



THE IMPACT OF WEB 2.0 TECHNOLOGIES IN ASIAN LOTE CLASSROOMS

**NATIONAL ASIAN LANGUAGE AND STUDIES IN SCHOOLS PROGRAM
ICT PROFESSIONAL DEVELOPMENT PROJECT - 2010**

Evaluation Report

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EXECUTIVE SUMMARY

Background and Research Approach

The National Asian Languages and Studies in Schools Program (NALSSP) is designed to increase opportunities for school students across Australia to become familiar with the languages and cultures of China, Indonesia, Japan and Korea. In Victoria, the Department of Education and Early Childhood Development (DEECD), Independent Schools Victoria (ISV) and the Catholic Education Commission Victoria (CECV) are working cross-sectorally to implement the NALSSP. A key initiative within this state is the NALSSP ICT Professional Development Project (ICTPD). It aims to increase the ICT proficiency (Web 2 technologies in particular) of teachers in the targeted Asian languages, and to expand the use of these technologies as a teaching and learning tool within Asian Languages other than English (LOTE) classrooms.

The overall evaluation of this project was designed to address the following: ***'Are student learning outcomes improved through the integration of Web 2.0 technologies in LOTE teaching practice? If so, to what extent, in what ways and under what circumstances?'*** A mixed method approach resulted in an extensive range of data collected from principals, teachers and students across all schools. More focused studies were also conducted in selected schools.

The Impact of NALSSP ICTPD on Teaching Practice

For many of the LOTE teachers involved in NALSSP ICTPD, using ICT in their classroom, particularly Web 2.0 technologies, was relatively new. The induction program and the ongoing interaction with the DEECD NALSSP Project team and the other participants, provided strong support as they explored the different technologies, developed their project plans and implemented their projects.

The focus of the projects and the Web 2.0 technologies used, varied across the 51 participating schools. However, there was strong agreement that using Web 2.0 technologies in these projects aligned well with their planning and implementation of VELs, the Principles of Learning and Teaching (POLT) and their specific teaching goals.

The introduction of Web 2.0 technologies in the LOTE classrooms resulted in some extensive changes to the way LOTE was taught and in many ways changed the student teacher relationship in the classroom. Student focused learning replaced the more structured, teacher directed approach. Hand held Web 2.0 devices, provided individualised applications that increased the level of self paced, personalised learning and assessment. Relationships between teachers and students changed as they explored the potential of the Web 2.0 technologies together and as these technologies created new options for more independent, student directed learning.

The extent to which students were working collaboratively in groups also increased. The Web 2.0 technologies provided new ways for students to interact with their peers and demonstrate their collaborative learning. Projects with younger classes were established as teachers recognised the benefits of peer teaching, both for the student 'teachers' and the 'learners'. The technologies also provided students with new and more engaging ways to demonstrate their learning, many of which were more public, encouraging them to review, practice and improve their LOTE skills.

The portability of the technologies offered greater flexibility in how and where students learned LOTE. In addition to the LOTE classroom, they were using them in the playground, on the school bus and at home. The learning environment was also extended as Skype, Elluminate and video conferencing facilities created opportunities to interact directly with students from the relevant countries, This provided authentic opportunities for students to use and develop their language skills and increase their understanding of the life and culture in the country. Some teachers also used these technologies to link to classes in more local schools that were learning the same LOTE language.

Wikis, Blogs and Nings were set up to extend these interactions. They also provided a valuable forum through which students could collaborate on group projects and teachers could access student work and provide individual feedback and assistance.

Trialing the various Web 2.0 technologies gave teachers the opportunity to learn more about their scope and potential. The changes to their teaching practices provided them with evidence and clarified and stimulated deeper thinking in regard to how to use these technologies more effectively and in new ways in the future.

The Impact on Student Learning

The major change from teacher centered to student centered learning, resulted in LOTE classes where students were more motivated, engaged and demonstrating greater effort and independence in their learning. They were taking responsibility for how they learnt, working more collaboratively with their peers, and self assessing. Many noted how much more they were learning through the LOTE Web 2.0 technologies. They recognised the changes they had made in their LOTE learning and achievement and were now keen to continue learning LOTE in the future.

Many examples were given that demonstrated the positive impact of the technologies on student attitudes to learning, their work effort and the quality of their work, The links to an authentic audience, which featured in many of the projects, gave students more purpose and incentive to ensure their work was of the highest standard. Students were independently practising reviewing and improving their work to ensure that they had the correct vocabulary and intonation.

Teachers were also confident that their new approach to teaching LOTE was generating increased skills in students' LOTE learning, particularly in terms of understanding of the language and culture, speaking the language more fluently and confidently and writing the language. This was most notable in some students who had previously lacked the confidence, skills and motivation.

The need for teachers and students to learn about the new technologies together also meant that students were taking a more responsible and active role in their own learning and often the learning of their peers.

The Circumstances Influencing Impact

The experiences of the teachers participating in the NALSSP project also highlighted factors that influenced the extent to which they successfully implemented the technologies in their classroom and generated positive student outcomes. These factors provide insight into the circumstances that are most likely to support and sustain the increasing and effective use of Web 2.0 technologies across LOTE classrooms in the future.

The support teachers received, through the professional development and ongoing networking opportunities and through the funding for time release and equipment, was considered essential in the success of their trials. Many of the teachers embarked on this project with limited understanding of what technologies were available and how they could be used. Strong support and professional development was provided over the trial period, through the Induction day and the Elluminate conferences. The Project framework and Curriculum Planning documents provided at the commencement of the Project, also guided their development of detailed plans and provided the participants with a strong foundation for implementing their projects. The establishment of a Ning was particularly effective. It provided ongoing networking opportunities in which participants, together with the Project Manager, shared their knowledge, experiences and advice. The discussions and information generated through the Ning provided valuable insight into what technologies were available and how they could be used effectively in the LOTE classroom as well as pricing and where to purchase them.

The funding provided for equipment was considered essential in allowing the participating schools to access the most appropriate resources and equipment for their project. The time release allowed teachers to gather information, explore possibilities, create plans, purchase, set up and learn how to use equipment, and prepare for their class. Time for professional development and interaction was also appreciated.

Setting up and implementing the technologies was challenging for some teachers. Much depended on their familiarity and confidence in using technology, but the level of technology infrastructure and wireless connectivity in the school also influenced the extent to which they were successful. Principal support was important in ensuring that the LOTE activities were seen as a priority and technical assistance was available when needed.

Taking the Learnings Forward

The NALSSP ICTPD project across Victorian schools has provided clear evidence that the effective use of Web 2.0 technologies in Asian LOTE classes can very positively impact on student learning outcomes. To extend, enhance and support the effective integration of ICT and Web 2.0 technologies across Asian LOTE classes in the future, teachers need ongoing access to new ideas, resources, and adequate time and support to learn about and effectively implement these new learning approaches in their LOTE classrooms.

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2. ePOTENTIAL SUMMARY REPORT

1 INTRODUCTION AND CONTEXT

The National Asian Languages and Studies in Schools Program (NALSSP) is designed to increase opportunities for school students across Australia to become familiar with the languages and cultures of China, Indonesia, Japan and Korea. Funded by the Federal Government, it stems from a recognition that Asian languages and studies of Asia are important in equipping students with the skills needed to compete in a globalised economy in the future.

The objectives of this two year program are to 'significantly increase the number of Australian students becoming proficient at learning the language and understanding the cultures of the four NALSSP target languages and to 'increase the number of qualified Asian language teachers'.¹

In Victoria, the Department of Education and Early Childhood Development (DEECD), Independent Schools Victoria (ISV) and the Catholic Education Commission Victoria (CECV) are working cross-sectorally to implement the NALSSP. The Victorian NALSSP involves a number of broad initiatives that address the objectives above, each consisting of a range of targeted projects. The ICT Professional Development Project (ICTPD), which sits within the ICT Professional Learnings Initiative, is one such project. It aims to increase the ICT proficiency of teachers in the targeted Asian languages, and to expand the use of Web 2.0 technologies as a teaching and learning tool within Asian Languages other than English (LOTE) classrooms. The effective use of these technologies is seen as a way for teachers to provide students with classroom based and real life opportunities to interact, collaborate and learn with and from their Asian counterparts, as well as increasing the demand and making explicit the need for engagement, understanding and communication skills with China, Japan, Indonesia and Korea.

