoetoe Intermediate School, where the Spanish teacher was always willing to allow her students to search the Internet under supervision to find further resources. She reported that some *YouTube* videos really appealed to the boys. It was as a result of one such search that the class tuned into an Argentinean radio station. This led to an exploration of the reason why South American countries speak Spanish and why South American Spanish sounds different from Spanish pronunciation heard on *Linguaphone* or other resources from Spain. Some other schools, such as Te Atatu Intermediate also allowed limited access to *YouTube* through the teacher's laptop to support student learning.

How exposure using ICTs can lead to understanding how languages are organised

Teachers used ICTs to help students understand the rules of grammar and language construction and to focus on form. They used teacher-made resources, *PowerPoints*, Internet resources, and proprietary programs. The latter were made available on computers or projected using data projectors on to IWBs or whiteboards. Students could work individually on language programs in computer suites, but the same programs were used effectively with the whole class, or with groups using the IWB. In this way, students were able to reflect on the way the target language is organised, and to discover '*meta*' language principles, applicable to other languages, including the students' native tongue, by reflection during class group work.

An example of this was given by the Japanese teacher from Riccarton High School, who was thrilled to note that *"When they work on Language Market, they put on headphones and listen – their interaction is with the computer. But now with the (IWB) you can use Language Market with the whole class... I did a thing with adjectives. They just had a whole lot of adjectives up there and they had to move them into groups. I did not tell them they were adjectives and they were trying to group them. I asked them to categorise all the words. Some were moving them around saying "why did you put that one there – it should go over there" "But it's not an adjective" "Are these adjectives? - what's an adjective?" They were explaining it to (each other) – and then they were saying "if they are adjectives, we've grouped them wrongly. We'll have to go back and we'll do this."* This type of reflective thought and action, when it happens, is an outcome of truly effective pedagogy.

Using ICTs to enable integrated and blended learning

One thing that stood out in those classrooms with adequate availability of ICT resources was the 'integrated' nature of the teaching. Students and teachers were observed to move seamlessly from IWB to computer to personal or group work and seamlessly from input to output. However in classrooms with limited access, or where students needed to go across the school to access

computers this 'integrated' teaching was not possible and the use of ICT was restricted to specific full periods rather than being a natural support to learning a language. It appeared that this was more of an issue in secondary schools, where computer labs needed to be booked well in advance, and their use was often seen as a break from the 'normal' classroom routine.

The following lesson, observed at Te Atatu Intermediate School, showed how the teacher used ICTs to support effective pedagogy in her classroom. This lesson exhibited the pedagogical principle of providing sufficient opportunities to learn by allowing students to encounter new learning a number of times and in a variety of tasks. It was clear that access to ICTs enabled the teacher to switch easily between teacher made material, *PowerPoint*, and *YouTube* resources from the Internet with improved student outcomes.

Throughout the lesson the teacher used a number of formulaic expressions. The class was her home class, and she continued to use Japanese throughout the whole school day. This is an advantage that intermediate and primary teachers have over their secondary colleagues who have their classes for limited periods of time during the week. The Te Atatu teacher's awareness of the importance of formulaic expressions followed on from her earlier participation in languages professional development, and her own action research.

The lesson was introduced by a *YouTube* video clip with authentic sound in the target language, and students were frequently observed picking out expressions they had heard during a previous lesson. This set the students up to be receptive to listening and learning while simultaneously absorbing the cultural background.

The teacher led her class through a unit introducing food in Japanese. In this case the IWB was used to help the students learn new vocabulary by using pictures of food items collected by the teacher to introduce the new vocabulary. Teacher pronunciation followed by student repetition encouraged correct pronunciation, then two ‘drag and drop’ activities which involved all students in coming up to the IWB to match objects reinforced new learning. Further reinforcement was done by using the IWB's facility to hide then reveal words. Students quickly mastered the new vocabulary set for food.

The teacher then reintroduced the previously learnt formulaic expressions of *I like-I dislike* with the food objects. Students practised the new dialogues in pairs. The IWB allowed students minds to be stretched as the hiragana (Japanese script) for the formulaic expressions (I like a certain food) was typed by the teacher on the board beneath the roomaji (roman script). Students who were asked subsequently if they had taken in the hiragana told the interviewer that they always tried to work out the hiragana as it was shown, thus giving themselves increased cognitive challenge, and advancing their mastery of Japanese. This was followed by reordering of the sentence order showing the placement of the particle '*ga*'. This activity was consistent with the third Ellis principle - focusing on form.

The new learning was followed up by a *YouTube* segment of an authentic Japanese children’s programme which showed a hippopotamus introducing his favourite foods. The video was simple and repetitive with sound, pictures and script. The dialogue subtly reversed the order of the formulaic expressions already learnt, thereby extending student knowledge. This lesson was highly successful. Information was presented in a number of guises in a way which could only have been achieved by ICT (all within a single 50 minute period), and resulted in highly successful learning outcomes. The availability of ICTs made it easy for students to experience a level of exposure to the language that greatly exceeded what was previously possible before the use of the technology.

3. Use of the language

Output increases with feedback – Self-paced learning opportunities

Most schools in the study used commercial programs, teacher made exercises or Internet resources for vocabulary and sentence practice and matching activities. Many of these resources were seen to be effective as they gave instant graphic, written or verbal feedback to students. Such feedback included turning the cells of an *Excel* worksheet green when a correct answer was entered, wiping the answer if incorrect so the student was forced to try again, 'swallowing' the answer in a whirl of

colour on the IWB, making comments with sounds in the target language, and scoring the student. Some resources required students to complete an exercise against the clock. A number of exercises observed were 'gap' filling, matching, or short sentence creation. In all of the above cases individual students or pairs of students needed to be actively involved in typing into a program in a controlled output situation.

Researchers noted that the amount of student language output per lesson was much higher when students had access to computers, mostly because they were more personally involved in their learning than would have been the case in a conventional non-ICT classroom. The instant individual feedback which some ICTs could provide was seen to have a positive influence on motivation and allowed students to learn from their own mistakes as they developed their understanding of the language.

Similar programs affording feedback were used for teaching students to write Asian characters. Students attempted to write a character on the screen using the correct stroke order. Incorrect strokes then disappeared, and a brush appeared and wrote the strokes in the correct order. These programs often had scoring which motivated students to improve.

Most teachers used Internet games and quizzes as part of their programmes. Interactivity, reward or competition increased engagement, and led to positive results for language acquisition.

At Edgewater College, for example, the teacher loaded a number of writing activities on the school's intranet (which is accessible to students out of school) for students to practise writing in Japanese script and to practise basic formulaic expressions. Students believed that they made great progress using these resources, and mastered the intricacies of the Japanese scripts very successfully. In addition students in the computer room at Edgewater College were required to use a Japanese keyboard to input text during writing activities. This was considered by students to be 'hard' at first, and gave them a real challenge. However, using the keyboard had a dramatic effect on recognition and retention of the two basic Japanese scripts. It has also enabled students to master some basic kanji through having to scroll through many characters before entering the one they considered to be correct. This discrimination would not be possible without such ICT programs.

Similar learning outcomes were observed at Christchurch Boys' High School where students in the computer lab worked on matching exercises using an *Excel* spreadsheet to type in Chinese words in pinyin. The program helped students recognise characters by automatically converting pinyin to Chinese script. Neither character recognition nor the reinforcement exercise would have been possible without ICTs.

How ICTs are used to improve student output and support differentiated learning

One example of the use of ICTs to improve output and support differentiated learning was observed at Papatoetoe Intermediate School. The Spanish teacher selected a range of interactive beginners' programs from the Internet and loaded them onto e-learning folders on the school's intranet. Students worked through these self-selected vocabulary based programs in pairs at their own pace.

During one period boys were keen to learn the names of animals and worked on exercises to write the correct word or phrase in the space provided; whilst girls preferred to learn the colours through pictures of nails and nail polish, typing in basic sentences about their choices. Some also chose to learn more about South America. Students moved freely from the interactive programs to online or paper dictionaries to seek further solutions. Students involved in learning about places where Spanish is spoken were observed frequently consulting *Google* to find out the answers to questions. This use of search engines was taken for granted as a natural part of the learning process.

During these sessions, students mastered the vocabulary of their chosen activity. In many exercises, such as those provided by www.spanishspanish.com or similar websites, students' efforts were scored, and boys in particular strove to get the words or phrases correct in as short a time as possible. The scoring provided a high level of extrinsic motivation. As a result, accuracy in writing Spanish improved considerably. There was also an increase in the range of vocabulary mastered.

The range of resources available on the Internet allows for differentiated learning. Thus mainstreamed students needing special assistance, such as a deaf student, or students with other difficulties, were catered for by websites containing basic Spanish exercises involving counting, or matching of cultural information. The students experienced a real sense of achievement in being able to master counting to 20 in a foreign language or correctly carrying out the cultural activity. On the other hand, more advanced students made use of the *Linguaphone* program to practise authentic pronunciation of longer sentences.

As for extending student output, in one activity at Papatoetoe Intermediate students enjoyed inventing sentences in Spanish, and used 'hidden translation' accessed from the 'pull down blind' function of the IWB, to make their own quizzes. This activity required beginner students to use 'active' vocabulary to make their own sentences. They were also observed acquiring new words using online dictionaries or by asking the student teacher, to express their own ideas.

Use and limitations of a variety of hardware and software to stimulate output

At Massey High School, the teacher spent a large amount of preparation time each week making activities for the IWB. Many of the activities involved students in drag and drop, crossword or memory activities where one student came up to the board at a time. It was noted that student involvement in the learning process was much higher when the IWB was used than when the same students were using conventional exercise books. When pages of the workbook were projected onto the IWB for homework correction students were not focussed. Projecting the pages in this way had the same effect as using a data projector to display them on a whiteboard. This suggests that it is primarily interactivity that produces such successful learning outcomes.

Commercial programs such as *Language Market* and *Expo Électro* are used in many secondary schools. They provide a wide variety of exposure to language and require more complex and sequential input and output, which students appreciated. Thus students at Riccarton High School commented: "*There are 18 different units'...'If you forget to say 'What's your number?' you can learn it on this'* and *'If you don't know something you didn't know in class you could learn it on there."* Whilst students can work individually on language programs in computer suites, the same programs were observed being used effectively with the whole class, or with groups using the IWB.

A similar program, but a different set of circumstances, was encountered at Takapuna Normal Intermediate School. Students were observed using *Rosetta Stone*, a language tutorial program which incorporates voice recognition. Students use the program to work through interactive multimedia learning sequences. This ICT program was also a substitute for a language teacher for self-programmed student learning in the classes where the teacher did not have a substantial French teaching background. Students worked at their own pace on small units involving reading, listening and speaking words, phrases and sentences in a variety of social settings.

The place of music in listening activities was clearly shown in a number of schools by *YouTube* videos with song, which students sang along with at Te Atatu, listening to karaoke style videos providing simultaneous listening and singing as observed at Massey High, or the *Singstar* phenomenon at Riccarton High where pairs of students took turns to sing, and participated in a school wide *Singstar* competition using current popular songs from disks purchased in France by the teacher. This use of song increased student participation and motivation, but the most significant outcomes were improved pronunciation, practice of authentic constructions and incidental absorption of increased vocabulary, idiomatic turns of phrase and French popular culture.

Comic Life is a program that allows the students to put their language knowledge into practice in an imaginative comic strip context and encourages written language production. This program was used at Rangi Ruru Girls' School, and also with junior classes at Westburn Primary where students worked in pairs to produce a script and type formulaic expressions on the theme *j'aime* into speech bubbles. During this activity, students were involved in discussing their choices, (mainly in English except for the French phrases selected); leading to improved understanding and retention of those expressions.

Input and output via listening and speaking were often parts of the same activity. In most of the cases outlined in the first section of the study, students were required to repeat words and phrases after the native speaker in exercises to aid pronunciation and intonation (e.g. *Linguaphone*). A few of the programs had voice recognition software (e.g. *Rosetta Stone*) which allowed students to hear and critique their own voices, and provided instant feedback on accuracy of output.

To what extent do ICTs enhance oral output?

Oral output ranged widely, and included groups of students calling out answers in response to images on the IWB and students using self-talk in the language when puzzling over a problem on an interactive site as was observed at Christchurch Boys' High School. Students at Papatoetoe Intermediate practised dialogues from printouts from a computer program, memorising the sentences, then listening to the program to verify their pronunciation, rewinding to listen again if their pronunciation was not correct before repeating again correctly. A further example of students calling out responses was a revision activity at Te Atatu Intermediate in which a *PowerPoint* programme was used to flash images of sports objects on the screen. Students sitting in a circle called out the names of the objects as they appeared. The IWB showed its flexibility and immediacy of impact by keeping students watching the moving objects that accompanied oral production of the formulaic expressions being practised.

The expression being practiced was *I like/dislike* [*sport*]. The negative and the positive formulaic phrases were written on the board. As the teacher dragged pictures of sports to the right (negative) or left (positive) side of the IWB, students called out either '*Jooba ga suki desu*' (I like horse riding) or '*jooba ga suki janai desu*' (I don't like horse riding). Students' attention was riveted to the moving objects as they vied to supply the correct response. As a result, student output increased considerably. Some students called out an opposing sentence if they did not agree, individually constructing sentences to express personal preferences. This dynamic exercise extended the range of previously learnt formulaic expressions and was followed by paired conversation practice.

Students at Massey High School created *PowerPoints* in Spanish based on presentations about daily life, food and leisure activities. They then recorded a voice over using *Audacity* which gives superior sound quality to *PowerPoint's* native sound recorder. Students reported that the feedback from hearing their own voices sharpened their awareness of pronunciation and fluency and led to self-correction and a desire to re-record their files in order to improve.

Need to increase use of ICTs to support task based language activities

It should be noted that relatively few of the activities observed involved extended conversational output during task based language work, and even fewer involved unscripted and totally spontaneous output of any length or sophistication. In most cases researchers were observing beginning students mainly working at Achievement Levels 1 and 2, acquiring simple vocabulary and formulaic expressions.

In the case of Year 10 students there was still only a limited amount of task-based language work observed using ICT. In some cases, this was due to the lack of free access to computers in the secondary schools. Some of the best task-based language work was observed at Auckland Girls' Grammar School. At this school, Year 10 students in their second year of learning Japanese spent almost a term creating and editing video plays that involved the performance of a Japanese folk tale. Initially, ICTs were used to introduce students to a genuine folk tale. Groups of students had to translate and understand the script and, ultimately, perform the story on video. Some girls were the actors and others film directors or voice prompts. Students had to understand and perform full sentences, paragraphs and sustained conversations in the target language, not just isolated words or phrases. This relatively authentic situation created high motivation for the actors to learn the words and meanings. The benefits of this were probably not as great for those girls in the group who were not actors in the play, and who did not have to engage as closely with the script in order to perform. However, all students had to work out the meaning of the original script, and all were involved in listening repeatedly to the output, in judging which of the 'takes' contained the best language output and expression, and in editing the final video product.

Limited use of Web 2.0 tools

Only two schools were observed using Web 2.0 technologies for language output, and only one of these with any real success. Papatoetoe Intermediate students spent considerable effort at the end of the year to produce and memorise a script to show off their language achievement. The intention was to create a podcast. It was only at this stage that it was discovered that *Audacity* could not be accessed from the school's Intranet. The only computer running *Audacity* was the teacher's laptop. As a result, only five students were able to record their efforts. The result was that the students were very disappointed at the failure of the available technology to support their aims.

The more successful example was at TNIS where students reported significant ad hoc use of an online discussion forum and to a lesser extent, their class and personal blogs, for target language output. Students' contributions in the target language to online discussion forums on this school's Intranet were the only examples observed of unscripted, relatively spontaneous use of the target language, either as output or as conversation-interaction in ICT based activities.

4. Interacting in the language

What is interaction in a language and how is it supported by ICTs?

In assessing interaction outcomes using ICTs in language learning it is important to make the distinction between controlled production and free production (Ellis Principle 10). Controlled production refers to constrained response (e.g. a gap filling exercises) whereas free response refers to, for example, an open-ended communicative task.

Many of the activities outlined above in this report involved controlled production in interaction with the computer, with students repeating orally after a native speaker or typing answers (words or phrases) into language programs.

Frequently students worked in pairs or groups on these activities. Peer collaboration to arrive at correct answers, or to type appropriate responses, fostered social interaction, but interaction at this level tended to be essentially in English with only the expressions students were trying to use being expressed in the target language. Students were often heard discussing and disputing the correct answer between themselves, and this led to reflection and reasoning with final feedback from the ICTs reinforcing the correct answer.

In other cases students reacted to visuals projected onto the IWB by calling out answers. However, this is not person-to-person free communication. The free type of communication proved to be difficult to organise using ICTs, so few such lessons were observed during the study. The reason is clear: in most cases students' attention has to be focussed on the screen, and not on another person when using ICTs. Exceptions would occur if students used social networking software, such as blogs or wikis, or applications such as *Skype*. We did not see this type of application being used in a systematic way in the classes we observed. Some schools mentioned attempts to set up email dialogues with overseas schools (e.g.in Japan), but lack of ICT infrastructure, and time differences militated against this. Students in Year 10 at Edgewater College wrote emails to their Japanese sister school but found that teachers in Japan were reluctant to get involved due to the demands of daily lesson delivery and relative lack of technology in the Junior High School in Japan compared with New Zealand. However, a few students have set up a private correspondence with the Japanese students they met in Japan so learning was ongoing.

In other schools, such as Christchurch Boys' High, students who had visited host families overseas continued their personal contact after their return home, using email or VoIP via *Skype.* Students at Rangi Ruru stated that if an arrangement were made as a class activity to email French students at a sister school, this would not only allow them to improve their language skills, but could also deepen their understanding of cultural similarities and differences by exchanging photos and discussing what the images imparted. These students also said that, if they had the chance, they would willingly use MSN to communicate with young French people, despite the time difference. It is up to language teachers to search out opportunities to use the available technology to facilitate such exchanges.

Using video and ICTs to stimulate oral interaction

In many cases ICTs provided the model or stimulus for paired speaking activities. Thus at Te Atatu Intermediate, students practised how to express themselves in paired speaking after considerable input from ICTs. At Papatoetoe, students mimicked the greetings and body language seen in the '*Si*' video while learning to introduce themselves, and at Christchurch Boys' High School, the multimedia CD supplied with the *Ni Hao* text introduced students to how the Chinese bargain.

This latter case was an excellent example of oral interaction aimed at preparing for a school trip to China later in the year. After listening to the material on shopping (including bargaining) from the CD, the students designed their own role play and bargaining sequences, which were then videoed. Students and the teacher then reviewed their videos, and critiqued their performance. Students were interviewed on their return from China and claimed that this was one of the most successful and useful activities they had undertaken, enabling them to purchase goods at a reasonable price in an authentic setting.

A number of schools used video creation as a means of stimulating oral interaction. This was considered to produce significant gains in oral production. Thus, a student teacher reviewed the outcomes of Edgewater College's video production efforts. Before she came on section, this young teacher was afraid to use technology but watching the students' performance during the video project gave her confidence. She commented:

'It was great watching the students both write and practise the language orally. The video project gave more independence in language as students were able to roam the school to make their video and they had no-one on hand to tell them the language so they had to become resourceful. I saw a big improvement in confidence in speaking during the project.'

In general, though, spontaneous and extended speaking and interaction in the target language were less often observed than scripted, brief exchanges. Even when students performed sustained conversations in the language, for example when making a video, the interaction was pre-scripted. Discussion of the technical processes or about such matters as grammar was almost always in English. Overall interaction *in* the language tended to be controlled, scripted and brief, whilst interaction *about* the language, which was free and spontaneous, was generally in English.

Do ICTs enhance oral output? Using ICTs to produce resources which facilitate oral output

Most speaking exercises were conducted apart from, or as a short follow up to, the ICT component. However, teachers pointed out that the greatest use of ICT to support speaking was by enabling the teacher to make resources (usually on cards) to elicit the maximum interaction and speaking practice in the target language. Thus the Spanish teacher at Papatoetoe Intermediate said "*ICT is useful for reinforcement and for learning additional stuff but for speaking it is more productive to use teacher made stimulus cards (made using ICT) which students use to go round the room and speak to other students or role play with nothing but themselves. ICT does not help them speak – what it does do is give them a model of the sounds they should make and to know the words they should use so when they go to speak they are confident*."

This observation was supported by the teacher at Massey High School who commented "*Communicative language? It is not the students involved so much in communicative language facilitated by ICT but it is ICT facilitating the teacher in making resources to stimulate communicative language*."

A student at Lincoln High School put it succinctly *"in the computer room, you say it to yourself',* but *'you practice more when outside the computer room when you do pronunciation"* (and communicative tasks).

5. Reflecting on culture

ICTs by their nature are simultaneously textual, visual and auditory. Rather than having to imagine the people, scenery, architecture, food etc, students were immediately able to view photos and videos and imagine themselves in such contexts. Viewing current visual materials helped the students to become aware of cultural similarities and differences between New Zealand and the target culture.

Most schools used some type of authentic video and audio material to give students a feel for the cultures – e.g. *YouTube*, *National Geographic, Discovery*, *China News*, and *Argentine Radio*. Many schools in the study also used pictures from sites such as *Flickr* and *Google Images,* and teachers scanned and incorporated their own authentic resources in their language teaching programme.

In most cases observed, the use of ICTs was inherently linked to the language and cultural background in a way impossible without the visual imagery of the Internet, whether it is watching genuine Japanese games shows, watching authentic children's programmes from *YouTube*, seeing footage from the school's last trip to the target culture, or exploring youth culture through song. A simple presentation on housing or food in any country immediately brought forth reflection, comparisons and contrasts with New Zealand society.

Cultural acquisition and reflection-expanding from early beginnings

At the very early stage in the language learning process, students were observed to be engaged predominantly in cultural acquisition rather than any further exploration. Personal reflection came later, together with students matching new information with their own schemata and previously held cultural concepts. This led, for example, to occasional disagreements between peers when working on websites showing places where the target language is spoken.

The teacher at Papatoetoe Intermediate was typical of those observed in that she asked students about similarities between Spanish and English as well as between the cultures. She took an inclusive view rather than an exclusive view of 'Them and Us'. This led her students to comment that this European language was '*easy*' because it was similar to '*ours*'. One Hindi speaker in the class demonstrated how she matched new information to her own schemata by drawing parallels between Hindi, English and Spanish in her interview. Other students commented that the teacher asked them about differences between New Zealand and Spanish speaking countries. They believed that the culture in Spain was European and similar to that of New Zealand, but that South America was a bit different.