A total of 51 schools, drawn from the Government, Catholic and Independent Sectors across Victoria, participated in the NALSSP ICTPD Project, trialing the use of Web 2.0 technologies and other Information and Communication Technologies (ICT) in their LOTE classrooms.

These trials covered a range of Web 2.0 technologies, with the aim of bringing to light the possibilities and the issues associated with their use in LOTE classrooms. They also highlighted factors that need to be addressed in the classroom, at a school management level and at a broader policy level in order to facilitate and support the successful use of emerging technologies in LOTE.

A multi pronged evaluation strategy was implemented as part of NALSSP, ensuring that the experiences and learnings of the participating schools would inform progress and future extension of the technologies into other LOTE classes. This involved a range of strategies:

- Surveys in which teachers gave pre and post project ratings on the value of Web 2.0 technologies in LOTE², provided quantitative data in regard to:
 - Student impact (related to academic achievement, attitude to learning and behaviour).
 - Degree of difficulty in implementing Web 2.0 technologies (related to resources, time, IT skills required and ease of integration into the curriculum).
 - Scope of application of the Web 2.0 technologies (related to the scope for adaptation, understanding of the concept, relationship to other practice and recognition of the potential).
- Pre and post data on the technology skill and usage levels of participating teachers was collected via the ePotential survey³ and collated by DEECD.
- The action research approach to the classroom trials, involved teachers in the establishment of their own processes for measuring and reporting on the project outputs. They presented their reports in digital form at the end of project period and also provided a brief written report.

To provide deeper understanding of the use and impact of Web 2.0 technologies in LOTE classrooms and to identify the factors most likely to influence and sustain this impact, an overarching evaluation project was also established. Drawing

¹ <http://www.education.vic.gov.au/studentlearning/teachingresources/lotte/nalssp.htm>

² Conducted by I & J Management Services

³ ePotential Survey – collected and collated by DEECD

on the data mentioned above, as well as collecting additional qualitative and quantitative data from a range of sources, it was designed to address the following:

'Are student learning outcomes improved through the integration of Web 2.0 technologies in LOTE teaching practice? If so, to what extent, in what ways and under what circumstances?'

This is the final report on the outcomes of this evaluation. It covers all trials conducted over the NALSSP Phase 1 Project period from July to December 2010.

2 THE EVALUATION APPROACH

A mixed methods approach was used for this evaluation to ensure that multiple perspectives were gained and rich and reliable data was captured. The following components were included:

- Building contextual understanding, through analysis of documentation relating to the NALSSP project and more general Asian LOTE policies and practices across the sectors.
- Review of the project plans from all participating schools, including their project focus, goals and strategies and the specific Web 2.0 and other technologies used.
- Review of the pre and post teacher survey ratings in regard to student impact, degree of difficulty and scope of application.
- Review of the ePotential Survey levels of participating teachers (pre and post project).
- Study of the digital stories and reports generated by participating teachers at the completion of their trial.
- Student assessment data, collected by the trial teachers as part of their action research.
- Observation and discussions with participating teachers at the project initiation and professional development session, the ACMI sessions for developing digital stories, and the final presentation and celebration day.
- Ongoing observation of online discussion forums established for participating teachers via the Project Ning and the Illuminate Sessions.
- Review and analysis of the written reports, digital stories and other relevant documentation developed by the trial schools.
- Review of available student outcome data collected by the trial schools, (e.g. VELS, class specific assessment data and student work samples).
- Development and conduct of online surveys for participating students, teachers and principals in each trial school. These were conducted at the completion of the project to gather quantitative and qualitative data. Response rates were as follows:

Table 1: Survey Response Rates

Respondent Category	Principals	Teachers	Students (% of schools represented)
All Participants	35% (18 responses)	86% (44 responses)	61% (32 schools - 459 responses)
Government	38% (14)	73% (27)	23 schools (68% of responses)
Catholic	40% (2)	75% (6)	4 schools (8% of responses)
Independent	(25%) 2	100% (5)	5 schools (24% of responses)

- Case studies were conducted in four schools. This involved school visits (to observe related activities and student work samples data and Interview and/or conduct focus groups with principals, teachers, students), follow up phone discussions and review of student work samples and other forms of student activity such as blogs, recordings of activities and discussions.

3 THE NATURE, FOCUS AND REQUIREMENTS OF THE NALSSP SCHOOLS

3.1 The Schools

The schools participating in the NALSSP ICTPD Project were drawn from across all Regions and sectors within Victoria. They represented a wide range of school sizes, locations, and demographics from a small, rural primary school to a large, metropolitan, multi-campus college catering for students with a diversity of cultural backgrounds. As indicated in Table 2, The LOTE teachers were teaching either the Japanese, Chinese or Indonesian language at primary and secondary levels. Classes ranged from Year 2 to Year 11.

Table 2: Trial Schools and Languages

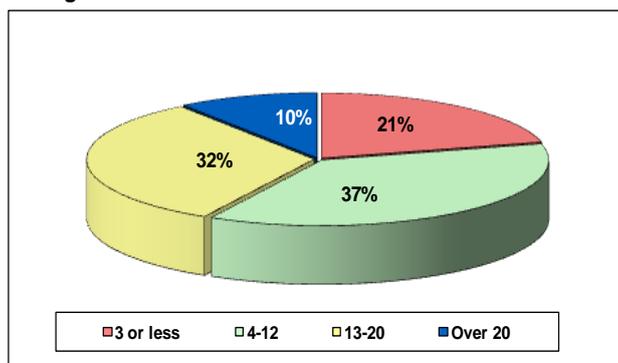
Sector	Schools	Primary Classes	Secondary Classes	Chinese	Japanese	Indonesian
Government	37	20	19	12	15	12
Catholic	5	0	5	1	4	0
Independent	8	1	7	2	3	3
Total	51	20	31	15	21	15

3.2 The Teachers

The extent of experience in LOTE teaching varied across the cohort of teachers. There was also wide variation in their level of experience and expertise in using technologies in their LOTE classroom.

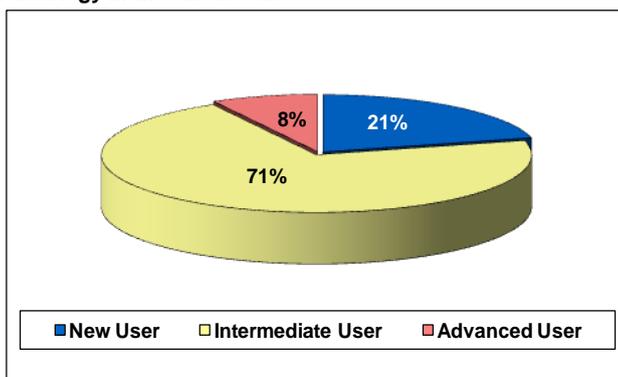
Some were new to LOTE teaching (21%) while others had been teaching LOTE classes for over 20 years (10%).

Figure 1: Experience in LOTE Teaching



Only 8% were frequent users of technology in the classrooms. Most rated themselves 'intermediate' users of technology in teaching but a significant 21% were 'new' users. 50% had used Web 2.0 technologies in their classrooms previously.

Figure 2: Experience in using Technology in the classroom



The teachers were keen to extend their knowledge and skills in using Web 2.0 technologies. For some, the additional time and funding would allow them to explore the specific Web 2.0 technologies they were aware of but had not yet used. Others hoped to extend their understanding and skills in using technologies in the classroom, 'reflect' on their teaching practice, 'explore new approaches', 'challenge' themselves and 'share their learnings with others'.