One of the lessons observed at Papatoetoe showed how language and culture are inextricably linked. Using the Ministry video *'Si'* projected onto the IWB, students watched segments of natural interaction in Spanish at normal speaking speed. This allowed them to absorb the cultural aspects of kissing as a greeting, as well as to hear the natural intonation and rhythm of the language spoken by native speakers. Students then sat in a circle and practised introducing each other. Students repeatedly greeted each other in an authentic Spanish manner until the gestures and words became automatic. Thus they learned both the language and cultural norms of communication. The teacher then spent time with each group discussing the cultural points and broadening the range of possible alternative phrases or situations. Explaining where these norms apply thus reinforced the learning stimulated by watching the video.

The ICT resources used at Riccarton High School to show daily life in France similarly sparked students' interest in learning more about the French language and culture. The use of ICTs in the class was also said to have helped the students to become more aware of the cultural similarities and differences between France and New Zealand, including greetings, historical background and cuisine.

Students' increasing awareness of cultural similarities and differences made a positive contribution to their sensitivity and ability to act in different cultural contexts. One of the Riccarton students, for example, suggested that "*in France, it is just traditional, you greet someone, you kiss someone on the cheek. People would think you are crazy, if you came up and [did] that to someone in New Zealand,*

but it is just normal in France." Watching daily life and news videos and movies shown in the class, another student at this school noted, "*you just see how old the place [France] is".*

Broadening existing cultural perceptions-building on student interests

Students at Te Atatu Intermediate used Microsoft *Word* and *Publisher* to produce a report on an aspect of Japanese culture they were interested in. Students wrote on topics ranging from religion (Buddhism and Shintoism) to food, Manga (comics) and the Japanese economy, adding pictures or photos to enhance their work. They chose photos or pictures which complemented what they were writing, indicating that they had reflected on the appropriateness of the images before they were selected. This process of selecting from a number of sources is another subtle way in which the visual imagery becomes part of the cultural perception of students.

In many cases students already had ideas about, or an interest in, an aspect of the culture, and when presenting reports they often brought in personal anecdotes which had led them to their choice (boys were already interested in Manga and girls knew someone in Japan and wanted to find out about tying a kimono etc.). After completion of their reports, students read them to peers, and then shared their discoveries with the class. Students then asked each other questions about what they had learned from their peers' reports. This questioning led to discussion and reflection on culture by the class. The students showed a growing enthusiasm for the culture and society by linking their Japanese studies with their work on an inquiry unit beyond the Japanese class. This allowed them time for more thorough investigation of the culture.

Similarly, students at Westburn Primary commented that using ICTs *"you learn different things about France than just having the teacher explain it to you. You can find out whatever you want to know (using the Internet)*." Thus students commented on the large number of bakeries in France, and that "*we've learnt that they have lots of different types of cheeses."* The fact that these young students mentioned cheeses to the researcher showed this aspect of the culture had struck them and they had matched their learning to their pre-conceived schemata as a result of internal reflection.

Using authentic sites to stimulate further cultural exploration

Students at Takapuna Normal Intermediate spoke of returning a number of times to such sites as the Louvre website, which has an extensive virtual reality tour built into the site. There was also spontaneous outside classroom use of several units or activities within *Linguascope*, some of which had a cultural focus. *Linguascope* was also used at Lincoln High School and proved popular there. In the above cases interest was stimulated and students were motivated to learn more about the culture.

During Junior French classes at Rangi Ruru Girls' School, authentic websites were used to show aspects of French life, to provide immediacy and encourage a degree of intercultural understanding. Students used online catalogues when learning about fashion, and carried out a real estate project. This led students to discuss various aspects of fashion and housing. As the students talked about the cost of goods in euros, they were provided with an immediate insight into culture *via* the language; and gained pleasure and understanding from the relevance of their study.

During interviews, these students said that one of the best parts of learning French was to see how others communicated and lived. The assumption was that another country is different in some respects and therefore '*fun… interesting…enlightening',* but also similar in others. Common European value systems were seen to be shared, but customs are different. '*Faire la bise'* (French custom of kissing on greeting) was mentioned as something regarded by students as completely different; but seeing it on video clips normalised the custom.

When interviewed, students from Edgewater College identified culture as one of the most interesting parts of learning a language, and felt that they encountered no surprises when they were confronted with the reality of Japan during a school trip in September. This was a consequence of the reflection on culture that had occurred during class and homework time, though discussions in class, the cultural experience at the museum's '*Bunkasai*', the videos shown in class, the websites and the

authentic exercise of webquests. Thus one student commented that *"using the websites helps, like, show us in pictures what it's (the country) is like."*

Not all the observed cultural learning was critically reflective in this way. Students at Massey High School, for example, concluded that there was not much difference between Spanish culture and New Zealand culture except for religion and food and some old buildings and built up towns. They seemed to have little appreciation of cultural contrasts, despite having seen videos about Spain. The reason for this lack of appreciation of cultural differences by a number of the students may be that these students were rarely taken to the computer suite. Consequently they saw a more narrow range of images and authentic sites than students at other schools in the study. It is an interesting conjecture, but insufficiently evidenced to be a finding, that the range of ICTs used may have had a direct bearing on cultural appreciation and reflection in this case.

Integrated teaching of language and culture

The teacher at Christchurch Boy's High School introduced cultural elements naturally into his language teaching, for example drawing the students out on the cultural background behind the Chinese name 'Long City ' for the Great Wall. This discussion was stimulated by material on the *Ni Hao* CD about the topic. Under the guidance of the teacher, students reflected on the cultural aspects of walled cities. The teacher also brought in perspectives from his knowledge of other languages, encouraging students to reflect on the reason for the Chinese names for various countries, and how these related to meaning, or on the rendering of the names into pinyin and characters. During interview, students commented on the significance of cultural aspects revealed by the multimedia websites and DVD recordings of TV material they had seen, especially in relation to the building of the Olympic Birds Nest and Water Cube.

Both students and teacher commented on the Chinese approach to shopping as a result of their videoed role play activity, one saying that for Chinese *"bargaining was their nature*." Another student said "i*t's a different culture – in NZ we don't bargain*." Yet another boy mentioned a consequence of the population difference: "*in China there are 1.3 billion people and in New Zealand only 4 million – so you naturally communicate with more people*." In the same vein, another student commented on the relative lack of "*personal space."*

Some teachers, including those at Christchurch Boys' High and Riccarton High Schools, used video footage from news and current affairs sites to support teaching and learning. This footage linked in with current lesson topics. For Chinese language teaching, the topical focus of the Olympics in Beijing provided a wealth of language and cultural material, for example about the building of the Water Cube and Birds Nest stadium. The teacher bought his own DVD recorder in order to record Chinese online material for subsequent use in his classes. He commented that the immediacy of the Internet brings language and culture into the classroom in a way previously impossible. Students from his school who had visited China agreed that seeing videos "*helped prepare you for the culture",* but admitted that the reality of arriving in China still came as somewhat of a shock.

At Auckland Girls' Grammar School, very strong cultural elements were built into both of the task-based units observed. For example, in the Japanese versions of folk tales, costume etiquette, and aspects of daily life had to be reproduced in the video plays. Cultural elements in the content of the students' slideshows were highlighted by the teacher several times during the 'show and tell' sessions, and gave plenty of opportunity for discussions of Japanese attitudes, values, traditions, and food.

In almost all cases, cultural understanding came through the visual images and authentic language provided by *YouTube* clips, movies, songs, authentic websites and other ICT resources; and were absorbed almost by osmosis. These resources provided a richness of intercultural understanding which was enhanced by the teacher responding to questions, encouraging reflection and discussion. This was exemplified not least at Papatoetoe Intermediate when the class discussed the voices on Argentine radio in contrast to Spanish voices, which led to exploration of the history of South America.

Transfer of ICT enhanced language skills to authentic cultural contexts

The true test of successful outcomes was shown by a number of students who used their language skills in real contexts. Students from Te Atatu talked of conversing with native Japanese successfully in a restaurant in New Zealand, and being able to order meals, catch trains and express preferences in Japan. Christchurch Boys' High School students reported on successful bargaining in China, and Edgewater students communicated successfully in a homestay situation. How much of this was the result of ICT and how much the result of teachers' other efforts is hard to measure, but students commented that being exposed to social conventions and seeing the countries through ICT before going there had an positive impact.

Using ICTs to assess student outcomes

The greatest use of ICTs in assessment was formative rather than summative in nature. Thus the Chinese speaker at Christchurch Boys' High School spoke of using video recording to assess students' oral language, and teachers used feedback from programs such as *Language Market* to gather formative assessment data about vocabulary and grammar acquisition.

The Spanish teacher at Papatoetoe commented that:

> *"Students are the people involved in the learning process and they make it clear how effective teaching is. If the students are not engaged in the task then the learning is not going on. I also ask the students for their feedback: "Is this a good way of learning?" "What did you think of that?" and they tell me. Assessment is a mixture of student feedback, observation by the teacher and professional judgement as to the effectiveness of learning with ICTs. Students regularly go back to sites in their e-learning folder. When they become bored with a site I know that they have mastered the work and know what is there and it is time to move them on."*

With regard to summative assessment, students at Edgewater school sat a Unit Standard where they wrote about an aspect of Japanese culture. The aim was to assemble and present information as a report or *PowerPoint.* No reflection was required, so students were mainly occupied on accomplishing a task under examination conditions. Edgewater College also used a writing Unit Standard as a formal test of Japanese writing ability.

Perceived effectiveness of the use of ICTs on language learning outcomes

The French teacher from Rangi Ruru Girls' School also claimed that most of her evidence for determining the effectiveness of ICT integration was based on student reflections and direct observation rather than formal assessment. She asked students what they found interesting, what they learned and how the use of ICTs reinforced learning. It was more difficult to see the effect of ICTs directly in their work, although the teacher reported that sometimes she heard or saw students using words or phrases that they were exposed to while using ICTs. Although this teacher did not have any quantitative data, and did not believe that it was possible to isolate a single factor affecting student outcomes, she still believed that using ICTs had had a positive impact on language learning.

Perhaps the last word should go to the teacher at Papatoetoe Intermediate who saw the benefit of ICT for students and teachers alike. She claims she would not know what to do if they took her laptops and interactive whiteboard away from her

> *"I could not teach Spanish the way I do without ICT. If I did not use ICT I would have far too much photocopying. Students keep their work in their e-learning folder and go back to sites time and again. I don't speak Spanish fluently and ICT gives me access to a variety of resources and an authentic language model."*

"*Students clearly are the people involved in the learning process and they make it clear how effective teaching is. If the students are not engaged in the task then the learning is not going on."*

She believed that the variety provided by ICT keeps students interested and engaged in a way ordinary teacher directed learning cannot.

The Teaching perspective – Effective Pedagogies for using ICTs in learning languages

This section evaluates the range of observed or identified ICT-based activities from the perspective of the pedagogies involved, and the extent to which ICTs were effectively assimilated into the teachers' and students' routines in the observed classes. It finishes with some commentary on the ways in which some of the teachers in the study were using ICTs as a 'test bench' for critically reviewing their own teaching and changing their pedagogical approach.

How effectively assimilated were ICTS in the various language learning classes that we observed, is assessed by applying Ham and Wenmoth's (2004a, 2004b) 'Tests' of effective pedagogy with ICTs?

Ubiquity: *Students routinely use a broad range of ICT-based learning activities in classes to meet a broad range of specific curriculum objectives.*

The Ubiquity test is primarily about 'coverage' and 'frequency' as applied to teachers' and students' use of ICTs in learning languages. It has two main dimensions: the *frequency* of students' use of ICTs in their language learning, and the *range or variety of ICTs* used in their language learning. At one end of the Ubiquity spectrum, therefore, would be classes in which students used a wide variety of ICTs on a routine (daily or weekly) basis, throughout the year. At the other end of the spectrum would be classes in which students used only one or two specific ICTs, occasionally, or in short concentrated bursts through the year.

The extent to which the classes observed met both of these dimensions varied considerably from teacher to teacher. At Takapuna Normal Intermediate School, for example, the students of both the language teachers whose classes were observed reported that they used a wide range of different ICTs, both within and across almost all of the units taught through the year. In the particular Spanish and French units that we observed, students were engaged at various times in all of; responding to online and offline multimedia tutorials, referring to online translation dictionaries, contributing to online discussion forums, developing podcasts in the target language, accessing news websites and online radio stations in the target language, and downloading language games and drills, as well as a range of more conventional pen-and-paper based language activities.

At Takapuna Normal Intermediate School, moreover, where there was a whole-school approach to the use of ICTs for languages not observed to the same extent in other schools, teachers also conducted formal evaluations of the ICTs that students used, which they formally presented to the rest of the staff. In most of the schools observed, though, the use of ICTs was actively encouraged by heads of department and middle management, but the actual variety and frequency of student use of ICTs for language learning was left up to the individual teacher, and varied considerably from teacher to teacher, unit to unit, and class to class.

A different, but more common, form of ubiquity to that of incorporating 'lots of different ICTs lots of times in all units or work', was the frequent student use of *one or two key ICTs,* either occasionally throughout the year or in concentrated bursts in one or two units of work. One example of the concentrated use of just a few ICTs was observed in a secondary Japanese class. At the time of the first observation, the students had only experienced *PowerPoint* and Internet searches in class to date, although they had engaged with each of these in a variety of different ways. With *PowerPoint*, for example, the teacher had written her own version of the quiz game 'Who wants to be a millionaire?' in Japanese, which she then played in class with the students as the quiz participants. She also reported having included videos from *YouTube* in some instructional presentations. For the observed unit, though, the focus was on the *students* using the technology, and they had spent part of the previous weeks' language activity in small groups composing *PowerPoints* of their own version of the Cinderella story in Japanese. During the observed lesson the students presented their multimedia stories to the rest of the class, accompanying their oral 'performance' of the story in Japanese with a slide show showing the script and relevant illustrations. Encouraged by the students' enthusiasm for this *PowerPoint* production activity, the teacher developed a unit of work for the next term around a traditional Japanese folk tale, in which the central ICT activity was for the students in groups to produce, film, edit, and present digital video performances of the play in Japanese.

As the analysis in the table below shows, most of the teachers/classes in the study were somewhere in between these two poles. Teachers and students in both sectors tended to use a limited or moderate range

of ‘favourite’ ICTs, either ‘regularly’ or ‘routinely’ over the year, rather than many different ICTs all or most of the time.

	Occasional (Students reported to use ICTs avg. 1-2 times over a year, or use concentrated in 1-2 units only)	**Regular** (Students reported to use ICTs avg. monthly/termly, or in several (4+) units of work over the year)	**Routine** (Students reported to use ICTs avg. daily/weekly over the year, or at some point in all or almost all units of work)
Limited range of ICTs (1 - 2 mentioned by teacher or students)	• 1 class. Yr.9-10	• 1 class. Yr.9-10	• • 2 classes. Yr.9-10
Moderate range of ICTs (3-5 mentioned by teacher or students)	• • • 2 classes. Yr.7-8 1 class. Yr.9-10	• • • • • • • 4 classes. Yr.7-8 3 classes. Yr.9-10	• • • • • 2 classes. Yr.7-8 3 classes.Yr.9-10
Wide range of ICTs (More than 5 mentioned by teacher or students)			• • • • 2 classes. Yr. 7-8 2 classes.Yr.9-10

Table 1: Ubiquity of ICTs in Language Classes

Challenge: Students are deeply engaged in meaningful, authentic learning activities using ICTs that provide appropriate cognitive or creative challenge.

If the Ubiquity test is about frequency, breadth and variation in classroom use of ICTs, the Challenge test is about the content and depth of the learning involved. In one dimension, the Challenge test asks about the content-level of the learning that is expected to come from any given ICT mediated task or activity: is it set at the appropriate level of difficulty for the individual student, and at the appropriate Level in the New Zealand Curriculum (2007a)? In a second dimension it asks whether the tasks exemplify all of Ellis’s 10 Principles (2005) for effective language learning programmes.

The results of our analysis of all of the observed lessons with regard to the Challenge dimensions are reported in detail in the ‘Learning Perspectives’ section of this report, above. Suffice it to note here the general findings of that section that ICTs seem to be used more for target language input and output than for interaction or reciprocal communication in the target language, and that most target language input, output and interaction tended to be tightly scripted and brief, rather than spontaneous or creative and sustained.

Nevertheless, all the teachers in the study were critically selective in their choices of ICTs. They did not use ICTs with classes ‘for the sake of it’, and they always articulated a pedagogical rationale for those selections consistent with several of Ellis’s 10 principles, even if they did not always use Ellis’s language to express them. The particular Challenge-related benefits of using ICTs highlighted in the observations and interviews, included:

- That students can work at their own pace, and at their own speed of progression (Principles 5, 9).
- That students are invited to set their own ‘standards’ and criteria for success (Principle 5).
- That students have increased access to native speakers speaking, writing and performing the language (Principles 1-3, 6).

- That students can access authentic language situations for target language input (TV news, radio broadcast) and authentic audiences for target language output and interaction (podcasts, discussion forums) (Principles 4, 8).
- That students can receive and produce target language input, output and interaction in a variety of sensory forms (text, images, speech, video etc.) (Principles 2, 3, 6-8).
- That students can access a host of cultural and other language information easily and instantly (Principles 1, 4, 5).
- That tutorial-style resources on the internet or interactive CDROMs can at least partially compensate for teachers' lack of language proficiency and expertise at Years 7 and 8.
- That a wide range of open-ended 'tools' and 'social software' is available that allows teachers and students to 'tailor' the content to different levels of thinking, or to contribute their own content more closely related to the New Zealand Curriculum and Level progressions or to students' particular interests (Principles 4, 5, 9).

Identified limitations of the observed ICT activities included:

- Programmed instruction materials and language 'games' were not always easy to link with other classroom activities or the Curriculum progressions.
- Some ICT-based activities limited more than they encouraged spontaneous or creative use of the target language.
- Access for students was more problematic than access for teachers.
- Many of the 'ready-made' packages available for language learning did not encourage higher order thinking, extended problem solving, or extended reciprocal interaction/communication.

Connectedness: *Student learning through ICTs is clearly and strongly connected in time, place and content to their other classroom learning.*

Time

For most of the teachers and students in the study, formal language teaching and learning was a matter of timetabled, synchronous, classroom based, whole-class activity. Some of the students had language homework tasks which required them to access the internet or design a presentation in their own time, and students in several of the schools made use of their school intranet for monitoring or archiving such 'outside-classtime' activities. Only one instance was observed of substantial successful use of Web 2.0 social software tools for out-of-class student-teacher and student-student interaction in, or about, the target language. This was in the form of the languages discussion forums and student blogs on the Takapuna Normal Intermediate School intranet site.

Some noticeable differences, however, were observed in respect of the ways different schools timetabled their languages teaching. In all of the secondary schools languages were taught by specialist language teachers in timetabled blocks of 50 or 60 minute lessons, held three or four times per week. At Takapuna Normal Intermediate School, by contrast, languages were also taught by teachers specialising in a given language, but in much shorter, 30 minute, timetable slots, held once per day. In the primary school in our sample, languages were taught by generalist classroom teachers, who often 'integrated' some languages teaching at various times throughout the day.

The teachers teaching languages in this 'little and often' way were adamant that it was an effective way of giving students a 'taster' of languages at the Year 7 and 8 level, and was well suited to 'lower-level' language tasks such as vocabulary extension and the learning of formulaic expressions. However, most of the teachers, including those at secondary level, also argued that attaining the higher and more sophisticated levels of engagement with and use of the target language required teaching strategies involving longer term, more sustained, and arguably more 'authentic', project-based approaches using much longer 'periods' of time.

Place

Connectedness in terms of place varied in a similar manner. In secondary schools there was usually a need to move to the computer suite. This was often in a separate building, as at Riccarton and Lincoln High Schools, or, less often, just down the corridor as at Christchurch Boys' High and Auckland Girls' Grammar Schools. In other schools, there were mobile trolleys of laptops that could be booked and used in the normal classroom This was the case, for example, at Westburn Primary School. In another case, there were five old PCs permanently based in the classroom (Napier Boys' High School). Much of the digital video production activity for the Japanese class at Auckland Girls' Grammar School was conducted in the public park next to the school, and the editing activity in groups used the specialist editing software housed in the Media Studies computer lab. In schools where classes had to move to computer suites, the rooms had to be pre-booked, and moving students was usually seen as wasted class time.

Content and skill progressions

While several of the teachers reported that they struggled with connecting students' use of ICTs in terms of time and place, the great majority of them were able to effectively connect the learning involved in the specifically ICT-based activities observed with *both* the learning that had preceded these activities and with concurrent learning involving non-ICT based activity. In fact, the teachers' ability generally to effectively integrate and combine ICT activities with non-ICT activities in the one lesson or sequence of lessons was a feature of most of the case study classes and units that we observed.

In the various lesson sequences or units of which observed lessons were a part, and even within those observed lessons, ICTs were often used for the whole of the lesson time, but were seldom the only teaching or learning resource involved. More often than not, students would be completing task sheets, taking notes, and doing other 'offline' activities in conjunction with the ICT activity itself. Two good examples of this were: a) where the use of the data projector and Chinese CD were linked tightly to text based activities in the Christchurch Boys High classroom, and b) the folk-tale videos of the Auckland Girls' Japanese class, where the successful production of the plays was accompanied by, and in some respects was dependent on concurrent completion of a raft of text-based activities in a substantial booklet produced as a study guide for the unit.

In almost all cases, moreover, the content of the observed activities was clearly related to learning that had occurred in previous lessons, were overtly 'scaffolded' from previous lessons, and clearly located by the teachers in terms of where the current activity 'stood' in relation to the broader themes and skills of the unit of work of which the lesson was a part. There were few, if any, observed examples of isolated, 'stand-alone' ICT activities that did not connect in some way with the language content of previous or upcoming lessons.