3.3 Planning Requirements

In their applications to participate in NALSSP, the teachers outlined their reasons for becoming involved and what they hoped to achieve. The two day NALSSP-ICTPD Induction Program provided a valuable opportunity for the selected teachers to increase their understanding of the project requirements and expectations, explore the possibilities further, in terms of teaching and learning models and the technologies available, gather and share ideas and begin to plan the focus and approach of their action project. Hearing the experiences of teachers involved in the *KnowledgeBank:Next Generation Collaborative Learning Program* trials, conducted in the previous year, provided both inspiration and an understanding of what would be involved. Practical information was also provided, particularly in regard to the development of the required digital stories. Teachers left the program 'excited' about the possibilities and in many cases 'overwhelmed' by the task ahead of them.

The teachers were provided with Planning Templates in which they detailed a Framework for their project and a Curriculum Plan. The Project Framework was used to define all aspects of their action research project, although it was acknowledged that this may change as their project proceeded. It included a Research Question, with reference to any other research that forms the basis for their approach, the technologies to be used, the predicted outcomes and outputs, the alignment of the project to their schools strategic plan and the Ultraset and their strategies for evaluating the effectiveness of the project.

Using the Curriculum Plan template, teachers provided the rationale for their project and the predicted outcomes. Ways in which they would implement the teaching and learning activities were detailed, with reference to the specific needs and nature of their student cohort. The targeted VELs Domains, Dimensions, Standards and Levels were included in the plans, along with the Principals of Learning and Teaching they hoped to address. Assessment strategies were also documented, along with the potential links to other curriculum areas.

Although considered very time consuming, teachers generally felt that the thinking and detail required at the planning stage placed them in a very strong position of readiness to undertake the NALSSP project.

3.4 Support and Sharing Opportunities over the Project Period

The various avenues for teacher support and sharing that were established over the trial period, formed a key component of the NALSSP Project. They included a Project Ning and a series of Elluminate Sessions:

- The NALSSP Ning, set up exclusively for NALSSP participants and the Project Team, was established within 'Educator's Guide to Innovation' site (a secure online site hosting Nings for a range of network groups involved in using technology in education). This provided a forum through which the NALSSP Project Team could notify participants of events and requirements and raise and discuss information of interest or issues arising. Participants used it to share ideas and experiences, seek answers, gain new information, suggest solutions to problems that arose or notify others about valuable resources, places to purchase equipment or upcoming professional development. Almost **80%** of participants found the Ning either 'very valuable (**53%**) or 'valuable' (**26%**).
- 'Elluminate Web conferencing provided an avenue for participants and the project team to meet online and discuss project requirements, progress and issues arising. Although some participants had connection problems to begin with and timing prevented some from attending, the sessions were regarded by **77%** of the participants as very valuable (**50%**) or valuable (**27%**). A further **16%** found them marginally valuable.

Several survey comments also highlighted the value of the individual support provided by the Project Manager, via phone and email, when specific participant or school needs and issues arose.

3.5 Reporting Requirements

At the completion of their trial, teachers were required to provide both a digital story and a written report on their project progress, achievements and learnings. To assist with the development of the digital stories, a representative from the Australian Centre for the Moving Image (ACMI) delivered an introductory session at the Induction Program and, over the final weeks of the project, full day sessions were conducted at the ACMI centre to support teachers as they completed their stories. Teachers presented these digital stories during the final Celebration Day and submitted their written reports soon after.

4 THE FINDINGS

4.1 Introduction

The NALSSP-ICTPD Project provided the participating teachers with a unique, supported opportunity to implement LOTE teaching and learning strategies that, for many, were very new. Their reasons for becoming involved were varied. However many saw the need to 'energise' their teaching, and make it more relevant to their students, particularly in light of the significant decrease in student engagement in LOTE that was also leading to a drop in the number of students continuing with LOTE at the post compulsory level. Over the five month trial period, these teachers, developed and implemented projects that have significantly changed teaching and learning in their LOTE classrooms.

The focus of this research has been to investigate in more depth the nature and extent of these changes, the outcomes, for students teachers and schools, the challenges faced and the requirements for sustaining and building on the effective use of Web 2.0 technologies in teaching and learning. This section draws together the qualitative and quantitative data gathered across all participating schools, along with more detailed data provided by a small selection of schools participating in the focused studies.

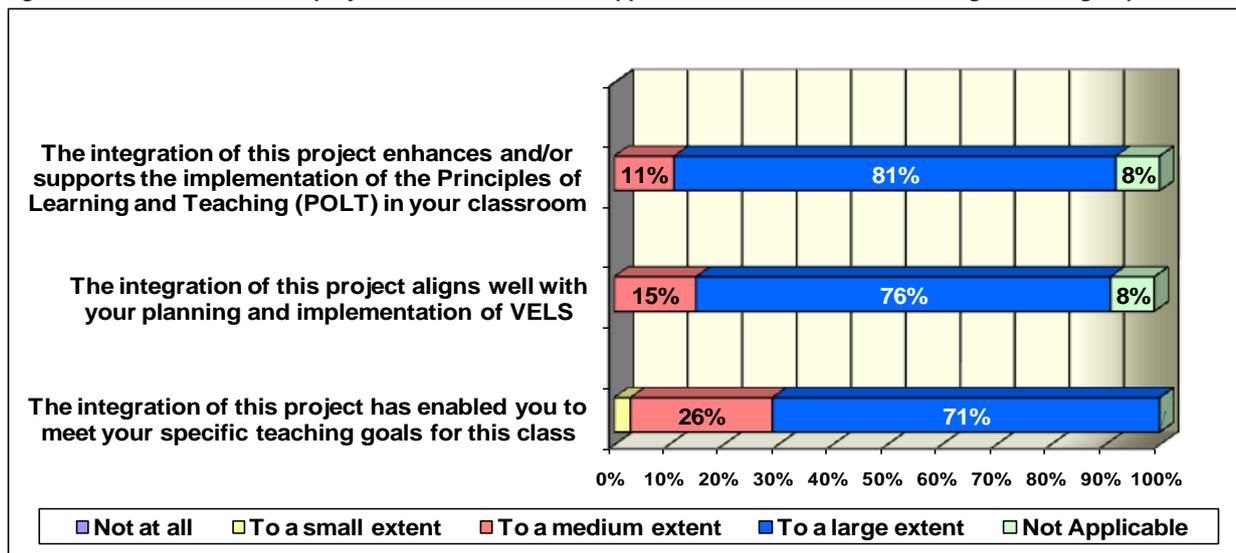
4.2 Relevance of the Web 2.0 Trials and Pilots

4.2.1 Support for curriculum and teaching and learning requirements

The NALSSP ICTPD Project Framework and Curriculum Plan templates provided participating teachers with the incentive and guidance to carefully consider the rationale, goals, and potential outcomes for their LOTE project, as well as focusing their plans on specific teaching and learning needs within their LOTE classes.

As indicated in **Figure 1**, at the completion of their trial they strongly agreed that their projects were relevant to and supportive of their LOTE curriculum goals and requirements, and the teaching approaches they had used aligned well with the Principles of Learning and Teaching.

Figure 3: Extent to which trial projects were relevant and supportive of curriculum and teaching & learning requirements



4.2.2 Alignment to the Principles of Teaching and Learning (POLT)

In their survey responses and discussions, teachers highlighted the very strong alignment between their trial activities and outcomes and the six DEECD Principles of Teaching and Learning (POLT)⁴. In particular, three of the Principles were clearly being addressed through the effective use of Web 2.0 technologies in the LOTE classrooms:

- The Learning environment promotes independence, interdependence and self motivation.
- Students are challenged and supported to develop deep levels of thinking and application.
- Learning connects strongly with communities and practice beyond the classroom.