As one of the teachers described these progressions in her Japanese class:

> *'[Student X] spoke the most beautiful Japanese in her video that I have ever heard her speak. So they know when it's not right and corrected it. The level of language they had to use was appropriate to level 10. It wasn't dumbed down at all… It followed on. We'd just done a unit on the Cinderella story and lots of the words carried on quite nicely, and before that we did a whole unit on Japanese food and rice, and we had a food tasting in the class. So we covered lots of the vocab that was to appear in the [video] drama as well. It was all very interconnected.'*

Congruity: *The ways in which the teacher introduces and uses ICTs with classes, including the types of software used, are consistent with the teachers' pedagogical beliefs, intentions and teaching orientations.*

In essence, this test is about teachers' ability to select the ICTs for students to use that are most appropriate and fit for the purpose. A variety of pedagogical approaches was observed in teachers and students use of ICTs in language learning classrooms. These ranged from quite teacher-centred, direct instruction approaches, to more student-centred, constructivist pedagogies based on extended enquiry learning. They also ranged from predominantly whole-class teaching (teacher presentations using *PowerPoint and data projector), through extended group collaborations (student productions of videos and* podcasts), to highly individualised programmed instruction (*Rosetta Stone* tutorials). What is more, most

individual teachers reported, or were observed using, a mixture of such strategies in their teaching repertoire.

Most of the teachers, for example, reported using ICT-based language drills and stand-alone 'interactive tutorial' resources at some point, usually as reinforcement activities for grammar, vocabulary acquisition and pronunciation, and usually in relation to formulaic expressions. For most this reflected a view that in learning languages there is often a base of factual knowledge-building that is necessary before the language could be 'used' or performed in more authentic, interactive, or spontaneous situations. Several of the teachers of Year 7 and 8, for example, saw their main job as to *'provide a taster'*, *'introduce the basics'* or to *'give students a 'feel for the languages',* so they could choose one to study in detail later on at secondary school. For such learning, ICTs such as *Rosetta Stone, ExpoElectro,* or the language drills and 'games' on *Linguascope* and *Language Market*, were regarded as both effective in giving students access to native speakers and those with more specialist language knowledge, and also consistent with the pedagogical approaches required for that type of 'basics' learning.

At the other end of the spectrum, more open-ended, 'tool' technologies (digital video and audio editors, multimedia slideshow tools, word processors, and podcast sites, to name a few) were used more often for task-based language learning that was focussed on output, performance, and (occasionally) interactive communication in the target language.

When asked what the *main* benefits of using ICTs were to languages learners, most teachers and most students mentioned at some point that the activities were motivating, engaging or 'fun'. But when encouraged to go further and identify what they thought it was about the use of ICTs that made it 'fun' or motivating, their most frequent responses related not to motivation or interest *per se*, but to one of two other key ideas:

1. The opportunities the activities provided for **simultaneous multimodal access to, or performance in, the target language.** That is, being able to read it, see static and moving visual images related to it, hear it, speak it, act it out, or see it being performed, and (often) to gain instant feedback about their own writing, speaking understanding and performance in the language, *all simultaneously and in the one small activity*, was how ICTs could most 'make a difference' in language learning. Non-ICT based activities, especially those based on written text and static images alone, were felt to be limited as a holistic pedagogical strategy compared to some of the 'multimedia' and 'multimodal' language strategies offered by some of the ICTs they used.
2. The opportunities the activities provided for **more student-centred languages lessons.** That is, students were more motivated or interested or engaged *because* they were being offered the language in a variety of sensory forms, *because* they were provided more opportunity to actively engage with the language through multimodal performance, *because* they had access to additional and more instant forms of feedback than teacher assessment, *because* they were able to work more at their own pace or to more extended deadlines, and *because* they often had an authentic audience of their peers rather than the teacher alone.

Having said that these were prominent ideas expressed in teachers' and students talk about their use of ICTs for learning languages, we still note, however, the relative concentration of instructional activities exemplifying Ellis's Principles 1-3, 5-7, and 9, and the relative lack of activities exemplifying his Principles 4, 8, and 10 in teachers' practice.

Transformation of pedagogy

Finally in relation to the test of congruence in their pedagogy, we note that several of the teachers in the study talked of, and exemplified, how they were consciously using ICT-based activities to 'change the way they teach'. For most this involved teachers commenting on the need to change their approach to be more facilitative, less directive in style.

One secondary teacher who consciously used ICTs to 'transform' her pedagogy spoke at length in interviews about how she was attempting to be more like a 'conductor' in the class, and how her experiments with student-produced multimedia presentations and videos in Japanese were helping in that transformation. The lessons featuring student use and control of the ICTs, she said, had been more student-

focussed, involved less pressure on her to 'perform' as the teacher. The students had been generally more motivated, had more opportunity for oral performance in Japanese, and had been exposed to the language in more authentic and connected ways than had often been the case in her more 'book and paper' based lessons.

As she put it:

> *"We learn by doing. I think the perception of language classes is that you sit down and you [just] learn vocab words and stuff. But we should be more like PE classes, and have games, and do it outside, and do our learning as an 'activity'….*
>
> *When we did the exercises from the workbook [it was] to reinforce and highlight things from the movie – like, now you know how to invite somebody into your house, or how to say I'm hungry. And they do. They move back to the movie and they say "Oh, yes, we used that in the movie". They often use the words from the drama that have now almost become second nature to them, and now they are using those words and changing them for different situations… using those patterns that have become firmly in their heads. So the transfer is great… and I think it is the key that they have had to learn the meanings in order to perform a task. It's task-based learning. I often stand in front of a Japanese class and I think 'Why am I teaching this?' 'who cares?' But if the kids have got a purpose and an activity that drives them to have to learn that language it's a huge problem solved. And that's what I think a project like this can achieve. …*
>
> *I've never done this but I should - find out how much a teacher talks, how much a teacher talks in Japanese, and how much the kids speak and listen to Japanese. And previously with this class I've wondered if that is very much. I mean, I don't know for sure, but depending on the class I think listening and speaking in a regular classroom situation, in an old kind of classroom situation, is not as great as it could be. But in this kind of activity, it is constant listening and speaking. And that's the benefit, I think. …*
>
> *I found it quite liberating because it was fun for me as well; and it's a new aspect to teaching. And it opens the doors: I now want to do the comic thing; I want to use Photostory; and I want to get the students more involved in creating their own work in a way that's attractive to them …. I think they should be putting their speeches and skits and things onto their iPods, and so they've got these Japanese sentences in their heads, and then break it up with Japanese pop music … that's learning."*

Other teachers made similar points less comprehensively:

> *"I have to release control and allow myself to be led by the students' realities."*
>
> *"Normally you could just read through it and they'd just parrot what you say, etcetera. But then it's all just words on the page. Here they've actually got to make it work for them. They've got to understand it in order to perform it."*
>
> *"The teacher used to have all the knowledge – now it's everywhere"*
>
> *"This is the issue: I want to know what can be done… with new technologies that is authentic! Not just those 'drilly things' that you get on the Web. They are about consolidating learning. But my concern is how to do things that are more authentic."*

Transparency: The use of new technologies is taken for granted by both teachers and students and students make decisions in relation to the technologies used.

The test of transparency is about the extent of choice and 'taken for grantedness' that is apparent in the use of ICTs for teaching and learning. In analysing the extent of 'transparency' in teachers' and students' use of ICTs in their classes we categorised each observed or described lesson in terms of:

- The extent of attention given during the lesson to the ICTs themselves (as opposed to language objectives). Were instructions and interactions during the lesson about languages or about technical issues like how to work the software, logging on, troubleshooting technical faults etc.?
- The extent of choice students had about whether to use ICTs in the lesson and which ICTs to use.
- The amount of spontaneous, ad hoc use of ICTs that was involved, as opposed to preplanned, formally structured use.

- The extent to which the decision to use ICTs meant disruption of normal classroom routines. In most cases this disruption was low where the students used technologies in their normal classrooms or the teachers experienced little difficulty in booking ICTs or bringing them into the classroom.

As can be seen in the following table, in all of the lessons most or all of students' time and activity was focussed on language learning rather than the ICTs. There were no lessons where technical issues occupied most of their attention, or where familiarisation with the software in itself was the main learning focus of the lesson. In the seven lessons where the language focus was 'moderate' the technical preoccupation usually consisted of time taken at the start of the lesson to set the ICTs up, get students 'logged on', fix machines that were not working etc.

	Language –v- technical focus in student activity	Student choice and initiative in ICT use	Spontaneity in ICT use	Normality of classroom routines
High	••••••••••••••••••••••	••••	••••	••••••••••••
Moderate	•••••••	•••	•••••••••	••••••••••••
Low		••••••••••••••••••••••	••••••••••••••••	••••••••••••

	Language –v- technical focus in student activity	Student choice and initiative in ICT use	Spontaneity in ICT use	Normality of classroom routines
High	••••••••••••••••••••••	••••	••••	••••••••••••
Moderate	•••••••	•••	•••••••••	••••••••••••
Low		••••••••••••••••••••••	••••••••••••••••	••••••••••••

Table 2: Transparency in the use of ICTs in observed classrooms

On the other hand, there was seldom much student choice involved in the lessons, either in the decision to use ICTs, or in the selection of the ICTs that were used. Of the four lessons where student initiation and choice of ICTs was 'high', two were at Year 7 - 8 and two at Year 9 - 10.

Spontaneous or *ad hoc* use of ICTs – where teachers or students used ICTs for only part of the lesson or where they decided mid-lesson to use an ICT - was observed in about a third of the lessons. For some of these the spontaneity consisted of the students rotating as needed through ICT and non-ICT activities. Moreover, many of the lessons where spontaneity was 'high' were so because the teacher used an ICT such as an IWB spontaneously or for part of a lesson, rather than because students were controlling the technology choices.

The extent of 'taken for grantedness' as indicated by the extent to which the use of ICTs was felt to be a 'disruption', 'something extra', or 'different' from normal classroom routines, was quite varied. More or less the same proportion of lessons were rated as 'high', 'moderate' and 'low' with regard to their 'routineness'. It was clear, however, that all of the lessons which were rated as 'low' on this parameter were lessons where the students had to move from their normal classrooms into other specialist rooms to access the technology; and all but one or two of the lessons rated 'high' took place in the normal language classroom. Among the 'routine' lessons were examples of teacher-dominated whole-class instruction,

student presentations or performances to the whole class, and also rotational group work where students moved between ICT-based activities and non-ICT-based activities.

Overall, we concluded that for most of the teachers in the study, the incorporation of ICT-based activities in lessons is still seen as something requiring more planning and preparation than their 'usual' language lessons. It often requires 'special effort' on their part, especially the effort to organise access for all students. Only a few teachers or students used ICTs in a spontaneous or *ad hoc* way, and, despite their general view that ICT-based activities helped make their lessons more 'student-centred', there was little student choice evident with regard to the use of ICTs within timetabled lessons. Most of the latter, it seems, took place outside formal class times, especially for homework and longer term project or presentation work.

Accessibility: *Students and teachers have easy and reliable access to all of the learning technologies they need, when and where they need them.*

The Accessibility test relates to the quality of the physical and the organisational infrastructure that schools put in place to support teachers and students in their use of ICTs for teaching and learning. The accessibility test is about whether students and teachers had access to the appropriate technology (hardware, software, network etc.). But it is also about how effective were the organisational processes (e.g. booking procedures, help-desk, technical/ancillary support), and about the technical capabilities of students and teachers when using specific technologies (e.g. the level and appropriateness of PD undertaken). It is noted that because accessibility issues are infrastructural issues, resolution of most of the problems that may arise relating to them lies outside the control of the students and teachers themselves. They are predominantly issues which need resolution by senior management in the school, and are often school-wide in import.

We found that accessibility was high and relatively unproblematic in two thirds of the observed lessons, whether they were held in normal classrooms or in dedicated computer 'labs'.

Observed 'accessibility' problems which led to noticeable student off task behaviour or obvious interruptions to the lesson flow, included:

- Students or staff not knowing how to use important features of a particular piece of software: (five instances).
- Network issues (e.g. slow loading or technical malfunctions while loading networked files) (three instances).
- Booking issues. Double booking of lab so class had to be split among 2 labs and the normal classroom (three instances).
- Some machines either not working at all, or were unable to handle high-spec multimedia software (four instances).
- Students forgetting passwords (two instances).
- Poor visibility of projected material (two instances).
- Insufficient physical space for the whole class to work in one room (one instance).

There were eight instances where students had to share technology, or use it on a rotational basis. However, such sharing or rotations were not in themselves necessarily disruptive to the lesson or the students. Indeed, it sometimes added to the extent of conversation around language learning that occurred, and in at least four of the instances group work or activity rotation was something that the teacher deliberately planned for. However, this could be disruptive when it was not planned for as a deliberate part of the pedagogy of the lesson.

In the interviews with teachers and students we were also told of several other accessibility issues that had arisen in other, non-observed, languages lessons. The secondary teachers in particular, reported that accessibility to hardware can be a problem when the computer suite has to be booked. Several of them commented how important it was to them to have data projectors and interactive whiteboards

permanently accessible in their 'home' classroom, although we only saw a few instances where these were student-controlled rather than teacher-controlled.

Strategies some teachers used to work round accessibility issues included rotating students around ICT-based and non ICT-based activities, sending some students to the library and/or a computer 'lab' while others worked on paper activities, and co-opting or reconfiguring old technologies (e.g. the Māori teacher's use of Listening Posts and cast-off old desktop PCs at Napier Boys' High School).

Access to certain dedicated language programs and to the Internet was also reported to have been problematic in between our visits. What several of the teachers saw as 'restrictive' school systems around security and 'internet safety' meant that on one occasion a dedicated language program was lost from the school intranet, and on several others students reported not being able to access certain internet language websites because of firewall restrictions. Teachers also reported several more technical specification issues, including one instance of digital learning objects not being compatible with the school's computer operating system upgrades. The multimedia aspects of most of the ICTs that could be most useful in learning languages require that the ICTs used in learning languages need to be highly specified in terms of processor and networking speeds, memory capacities, and multimedia functionality.

The School perspective – managing the use of ICTs for learning languages

Many of the school-level issues influencing the use of ICTs have been discussed in the previous section on Accessibility above. In this section we outline the main barriers reported to effective use of ICTs for teaching and learning languages in three main areas:

- The availability of and access to ICTs.
- The availability of technical support.
- Professional development and time issues.

Availability and access

Teachers in all schools commented that, in one way or another, and at one point or another, their use of ICTs was compromised by availability and access issues. Few teachers in secondary schools had computers available in their 'normal' classroom, other than their TELA laptops, which they would use in conjunction with a data projector or IWB if available. Exceptions included the Māori teacher at Napier Boys' High School, who had begged and borrowed five old desktop PCs that he had installed in the Māori room, and the French teacher at Rangi Ruru, who had a suite of around a dozen machines in a nearby annex. In most cases, teachers had to book computer suites in competition with teachers of other subjects. In some cases, there were issues with double booking of these facilities. These suites could be very close to the home language classroom, as in the case of Christchurch Boys' High School, or could be located a considerable distance away, as at Lincoln High School. Valuable teaching time could be lost as a result of students needing to walk to remote computer suites. In addition, competition for the suites usually meant that students did not have free access, and that use of ICTs by the students was seen somewhat as a 'special occasion' rather than seamlessly integrated in to the languages programme. In most cases, there were perennial problems with computer breakdowns, and more trivial access problems such as students forgetting their user names or passwords. Some teachers, for example at Christchurch Boys' High School, mentioned that the goal of the languages department was to have its own computer suite as a direct consequence of this kind of difficulty in accessing school-wide facilities shared with other departments.

In some cases, teachers did not have video equipment or a data projector, the latter being essential to classroom use of resources from the teacher laptop. The data projector had to be booked, and carried by the teacher to and from the classroom, wasting valuable time. Even when a data projector was available, there were occasions where the projected images were difficult to see.

In the primary and intermediate schools it appeared that access to computers was less of an issue than in secondary schools. In some cases, such as Papatoetoe Intermediate, the class had a pod of laptops in the

room, whilst at Te Atatu, the school had a 'Cybercafe' that doubled as a languages home room. At Westburn, the teacher had made a bulk booking of one of the school's pods of laptops.

Once students and teachers had access to computers, the problems were not necessarily over. In several cases, school policies restricted access to the Internet, blocking the availability of sites such as *YouTube*, and restricting the potential use of Web 2.0 applications such as blogging or podcasting. One school was reported to have blocked teachers from loading *Flash* software, essential for playing multimedia Internet files. In other cases, slow Internet connections restricted the use of online media. Some teachers partially circumvented these obstacles by pre-recording downloaded materials for later display using a data projector. Some schools also had restrictive policies in place that prevented students displaying material they had found at home and saved on flash drives or CDs.

Many schools used the local intranet to load language programs, and to store other resources, and for students to download their work. Sometimes teachers found that resources such as whole programs had disappeared, especially after upgrades to the school's network, or when trying to access resources from a communal computer suite. On other occasions, some programs or resources became inaccessible, or had limited functionality, after software upgrades – an example being *Language Market* after a Windows upgrade. This could result in expensive purchases of new versions of languages programs.

Other network issues included server problems. The teacher at Te Atatu Intermediate, for example, despite having excellent facilities including a room with 60 computers and two IWBs, experienced server problems that disrupted lessons on several occasions. In other cases, teachers mentioned problems with saving material to the server. At Massey High School, student work in computer labs could often not be saved, so the teacher rarely scheduled classses into these rooms.

Other software accessibility issues included an instance where the only video editing software available was on the teacher's laptop – restricting students' ability to carry out multimedia tasks. In other cases, older computers were unable to handle current multimedia software.

All teachers used their laptops to support their language teaching, often displaying programs and resources using a data projector or IWB where available. Those teachers who had these facilities in their classroom commented on their great value in language teaching and learning, and schools are to be encouraged to provide at least a data projector in all language teaching rooms.

When data projectors or IWBs were used to support language teaching and learning, it was often necessary to have working loudspeakers to share audio content, for example in working with the Chinese language CDs with the *Ni Hao* texts. These audio systems were often vulnerable to breakdown as a result of the use of classrooms by several teachers. Another teacher reported IWB software glitches that caused the correct answers to exercises to be rejected – causing confusion for students.

Only one of the classes in the study used mobile devices, and two used Web 2.0 applications, such as blogging and podcasting, in their language programmes. The teacher that attempted to create student podcasts was bedevilled by school Internet access policies and specification issues. These social technologies afford exciting possibilities for enhancing student communication and interaction, and are being actively pursued overseas in language teaching and learning (see research by BECTA, 2008; Kulska-Hulme, 2006), and in New Zealand schools in other subjects (Twiss, 2008, O'Neil et al, 2007, Burt, 2008). Although it may be thought that the use of mobile phones to support learning may be prohibitively expensive, most students have unlimited txt accounts, and the use of the audio, video and image recording facilities are free. Even mobile Internet access can cost as little as $1 per day.

Technical support

The level of technical support also varied from school to school. The technical support at Christchurch Boys' High School was generally reported as good – the evaluator was introduced to the ICT technician, and was present on a couple of occasions where he assisted the teacher. However, the Chinese teacher at this school also mentioned that the technician has had to work hard to understand the specialist needs of language teaching, especially with regard to Asian languages. At Rangi Ruru Girls' School, too, the technicians offered a high level of support, and often suggest new ICT ideas for the languages department to try out.

Other schools were not so well served. In several schools there was severe under provision of technical support. In one secondary school with over 100 teachers, there was only one technician, who was reported as being unhelpful, and to have laughed at problems with three year old laptops. Here, there were frequent computer or server crashes, and the teacher reported having no one to call on, and feeling unsupported.

There were several instances where students provided technical input – notably with programs that teachers themselves were not familiar with. One example of this was at Westburn, where a Year 8 student taught the whole class how to record voice-overs to add to *PowerPoints*, and the French teacher at Riccarton mentioned his willingness to rely on his students for their expertise with ICTs.

Professional Development and teacher time

There was often a lack of professional development for teachers to make the best use of ICTs in their language classes. A number of teachers commented on the lack of Professional Development to support their use of IWBs. At Massey, teachers had no IWB training, and had to work out for themselves how to use them, and the teacher at Edgewater *'floundered to begin with'*. Others did not use their IWBs, or failed to make full use of them, using them merely as screens for the data projector. For other teachers, lack of time was a limitation in learning to make full use of the boards and other ICTs. One teacher mentioned spending around eight hours per week planning ICT activities, but was beginning to find that she could reuse previously prepared material. In another instance, the Māori teacher at Napier Boys' High School commented on the time investment he had to make in producing resources and units of work. Most teachers spent significant amounts of time creating IWB or other activities – such as *Excel*-based quizzes etc. Finding appropriate online materials was also reported to be very time consuming.

Some teachers mentioned involvement in school wide ICT PD cluster programmes. In some cases, the Professional Development that teachers received was seen as being of great use in a general way, but limited in terms of its specific relevance to *learning languages*. There were cases where, due to lack of time, training or technical support, teachers and students did not know how to use important features of some software.

However, the picture was not altogether gloomy. Language teaching teacher associations sometimes provided professional development tailored to the needs of language classes. Thus the Canterbury branch at the NZALT ran a successful weekend workshop that included the use of applications such as wikis, podcasting and *Deli.ci.ous* bookmarks in language teaching, and another workshop was planned for 2009. Similarly, the teachers at Takapuna Normal Intermediate School were fully supported by the school to upgrade their qualifications in languages and to attend Advisory and other courses at Auckland University focusing on the pedagogy of learning languages.

As well as this time, some teachers spent their own money on e-resources and equipment to support their language teaching. Thus the French teacher at Riccarton bought French Singstar disks for his classes, and has recently purchased a French *Playstation* version of *Trivial Pursuit*, and the Chinese teacher bought a DVD recorder to capture Chinese language programmes for his classes.

CONCLUSIONS

Exposure to language

In the schools observed it was clear that ICTs were used for a variety of activities, and drew on a wide spectrum of available resources, allowing greatly increased exposure to authentic language and culture. One of the major advantages seen in the study was that the simultaneous audio and visual stimuli or written language/script and associated colourful pictorial stumuli provided by many ICTs often enabled students to make effective language associations. This improved their assimilation of vocabulary, formulaic phrases, language structures and cultural understanding in ways which would have been prohibitively cumbersome, if not impossible to replicate just through non-ICT-based activities.

In all schools, ICTs provided authentic input through use of teacher made resources, proprietary programs, Internet based resources, foreign language news and cultural programmes, or *YouTube* clips and popular songs. Students in the study appreciated the opportunity to listen to and imitate a wide variety of native speakers rather than the teacher being the only source of target language input. The resultant awareness of correct intonation and pronunciation would not have been as possible in non-ICT classrooms. ICTs also allowed for considerable and varied input and repetition using programs with a strong emphasis on reinforcement activities. These improved language recognition and retention by means of active, personal involvement by the students. Being able to go back as often as necessary over audio or written input on an individual basis ensured greater understanding. This also removed the barrier for students of being seen to be slower than others. The availability of graded tasks provided different levels of cognitive difficulty; and self access to ICT resources allowed for student directed immersion, so that students could make independent decisions about the pace and direction of their learning**.**

No teachers attempted to use the target language consistently as the language of instruction in the classroom, and virtually all instructional interactions and conversations were in English. This is an area where input provided by ICTs can be complemented by teacher input.