⁴ DEECD Website <http://www.education.vic.gov.au/studentlearning/teachingprinciples/principles/unpacked.htm>

In keeping with POLT, the technologies also provided teachers with the scope to introduce new ways of teaching LOTE, which were responsive to the needs and interests of their students, encouraged and supported students to take responsibility for their own learning and supported different ways of thinking and learning. For example:

- Students worked independently and at their own pace on activities that supported them in reading and writing script, listening to and speaking the language.
- Students were motivated to continue learning outside of school hours through the portability and accessibility of Web 2.0 technologies.
- Wikis and blogs encouraged them to communicate with other students and the teacher from home.
- Students worked through progressive activities, striving to move to a higher level of expertise. Immediate feedback provided them with the incentive to reconsider any incorrect responses and persist in their improvement. Reaching a certain achievement level challenged them to move higher.
- Opportunities for 'productive collaboration through authentic experiences', were provided in which students worked together in teams and communicated using different mediums.
- Learning connected strongly with communities and practice beyond the classroom. Interaction was extended to include individuals, groups and communities in other schools and countries.
- Assessment practices varied as students were challenged to use very new avenues for developing and presenting their learning. Flip cameras and iPod recordings encouraged review and self assessment of their progress and extensive effort in presentation of the final product.
- In some cases, technical issues in the set up and use of the Web 2.0 technologies required students to embark on problem solving, deep thinking and reflection in order to development and communicate ideas and solutions. There were also many opportunities for teachers and students to explore the technologies together and discuss and try new ways to use them in their LOTE learning.

4.2.3 Addressing Curriculum and Teaching and Learning Goals

A desire to understand the capacity and scope of Web 2.0 technologies in supporting the learning of LOTE underpinned the development of the NALSSP projects in schools. A key driver for many of the participating teachers was the need to motivate and engage students in LOTE learning. They were keen to change student attitudes in an attempt to address the dwindling interest in learning a LOTE and the concerning decrease in students who continue learning LOTE at a post compulsory level.

Their curriculum goals and teaching approaches therefore reflected the need to increase student skills, confidence and enjoyment in listening to, speaking, reading and/or writing the relevant language. In particular, their focus was on increasing student outcomes in both dimensions of the LOTE VELs Domain - communicating in a LOTE and Intercultural knowledge & language awareness. The different technologies available to address these needs resulted in a range of ideas and approaches across the trial schools.

Applications on iPods and iPads provided engaging and effective activities to increase skills in speaking, reading writing and listening. These devices, along with blogs, video streaming, and vodcasting, were also seen as a way to '*make student language learning portable*' and increase the opportunities for students to access their learning beyond school boundaries and times.

Teacher plans were also shaped by the potential they saw in many of the technologies to more easily target individual student learning needs or specific class needs. These included '*overcoming problems with particle use in Japanese sentences*', '*writing Chinese characters with correct stroke order*', '*recognising script symbols*', and '*improving pronunciation when speaking the language*'.

Teachers also recognised the scope of the technologies to provide students with new ways to communicate and to demonstrate their learning. Establishing links to students in the relevant country was seen as a way to provide authentic language experiences, in which students could speak and listen to the language as well as increase their understanding of the cultural differences and similarities. The regular overseas trips were therefore enhanced by opportunities to plan and discuss the trip with the host country, using Skype blogs, wikis and video conferencing, as well as maintaining contact with students and families back in Australia during the visit.

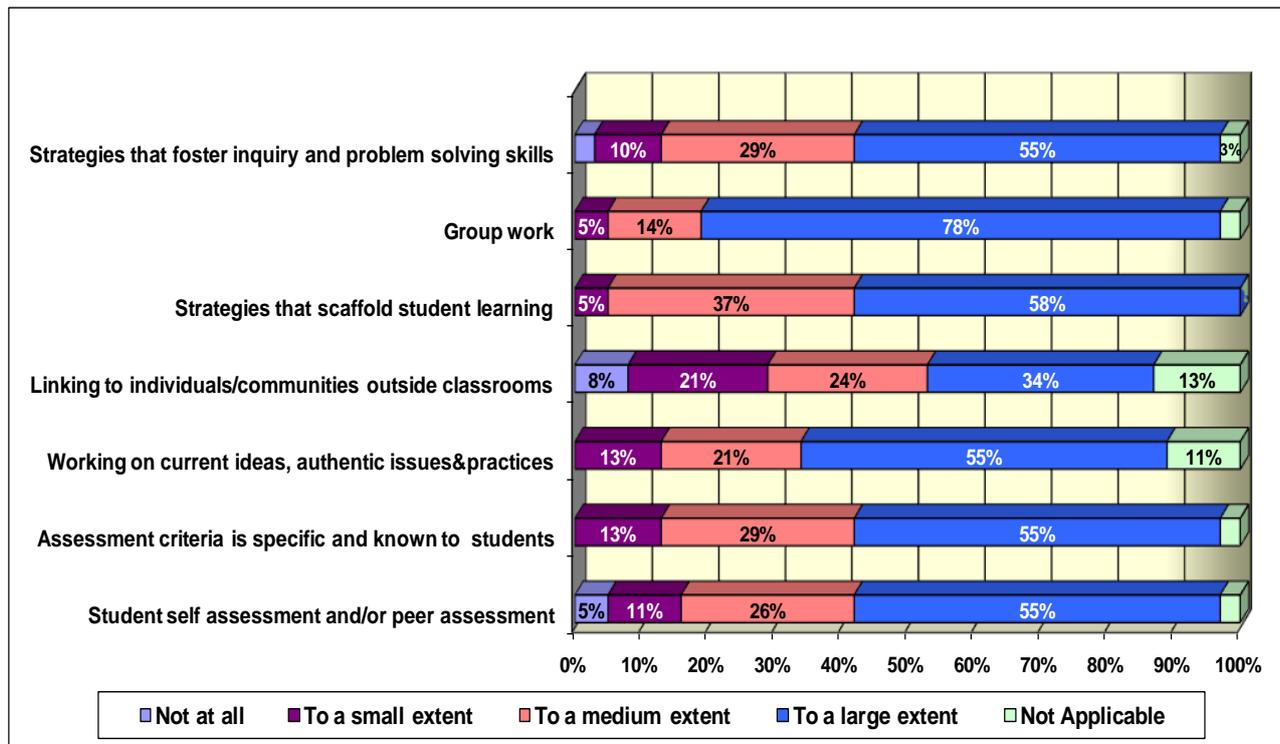
These technologies also opened new opportunities to establish ongoing relationships with students in the relevant country and therefore practice and develop their language through ongoing communication and joint activities.

4.3 The Impact on Teaching Practice

4.3.1 Teaching Approaches Used

As shown in the Figure 4 below, group work, strategies that scaffold student learning and opportunities for students to learn through current and authentic activities featured strongly in the trial classes. Strategies that foster inquiry and problem solving skills were also included in almost every school. In addition, most teachers were providing assessment criteria that were known to the students and included self assessment and/or peer assessment.

Figure 4: Specific teaching practices included in the implementation of the trial projects



4.3.2 Changes in Teaching Practice

The LOTE teachers detailed significant changes in the way they were teaching LOTE over the trial period. Teaching had become *'more student centered rather than teacher centered'*. Many now felt comfortable enough to adopt a more flexible approach, with less *'explicit teaching'* and more *'student focused learning'*. These changes created more time and flexibility for the teachers to provide students with individual attention and the *'freedom to complete set projects in their own time'*.

Teaching was also extending beyond the classroom, opening new opportunities for authentic language experience. Teachers highlighted the difference this made to their classroom environment, as students were more *'focused'*, *'empowered'* and *'self motivated'*. One teacher felt that *'it was now so much easier to speak to students and everyone was generally happier'*, while others detailed the decrease in disruptive behaviour and, as a result the increased time for teaching and learning.

Changing Teacher/Student Relationships

Teachers acknowledged that they were exploring the new technologies, learning how to use them and working through ways to integrate them in the classroom. This encouraged the students to take greater interest and responsibility in their learning processes and outcomes. Teachers saw this *'learning together'* as a major, very positive step in their shift to more student directed learning.

As students *'took more ownership of their learning'*, teachers became *'more comfortable'* allowing them to work collaboratively in groups. They also spoke of students being less reliant on them as the technologies opened new, independent learning opportunities.

Hand held devices, such as iPods and iPads, provided individualised applications that increased the level of self paced, *personalised* learning and assessment. Such activities also gave teachers a clearer understanding of the levels students were at in their LOTE Learning, highlighting different strengths and weaknesses across their class. They provided teachers with greater understanding and time to provide more individual assistance to those students who needed it. One teacher commented that this allowed him to *'cater more easily for differentiation'* and another commented that she was *'more competently assessing and tailoring content to the various needs of her target group'*. Teachers agreed that the engagement of their students in these activities and their enthusiasm to advance through the levels had changed the learning environment within the class

They were also seeing the benefits of peer teaching, both for the students who were 'teachers' and those who were 'learners'. In one school, Wikis were used for cross aged tutoring, where the more senior students created and loaded learning resources for younger students and supported them in their learning. In another class, students in Year 6 used iPods, flip cameras and laptops to develop stories, songs and activities that would be used to teach the Prep students Japanese.