The use of ICTs to supplement language learning programmes was particularly important in intermediate and primary schools, where teachers were teaching the language without themselves having extensive language backgrounds.

Use of language

The range of resources available through ICTs allows for differentiated learning, enabling all students to experience success. While the output observed in this study varied in length and complexity, the instant graphic and verbal individual feedback which ICTs can provide was seen to have a positive influence on motivation, and allowed students to learn from their own mistakes as they developed their understanding of the language. ICT based programs provided security, support and challenge as students experimented with the target language through graded activities. Researchers noted positive learner response to reinforcement activities including games and quizzes which provided enjoyment, competition and/or interactivity. Improved language acquisition was a direct result of this. Learners were able to make mistakes as they wrote or spoke the target language. The instantaneous feedback provided individually to students by such programs motivated students to improve accuracy through self-correction. A word of caution, however, should be given to schools lacking a qualified language teacher about the use of language learning software. Even very good software is no substitute for a qualified teacher. This was evident in one school where students wrote script out in English then used online translation software to complete output. Students of Japanese and Chinese particularly appreciated the availability of Asian language software that enabled students to output in authentic scripts; and which had a strong influence on script acquisition.

The ICT supported classroom facilitated individual, pair, group and whole class work as the lesson moved seamlessly from input to output and students attempted to express their own ideas. Peer tutoring and support increased learning outcomes. Students critiqued each other's output; and larger group efforts

induced a higher level of meta-cognition as students tested hypotheses about grammar and ways of expressing themselves. The wide range of resources and programs available through ICTs enabled students to risk actively engaging in producing target language in far greater amounts than usually seen in a non-ICT classroom. Yet teachers still struggled due to lack of New Zealand curriculum appropriate resources both in the area of proprietary software and in the TKI *Digistore*. At Achievement Levels 1 and 2, the levels at which most students were working, output was generally limited to basic vocabulary and sentence building and there was little free use of language. The creation of videoed role plays and of individual *PowerPoints* and task-based activities brought forth a wider range of less prescribed language use. These usually involved language learners with two full years of study behind them. However, more effort could be put into inventing appropriate tasks to elicit more unscripted output from all learners.

Interacting in the language

Many of the activities outlined in this report involved controlled production in interaction with the computer, with students repeating after the native speaker or typing answers (words or phrases) into language programs such as *Expo Électro* or *Language Market*. There was little evidence of email, blogs or wikis, or other Web 2.0 applications being used to facilitate more conversational interaction, perhaps due to the limitations of early target language knowledge, limitations of teacher ICT skills, or restricted web access. Schools which did initiate email or other ICT mediated contact with sister schools often found the project foundered due to time differences or reluctance on the part of the partner school. Nevertheless, the keenest language learners managed to continue private correspondence with overseas contacts, although the amount of target language use was not clear.

Most speaking exercises observed were conducted apart from, or as a short follow up to, the ICT component of a lesson. However, as teachers pointed out, the greatest use of ICTs to support speaking was by enabling the teacher to make stimulus material for communicative tasks to be carried out away from the computer.

The most common and effective interactions observed were in the form of scripted and recorded video role-plays based around authentic or meaningful situations. Scripted pair activities were also a powerful tool for learning, with students designing their own role-plays, recording, viewing, reviewing, critiquing and improving the material and their own performance.

Most interactions seen by researchers were scripted, with little evidence of students initiating interactions using their own spontaneous words.

Reflecting on culture

Language and culture are inextricably intertwined and this was evident in many of the ICT supported classrooms we observed.

The highly visual and auditory nature of ICTs increased awareness, engaged the learners' imagination and encouraged reflection, further exploration and comparison with their own culture. Viewing current visual materials helped the students to become aware of the similarities and differences between the New Zealand and target cultures. Much of the student understanding at the early stages of language acquisition was implicit, through having access to accurate and authentic visual and verbal impressions provided by websites, video clips and images. Students were at first intrigued by social customs and then after seeing them presented repeatedly began to 'normalise' the initially unfamiliar behaviour. Many students in the study felt that the cultural aspect was one of the most interesting and rewarding aspects of language learning made accessible by ICTs, and were keen to learn more using the more interactive sites such as the Louvre on line.

Evaluation of learning outcomes

In general, we did not observe large amounts of formal evaluation of learning outcomes in relation specifically to the ICT-based activities. Teachers frequently alluded to the effects of ICT use on student understanding, vocabulary and appreciation of linguistic structure. In some cases, teachers used data gathered from student performance on programs such as *Language Market* for formative assessment, and student performance in role plays and in producing output such as *PowerPoint* presentations provided further data. Some teachers used the production of video or *PowerPoints* as opportunities for students to 'show off' their language skills at the end of the year. More often the assessment element was seen to be an integral part of the high level of feedback offered by the more interactive of the ICTs used. As one teacher commented the *"combination of student comment and feedback, teacher observation and professional judgement [was enough to] indicate that student interest and engagement is increased and leads to improved oral and written production."*

Barriers to the use of ICTs in language learning

There were issues for most schools with regard to availability and access to ICTs. This included hardware, software and networking issues. Many schools had insufficient provision of computers or other hardware, or machines that were unreliable, old or could not run current software. Incompatibility following network upgrades was also a problem for some. Some school Internet access policies seemed to limit the range of online resources and activities available to teachers and students.

Access issues were compounded by a lack of technical and ancillary staffing in some schools, leaving teachers feeling unsupported. In some cases technicians were so busy that they were unable to respond quickly to teacher needs. For language teachers and learners to be able to use ICTs to their full potential, many schools need more technical staff, ideally with knowledge of the special requirements of language teachers.

Lack of sufficient and appropriate professional development for teachers was noted in several schools. An obvious lack was in teacher PD to use IWBs to their full potential. Linked to this lack of PD is the pressure on teacher time. Integrating ICTs into a teaching programme takes considerable planning, especially in the early stages, whilst teachers are becoming familiar with the ICTs and building up collections of resources. This time pressure may become more manageable in subsequent years as teachers recycle resources for future iterations of language programmes.

We also note that the professional development needs of languages teachers at primary/intermediate schools and secondary schools are similar, but their priorities may be very different. While both secondary specialist language teachers and primary/intermediate generalist teachers need continued support with respect to the integration of ICTs into their teaching and learning, the primary/intermediate school generalists also have significant, and arguably more important, PD needs with respect to both their own language proficiency and with regard to their knowledge of how to teach languages.

Teachers in many schools have worked in some very creative ways to minimise the effects of some of these barriers, although in many cases these work-arounds do not produce ideal solutions. The lack of ICT resources can be addressed by careful use of group work to cycle students between ICT based and 'conventional' activities; and teachers have spent their own time (and money) to obtain and master the use of ICT resources.

Limitations to the present study

There are several important limitations to the present study. The study was limited to Year 7-10 classes in full primary, intermediate and secondary schools located initially in the Christchurch and Auckland regions, though this was later extended to include a school in Napier. This choice of regions was made for budgetary reasons, but automatically excluded effective practice that might be occurring in other areas of the country. For example, we have since learned of a teacher in a smaller centre who has been using the *eXe* XHTML editor to produce Spanish language web content.

Our choice of teachers was guided by advice from the National Coordinator and the Language Advisors, supplemented by our own networks. Some teachers identified proved not to be available for the evaluation, and the one teacher of Māori we were able to find in the first cut later withdrew, necessitating the search for a replacement.

We had a reasonable spread of schools that included both single sex and co-educational, with a wide range of student ethnicities, and a decile range from three to ten. However, our selection did not include schools that can be described as truly rural.

The range of languages studied includes European and Asian languages, and Te Reo Māori. We hoped that we would also be able to locate a school using ICTs to support the teaching of a Pasifika language, but were unable to do so. There was originally talk of including German and Latin, but we found no suitable instances.

We were hoping that data from our selection of schools and teachers would be supplemented by action research data from schools working with Language advisors. In the event material from this action research was not available.

We were unable to observe the use of Web 2.0 social software such as blogs, wikis VoIP and podcasts, or the employment of mobile technologies in language learning. We are confident that there are teachers in New Zealand experimenting with their use, certainly in the case of Web 2.0 technologies, but believe that they were not employed in the evaluation cases largely because of schools' restrictions on Internet and mobile phone access and use. However, we have been informed that more senior classes may be making more use of social networking in their language studies.

We are aware that students in several schools used ICTs outside the classroom to further their language and cultural knowledge and awareness. Students have located music, videos and sites devoted to the target languages, and in some cases have used applications such as email and Skype to communicate with contacts overseas. We have been unable to observe students engaging in these activities, nor (to our great regret) were we able to travel overseas with school visits to ascertain the effects of students' language learning on their ability to interact in the host cultures.

The situation regarding use of ICTs in language teaching and learning is evolving rapidly both in this country and overseas. We are aware that most of the teachers involved in the present evaluation have developed and extended their repertoire of ICT knowledge and skills, and that students are also suggesting applications, media and websites that may aid language teaching and learning. Given the rapidity of technological change, and the ‘newness’ of the implementation of the learning languages curriculum in primary and intermediate schools, it may be that some of our findings would be different if the evaluation had started in 2009 rather than 2008.

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GLOSSARY OF TERMS AND A NOTE ON USAGE

Note: In this document, the word **program** is used in the internationally accepted way to refer to computer software. The spelling **programme** is used to refer to programmes of work, or to television programmes, as is the accepted New Zealand and English convention.