Using Elluminate, a Year 6 trial class linked to students in a country school to teach them Chinese. Students taking on the 'teaching' role, learnt, practised and refined their LOTE to ensure it was *'perfect'*. The new 'learners' were attentive and motivated. The exercise typically enhanced and increased the profile of LOTE learning across both of the schools involved. Using different technologies, a similar project was established between a secondary college and a small rural primary school.

Extending the Learning Environment

The individualised learning and the portability provided through some of the Web 2.0 devices, extended the learning opportunities beyond the classroom. Students were motivated to continue learning outside school hours. They used the devices at home and, in the case of some secondary students, *on the long trip home in the school bus'*. Teachers were consequently becoming more flexible, giving students greater freedom to complete the projects in their own time.

Wikis, blogs and Nings provided students with further links between home and school. Teachers could maintain contact and provide assistance as needed and students used them to demonstrate their progress and communicate with the teacher and other students in the class. Loading the student podcasts onto the wiki also provided a way to showcase student achievements to the parents, increasing their interest in the LOTE learning that was occurring.

The authentic LOTE learning opportunities created in several classrooms extended the learning environment further. *'Interacting with the culture and the language in real time'* was recognised by teachers as an effective way to engage students in their LOTE learning. Elluminate, video conferencing and Skype provided direct links to students in the relevant LOTE countries and follow up interaction was made possible through wikis and blogs. The experiences in these classrooms highlighted the potential of these technologies to extend students' learning environment globally and, as a consequence, *'broaden their academic horizons as well as enhance their interest in LOTE'*.

Video conferencing and Skype were also used at a more local level to expand the learning environment and expose students to further avenues for learning and practising LOTE. Year 10 students, in a country based LOTE class, linked to a Year 10 class in a city school to 'chat' in Indonesian about, for example, their interests and families. Video links to 'experts' in the language (other teachers, university personnel and past students) provided additional incentives and opportunities for students to develop and use their language skills.

Creating opportunities to Cater for Individual Learning Needs

A number of LOTE teachers also commented on their change from 'whole class lessons' to using rotational groups and/or individual activities. This encouraged more student responsibility and provided scope to adopt a *'facilitator approach'* to teaching, whereby the teacher could move between groups, supporting students as required and providing more individual assistance to those who needed it.

Teachers believed this approach gave them a clearer understanding of student levels in their LOTE learning, highlighting different strengths and weaknesses across their class. One commented that it had allowed him to *'cater more easily for differentiation'* and another noted that she was *'more competently assessing and tailoring content to the various needs of her target group'*.

Self paced, personalised learning and assessment through the various applications described above, provided activities and games whereby students could practice writing the characters, respond to listening, speaking or writing activities or select words and sentences in respond to specific questions.

Students were also using the technologies to continue practising the activities home, resulting in improvement in specific areas of individual need, enabling them to extend themselves further or learn new skills. Many would listen to recorded speech and practice till they were using the correct intonation. Others recorded their own speech so that they could listen to and improve it. The use of blogs and wikis also enabled teachers to interact with and provide feedback for individual students who needed assistance in specific skills.

Teachers were also recognising the need to further develop their own teaching skills and strategies as independent learning increased in their classes:

'Student centered teaching practice requires effective organisation skills. I am learning that to meet the maximum achievement in their learning some students need specific teaching to establish their self-paced learning skills and consolidate their interpersonal skills. If they are going to take responsibilities of their learning, they need to learn decision making and working efficiently and collaboratively. I also found it is important to decide how much freedom students can have and to what extent the teacher needs to be involved in their learning.'

Expanding the Assessment Strategies

With the introduction of the Web 2.0 technologies, students were presenting their learning in a variety of ways. This led many of the teachers to rethink the way they would assess their students learning as well as what they were assessing. In particular teachers noted the increased opportunities for peer and self assessment that stemmed from the use of these technologies.

The individualised, self paced applications used in some classes gave students instant feedback and guided their progress through the activities. Their desire to move to the next level focused their attention on the improvement required. Peers were also seen encouraging and sometimes teaching students to achieve at the next level. Teachers using these activities in their class were typically monitoring and documenting progress, providing explicit teaching for individuals, groups or the whole class as required.

Flip cameras, Vokis and iPods opened new opportunities for student self assessment and peer assessment. By recording their spoken language, students were able to replay and pick up the areas that needed improvement. In group activities the recordings were shared with other students, who provided further feedback. Teachers could use the recordings to gauge student progress. Students' ongoing review and improvement of their work was particularly evident when it was to be used or viewed by others.

Interaction with an authentic audience, also encouraged students to practice and revise their skills beforehand. Their self assessment was often based on their capacity to understand and converse during the interaction. Students were also very keen to prepare for these sessions, practising their questions and discussion beforehand.

Rubrics, online surveys and reflection charts supported further student reflection on their progress and on the value of the activities and the technologies used. Teachers commented that the range of assessment strategies used in the classroom had increased students' language awareness and their confidence in using the language. It was also encouraging them to take greater responsibility for their own learning. The class blogs and wikis also provided an avenue for students to submit work and teachers to provide individual feedback to their students.

Voting Clickers provided a very useful tool for gathering input from all students during whole class, interactive lessons. The individual devices held by each student were used to respond to a question put to the whole class. Through a connection to the teacher's computer, each student response to the question was instantly entered onto the data base. This provided a whole class response that could be discussed with the class, but also provided the teacher with the capacity to monitor the progress of individual students. As the following comments indicate, students found the clickers to be a very engaging way to learn and a focus for learning and improving:

'I think the best things of the clickers was how it encouraged me to learn more because I got to see my results and got to see how much I improved on my correct answers.'

'I liked how you didn't have to write - all you needed to do was click the buttons and you were off.'

'They did make Japanese fun and you didn't have to worry about sharing your results to the class.'

4.3.3 Alignment to the e5 Model

Overall, the new teaching approaches being adopted by the LOTE teachers were aligning with the DEECD e5 Model⁵. This recently introduced teaching and learning framework for school leaders and teachers encourages learning processes that create opportunities for students to engage, explore, explain, elaborate, and evaluate.

NALSSP provided teachers with an opportunity to reflect on and discuss their teaching practices with other teachers. In particular they were recognising that technology was a very powerful way to engage their students in learning. The technologies were also changing student/teacher relationships, giving students more scope to explore the technologies and work through ways in which they could learn LOTE most effectively. *'Real life interaction and conversation'* also stimulated students enthusiasm and engagement.

Teachers were developing challenging activities that required them to represent and explain their learning in new and often multiple ways. Many of the activities involved seeking information from authentic sources to increase cultural knowledge and understanding. Students were encouraged to reflect on and discuss with peers and teachers, how and what they were learning and how the technologies were helping them to learn. In many classes, Web 2.0 technologies such as blogs and wikis provided the avenue through which they could do this. Students were also exploring the scope of the new technologies, and applying them in new ways to assist them in their learning.

Providing students with greater independence in their learning also gave them opportunities to 'elaborate' on their learning. Students were extending themselves through the self directed activities on the various applications. They were practising, reviewing and revising to ensure the highest quality when they were presenting their learnings more publicly or interacting with authentic audiences. They were also using the Web 2.0 technologies to seek out new information and develop deeper understanding of the LOTE language and culture.

Many of the applications used in the LOTE classrooms, involved 'built in' self assessment opportunities. This allowed students to understand their areas of improvement and specific learning needs. Access to iPods and flip cameras opened opportunities for students to review and self-evaluate their progress and teachers were supporting students to continuously refine and improve their individual achievement through self assessment. The increase in group activity also encouraged students to engage in effective peer feedback and evaluation and associated peer to peer support and teaching. Blogs and wikis also provided opportunities for students to reflect on their progress and practices and gain support from both teachers and their peers.

4.3.4 Increased Teacher ICT Capacity

The **ePotential⁶ Teacher ICT Capabilities Survey** data collected prior to and at the end of the NALSSP trial period also demonstrated the positive impact of the NALSSP Project on teachers' ICT capabilities and their use of ICT in the classroom. On average, there was a **12%** increase in the extent to which the teachers were using ICT for increasing, practicing and demonstrating skills in the classroom and for communication and collaboration with students. This took the NALSSP teachers from the 'emergent' technology user phase to the 'innovative' technology user phase.

Frequency of ICT use in the classroom had increased significantly in a range of ways, but most notably through students using:

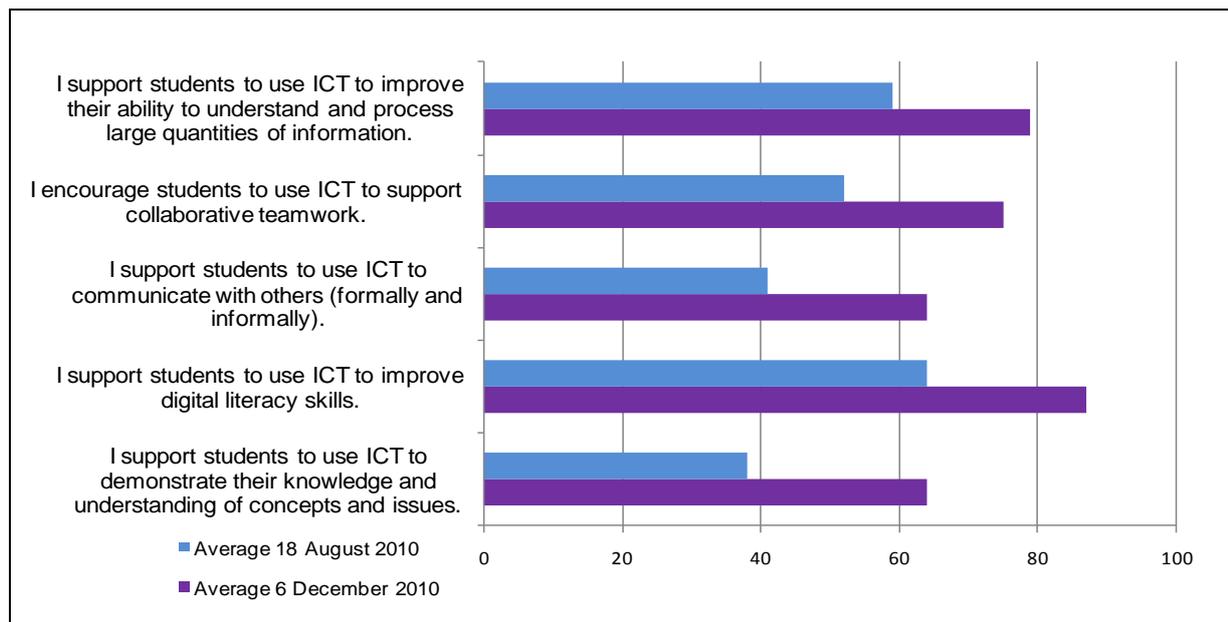
- presentation software to communicate a concept,
- ICT games for practicing skills, developing strategies and solving problems ,and
- drill and practice software to reinforce concepts and skills.
- multimedia resources to develop literacies
- Web 2. technologies for collaborative projects

As indicted in the graph below, significant shifts (over **20%**) were also seen in the extent to which teachers were supporting their students' use of ICT in their learning:

⁵ <http://www.education.vic.gov.au/proflearning/e5>

⁶ ePotential

Figure 5: ePotential pre and post survey - Supporting Student use of ICT in their Learning

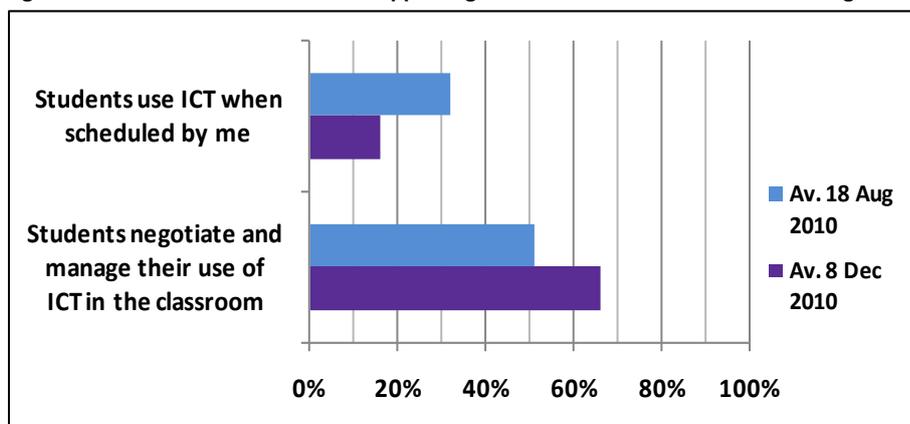


There were also substantial increases in ICT use for student self assessment and reflection. This included the use of:

- ICT assessment tasks such as online tests and surveys
- Student generated digital learning portfolios
- Hand held devices (such as iPods) for assessment, recording student progress and reporting
- ICT to capture evidence of student performance.
- Almost **40%** were now encouraging and promoting the use of ICT, for student self assessment and to encourage deeper student reflection (compared to approximately **12%** prior to the trials).

The change in the extent to which students took more responsibility for when and how they used technology in their learning was also notable. Students were more likely to be selecting when they use ICT and more were being given the opportunity to negotiate and manage their use of ICT in the classroom:

Figure 6: ePotential Pre and Post - Supporting student s use of ICT in their learning



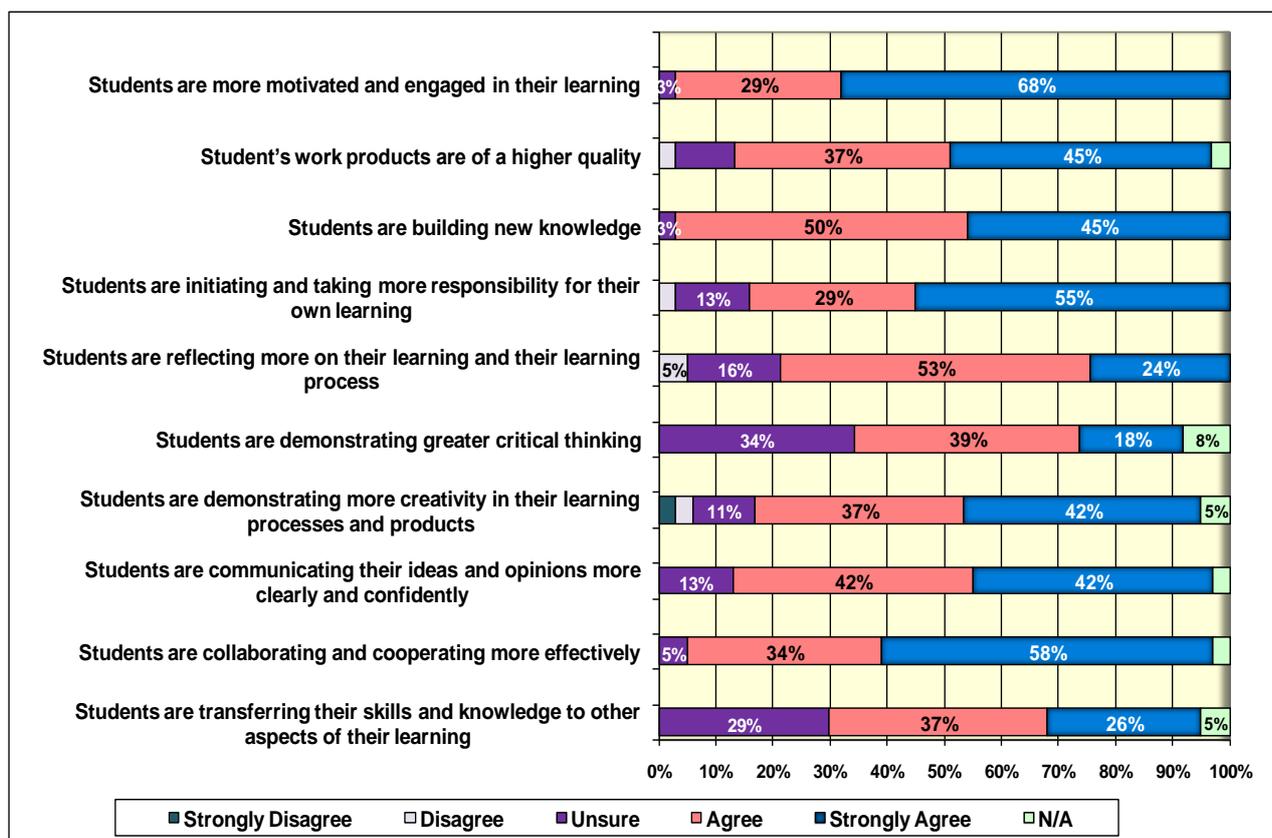
The survey data also indicated that the NALSSP project had increased teacher awareness of the copyright and privacy laws that need to be taken into account and adhered to when using the internet in their teaching and learning. A summary of all Teacher responses to the ePotential Survey is .