Glossary of Terms

Audacity	An open source audio editing program
Comic Life	A comic production software
COWs	Computers on Wheels – refers to trolleys of laptop computers used in many schools
Delicious	A Web based social bookmarking service
EPS	Educational Positioning System – an online tool developed by CORE Education for whole school review and development
Excel	A proprietary spreadsheet program
Expo Électro	A proprietary language learning program often used to reinforce input
Flash	Software to run multimedia files
Hot Potatoes	A software suite for creating exercises, quizzes etc
ICTs	Information and Communication Technologies – referring to all forms of digital technologies used for teaching and learning. In the present report, the term ICT is used as an adjective as in 'ICT based learning'.
Internet	The principal global system of interconnected computer networks
intranet	A private computer network that may be accessible via the Internet
IWB	Interactive Whiteboard
Language Market	A proprietary language learning program often used to reinforce input
Linguascope	A proprietary language learning program often used to reinforce input
Listening Post	An older form of technology used to play audio recorded content to a number of learners simultaneously
MP3	A format used in recording audio files
MSN	Microsoft Internet messaging application
Open Office	An open source suite of office software
Photostory	A comic production software
Playstation	An interactive gaming system

podcasts	A method of publishing files, usually audio or video, to the Internet, allowing users to subscribe to a feed and receive new files automatically by subscription.
PowerPoint	A proprietary slideshow presentation software
Rosetta Stone	A proprietary language learning program often used to reinforce input. This program incorporates speech recognition to allow feedback on output
Singstar	A Playstation based singing competition program
Skype	A common VoIP program
TELA	The Ministry's Teacher laptop initiative
videoconferencing	A live video and voice communication between two or more locations
vodcast	A video podcast
VoIP	Voice over Internet protocol – a software convention for computer based phone communication
Web 2.0	A second-generation of Internet-based services - such as social networking sites, wikis and communication tools - that let people collaborate and share information online
wiki	A website or similar online resource which allows users to add and edit content collectively
Word	A proprietary word processing program

APPENDIX 1 – SCHOOL DEMOGRAPHICS

School	Decile	Ethnic Percentages				
		Pakeha	Māori	Asian	Pasifika	Other
Auckland Girls' GS	5	29	22	10	31	8
Christchurch Boys' HS	9	78	7	13	2	0
Edgewater College	4	24	19	30	27	0
Lincoln HS	9	89	8	2	1	0
Massey HS	5	50	16	12	13	9
Napier Boys' HS	5	72	23		3	2
Papatoetoe Intermediate	3	14	23	27	32	4
Rangi Ruru Girls'	10	80	4	8	0	8
Riccarton HS	7	59	6	23	5	1
Takapuna Normal Intermediate	9	55	2	36	3	4
Te Atatu Intermediate	5	33	34	6	26	1
Westburn Primary	9	68	1	21	0	10

**Note: Napier Boys High replaced a Christchurch school that initially offered to participate for Māori. Visits out of Christchurch anda Auckland were not originally budgeted for, but the visit to Napier was possible by 'piggybacking' on a visit relating to another project.*

APPENDIX 2 – LANGUAGES AND ICTS

School	Year level	Languages	ICTs	
Auckland Girls' GS	9/10	Japanese	PowerPoint; digital video editing; internet searches	
Christchurch Boys' HS	9/10	Chinese		
Edgewater College	9/10	Japanese	Computers Data projector Teacher laptop for voice recording Video cameras Word (for Unit Standard Assessments) Webquest PowerPoint Hot potatoes and teacher made resources Games/quizzes Jap keyboard to input Japanese script CDs Language Market MP3 players	
Lincoln HS	9/10	French	PowerPoint, Web search, Intranet, YouTube, Clickview, Audacity podcast, email	
Massey HS	9/10	Spanish	IWB Many teacher made resources and games Videos PowerPoint Audacity Student to teacher email in English	

School	Year level	Languages	ICTs	
Napier Boys' HS		Te Reo Māori	Data Projector Audacity PowerPoint Listening Post Internet *PowerPoint*	
Papatoetoe Intermediate	7/8	Spanish	Smartboard Laptops "Si" Ministry Internet beginner programs Youtube Games /quizzes Podcasting Linguaphone	
Rangi Ruru Girls'	9/10	French	Internet, Dfilm, Comic Life, Data Projector, Audacity, PowerPoint, YouTube, video	
Riccarton HS	9/10	French, Japanese	Expo-electro, data projector, Singstar, IWB, YouTube	
Takapuna Normal Intermediate	7/8	Spanish, French	Readymade programs; MP3 players, videoconferencing; e-portfolios; online discussion forums; blogs; video puppet performances; Linguascope; Rosetta Stone	
Te Atatu Intermediate	7/8	Japanese	IWB Internet programs PowerPoint	

School	Year level	Languages	ICTs	
			YouTube Word (reports on culture) Authentic video Teacher made resources Video camera	
Westburn Primary	7/8	French	Video Digital Photography Comic Life *PowerPoint* Internet Language translation site Data projector	

APPENDIX 3 - GRID FOR ANALYSING STUDENT ACTIVITIES IN LANGUAGE CLASSES

Teacher _____ Language _____ School _____ Date _____

Year Level _____ Number of periods per week/ 6day cycle _____ Years learning language _____

Item	Component	Examples	Notes
Exposure to language Teacher made material Commercial language teaching sites? Authentic websites (which language)? Other student's work?	Listening	Indicators: • Concentration and speech output • Rewinding/going back to listen again (recorded material) • Listening attentively to video or recorded information	
	Reading	• Reading TL information on Smartboard • Recognition of individual TL words or set phrases in any context • Skimming for information • Reading in target language to locate specific information in order to do a task	
	Viewing	• Sites for information on culture • Sites presenting language • Movies or animations	
Using Language	Speaking Indicators: • Repeats words/phrases	Repetition after computer voice Recognises and seeks out new words to pronounce Sounding out strange word TL word/s to self Reading instructions aloud to partner Using TL word/s to ask/reply to questions Recording in TL	

Item	Component	Examples	Notes
		Memorising and saying prepared speech/podcast Recording prepared TL information on video Recording information on PowerPoint Volunteering answers e.g. while others working on Smartboard	
	Writing Accents in correct place or TL script used for Asian languages Awareness of accurate spelling and grammar	• Entering words or phrases • Writing short phrase or sentence • Filling in required information • Writing joined sentences • Writing paragraph • Writing on Smartboard • Reworking information • Writing to penpals	
	Performing	i. PowerPoint created ii. Podcast created iii. Presents role-play iv. Presents video/newscast	
Interacting in Language		v. Interacting to examine culture(see below) vi. Asking neighbour/teacher for help or information vii. Woking co-operatively on a task viii. Co-authoring a task ix. Volunteering to write on Smartboard etc x. Using peers to scaffold up knowledge	
Culture and culture in language	Material viewed is of target language country Or authentic	• Extracting cultural information from authentic sites • Viewing material explaining cultural matters e.g. gestures • Understanding geographical and historical facts of TL country • Exchanging idea with TL students	

Item	Component	Examples	Notes
	people/objects		
Reflecting on culture	Interaction with peers to question new surprising information (comparison with own culture) Curiosity shown and often attempts to find out more similar information	• Expressing surprise about different mores and ways of behaving • Making comments showing student is noticing differences or similarities with own culture • Reasoning when confronted with apparently different information and making cultural comparison with own situation	

APPENDIX 4 - GRID FOR ICT INTEGRATION INTO LANGUAGE TEACHING

Teacher _____ Language _____ School _____ Year Level _____ Date _____

	Evidence	Example	Notes
The lesson – what it covered			
Ubiquity ICTs as part of the whole lesson? One or several ICTs?			
What is the language aim of the lesson (see also language grid)			
Accessibility Which ICTs How physically accessible? Did it all work?			
How connected was use of ICTs to other language activities? In time? In place?			
Taken for grantedness Is the focus on the technical aspects, or on the language? Who decided to use ICTs			

Grey items – much of this data can be collected by interviewing teacher/students. White areas – principally by observation

1. A criterion related to 'ubiquity' (range and variety of use, curriculum relevance etc).
2. A criterion related to 'challenge' or 'power' in learning (e.g. higher -v- lower order thinking, creativity, authentic contexts, student engagement etc).

3. A criterion related to ‘accessibility’ (the extent and ways in which technical infrastructure supports or hinders ICT usage).
4. A criterion related to ‘connectedness’ (the coherence of a teacher’s ICT practices with curriculum objectives as assessed in terms of *New Zealand Curriculum (2007)* statements and Essential Skills, and coherence with their pedagogical beliefs, as assessed along a continuum from pragmatic/instructional to laissez-faire orientations.
5. A criterion related to ‘prominence’ or ‘transparency’ (how ‘taken for granted’ is ICT usage for teaching and learning?)

APPENDIX 5 - INTERVIEW FOCUS QUESTIONS FOR TEACHERS

Name of Teacher _____ School _____

Language _____ Year level _____ Date _____

1. How long has the teacher taught the language?
2. What are her language aims?
3. What ICTs does she use and why?
4. What is the purpose of integrating ICTs in to the language teaching and learning
5. How do you evaluate the effectiveness of using ICTs in language teaching and learning?
6. How does using ICTS help you meet your language objectives?
7. What uses of ICTs are particularly effective in helping students learn? How do you know?
8. What barriers did you need to overcome?
9. How did you overcome them?
10. What would you do differently next time?
11. What suggestions do you have for other teachers who are beginning to use ICTs in language learning and/or who are new to language teaching?

APPENDIX 6 - INTERVIEW FOCUS QUESTIONS FOR STUDENTS

Name of Student _____ School _____

Language _____ Year _____ Date _____

Interviews with students:

1. What's the best part of learning this language?
2. What do your teachers get you to do with ICTs that help you learn the language?
3. How well do you think you write and speak the language?
4. How does using ICTs help you with your language learning?
5. In what ways does using ICTs increase your interest in the language?
6. How does using ICTs get you thinking about what it's like to live in an X speaking country?
7. What have you learned through ICTs about the similarities and differences between your culture and X culture?
8. How has using ICTs helped you to think about what the similarities and differences mean for you?
9. What are the disadvantages of using ICTs in language learning?
10. Is there anything that makes it difficult to use ICTs in learning the language?
11. What things help you to use ICTs in learning the language?

APPENDIX 7 - PARENT INFORMATION AND CONSENT DOCUMENTS

(on CORE letterhead)

Dear parent/caregiver

Learning Languages Research

Learning Languages is an exciting, new area in the New Zealand school curriculum. Your child is in a class that uses ICTs, such as computers, the Internet or mobile phones, in original ways to help learn a language.

CORE Education is carrying out research for the Ministry of Education to find out how teachers and students use ICTs in new and interesting ways to learn languages and find out about different cultures. We will be reporting what we find out, and will write case studies of good teaching and learning to help other language teachers use ICTs well in their classes. We ask you to agree to your child being included in this ground breaking research.

I've included an information sheet so that you know what is involved, and a permission form for you to sign and return to your child's language teacher.

I am sure that you will agree to him/her being a part of this pioneering research.

Yours sincerely

Michael Winter
SENIOR RESEARCHER

✂----------Please cut here and return form to your child's language teacher----------

Learning languages with ICTs research

I understand the information sheet about this research.

I ***agree/do not agree*** (please cross out which one does not apply)

To my child: _____ (name) taking part in this study.

Signed: _____

Relationship to child: _____

Date: _____ 2009

Information sheet for parents

CORE Education Ltd is carrying out research on behalf of the Ministry of Education in *Learning Languages*, the new essential learning area in the New Zealand National Curriculum.

The purpose of the research is to find examples of good language teaching and learning using ICTs such as the Internet, computers or mobile phones.

Your school has been selected as being one which makes good use of ICTs in language teaching and learning, and we wish to invite students and teachers to participate in our study.

Our experienced researchers will be reporting on how students learn languages using ICTs, and what they learn. They will also write case studies of good teacher practice. These case studies are intended to help other teachers use ICTs effectively in language teaching and learning.

All data collected will be confidential to the CORE Education research team, and will be securely stored at CORE Education Ltd. Data will be destroyed within five years of its collection.

The resulting reports may include quotes from interviews etc, but will not identify people who take part in the study. Later, we may ask for permission to include people's photos or video clips in the case studies or in other publications about the research, but they will not be identified by name.

We are sure that you will agree to your child taking part in this important study, and enclose a permission form for you to fill in.

People who agree to take part will be able to stop taking part at any time. This will not affect students' progress in their language classes.

If you need any more information about the project, please contact:

Dr Michael Winter
CORE Education Ltd
PO Box 13-678
CHRISTCHURCH 8141

DDI: 03 379 0715
Mob: 021 225 8620

Ethical approval for the project has been obtained from CORE Education's ethical advice group which includes researchers from academic institutions.