4.4 The Impact on Student Learning

The major change from teacher centered to student centered learning, as discussed above, resulted in LOTE classes where students were more motivated and showing greater independence in their learning. They were, according to the teachers, taking responsibility for how they learnt, working more collaboratively with their peers, and self assessing. Learning LOTE became their focus and many were *'making the choice to go beyond the minimum requirements'*. This was considered by a large proportion of the LOTE teachers to be *'a most significant change'*.

The teachers reinforced these aspects in their ratings, shown in the graph below. In addition to the above, they indicated their strong belief that students were building new knowledge, their work products were of a much higher quality, and they were demonstrating deeper understanding, more critical thinking and greater creativity compared to previous LOTE lessons.

Figure 7: The impact of the Web 2.0 Trials on Student Learning – Teacher Perspective:



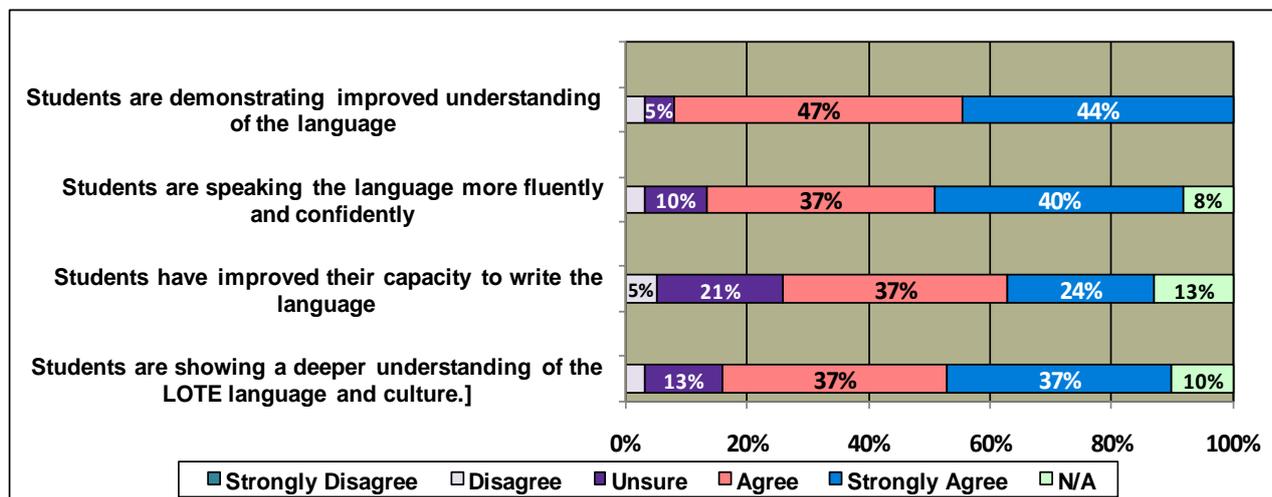
These changes made it easier for teachers to provide more student choice in how they managed their learning and where they learnt. Teachers felt more confident allowing their students to work together in areas outside of the classroom and outside of class times. Many of the groups would continue their activities during lunchtime and after school. Nings, blogs and wikis provided them with opportunities to communicate with each other and with the teachers in and out of school hours.

Teachers were also confident that their new approach to teaching LOTE was generating increased skills in LOTE learning. As their ratings in the graph below indicate, most agreed, many strongly, that their students were:

- demonstrating improved understanding of the language,
- showing deeper understanding of the LOTE language and culture,
- speaking the language more fluently and confidently, and
- improving their capacity to write the language.

It is noted, however, that a very small proportion of the teachers were either unsure or did not agree that their students had made these advances.

Figure 8: The impact of the Web 2.0 Trials on Student LOTE Skills – Teacher Perspective:



4.4.1 Nature of the Impact

The positive responses shown in Figure 6 were reinforced through the open ended survey comments and the interviews with teachers, providing many specific examples of the impact of the trials on student learning. Almost all of the teachers embarked on these trials with the aim of increasing student motivation and engagement in LOTE learning. Following NALSSP, teachers spoke enthusiastically about the changes they were seeing. Their students were now:

‘more willing to practise speaking and writing with the Web 2.0 technologies and iPads.’

‘more confident – as they can ‘challenge’ at their own level, they opt to take risks in their work requirements.’

‘sharing what they have learned using the iPad with others and helping ones who are struggling.’

‘able to read more Japanese. - no longer limited, and in some cases, frustrated, by the capacity to memorise as they could not read, or could not read well.’

‘choosing to continue to study their LOTE.’

Increased Motivation and Engagement

Some compared their class prior to NALSSP with those following the introduction of the technologies:

‘I had felt before the project that each class was a battle, trying to keep students on task, reprimanding disruptive behaviours etc. The mood has been MUCH more pleasant, with students keen to participate. They have largely been supportive of each other too and have acknowledged my efforts with verbal ‘Thank you!’

‘Students had been very noisy and not caring about any specialist subjects... before. However, since iPads arrived, students were well behaved, listened to the teacher’s instruction (so that they are not going to lose no time for playing with iPads!), were generally well-managed with time and looked after each other and, of course, their iPads’.

Another described the changes in one of her more difficult to manage students:

‘The motivation of my most disengaged student has significantly improved. During some lessons, he is withdrawn from the class for a ‘restart’ literacy program. He is usually quite happy to be taken out of the LOTE class, however during the implementation of this program, he was reluctant to leave.’

The changes in boys were particularly notable. Many teachers were seeing strong improvement in their motivation, engagement and skill development. One for example referred to one of her boys who was struggling with LOTE. ‘He was very impressed by how he could learn directly from the ning... It was a light bulb moment for him’.

Increased Collaboration

Many of the activities involved group work. Students were working together and teachers were noting an increase in their willingness to support one another and learn for each other:

'I can change my teaching role to that more of a facilitator as the students work together to share knowledge.'

'The students worked together better as a team, helping each other with the ICT and getting connected to the class site. They were also a lot more interested in looking and reviewing each others' work than usual.'

'They share what they have learned using the iPad and shared that knowledge with others, helping the ones who are struggling.'

'They mentor each other and share their individual learnings.'

Improved Effort and Quality of Work

Teachers spoke of their students' enthusiasm as they used the technologies and their eagerness to achieve and present the task at the highest level. In one class, the teacher was amazed at the renewed interest she was observing in her students: *'Questions were constantly raised and students were beginning to challenge and truly connect with the purpose of this project'*. Students recording and filming their work would review their efforts, identify areas for improvement and repeat the task until they *'get it right'*. Students who were working on the individualised iPod Applications showed persistence as they worked towards higher levels. Study Wiz and iPods encouraged students to work on LOTE at night and on weekends, on the bus and during lunchtime. Teachers also detailed their students' additional efforts as they learnt LOTE:

'The majority of the students tried harder with their learning assessment task.'

'Because each student can be challenged at their own level, they opted to take risks in their work requirements.'

'Students are able to read more Japanese. They are no longer limited, and in some cases frustrated, by their capacity to memorise, which was required when they could not read well.'

'Some students asked permission to use their lunch break in the Japanese room to improve their Japanese using iPads.'

'Students negative behaviour is minimal and there is an eagerness to be involved.'

'All students were engaged and comfortable with the concepts and the use of particles and all students were able to complete the activities.'

Increased LOTE Skills

In reference to skill development, teachers spoke of significant changes in the students' ability to speak, listen, write and read the LOTE, increased understanding of the culture, as well as language, was also highlighted:

'Students are confident in the skills related to this project, namely, reading and writing Japanese Kana and this has led to a more confident approach to their general LOTE studies.'

'Their ability to speak and listen has increased.'

'Many students who seemed to lack confidence to use Indonesian in class really came out of their shell in a small group situation with the option to always delete the recording they didn't like.'

'The whole class has improved their pronunciation and intonation to reach a higher standard.'

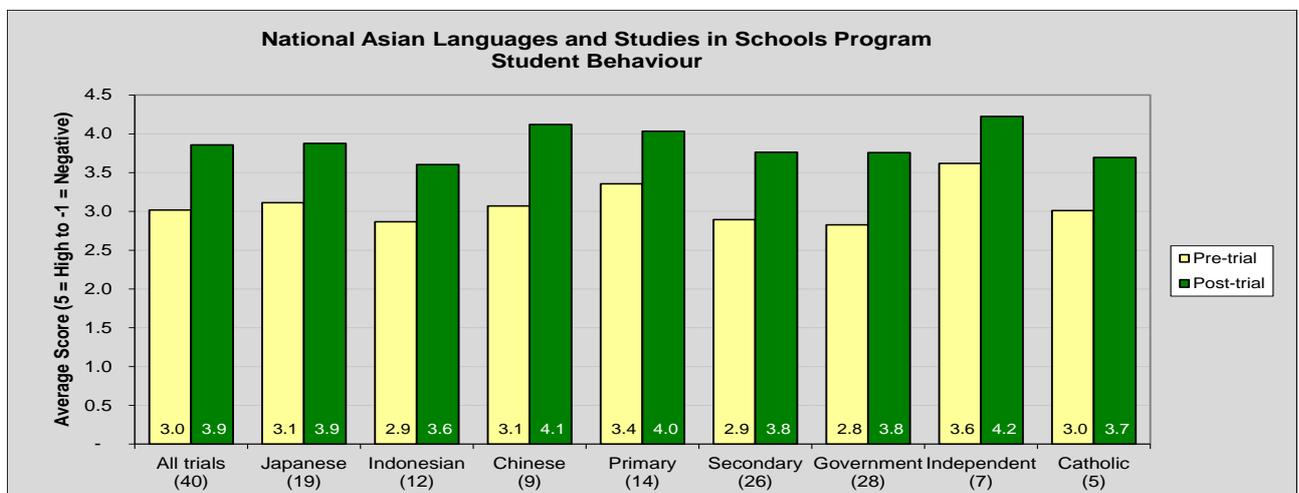
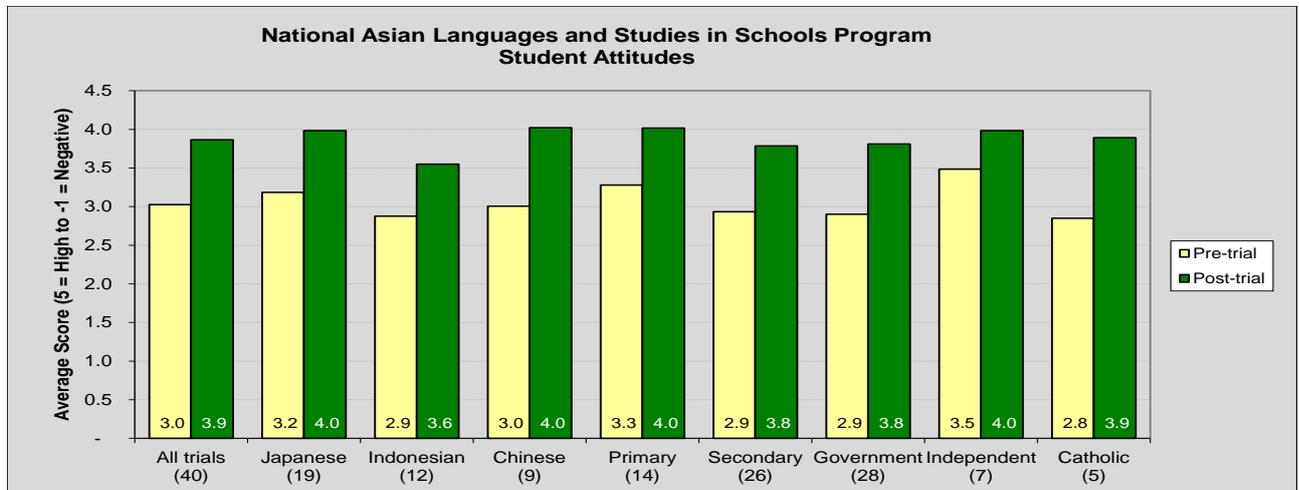
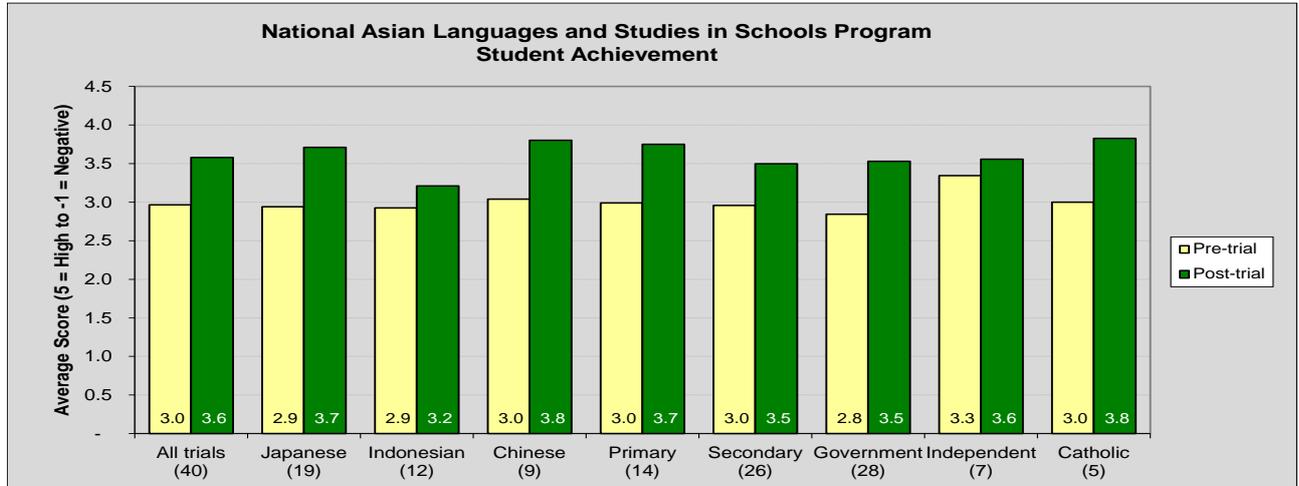
Conversations with students in other countries 'opened their minds'. They were now recognising 'the many similarities, as well as the differences' in the ways they lived and thought about things.'

Teachers and the students also acknowledged the ICT skills students were developing through the trials, as well as other learning skills such as interpersonal, intrapersonal skills, problem-solving and leadership skills. One teacher spoke of watching her students become *'independent learners, who now take responsibly for and make decisions about their own learning'*.

Overall Changes in Achievement, Attitude & Behaviour

Data collected through the NALSSP pre and post evaluation surveys⁷ reinforced the above increases in student achievement, attitude and behaviour in the NALSSP ICTPD trials. On a scale of 1:5 (where 5 =high and 1= negative) teachers were asked to rate their students’ achievement, attitude and behaviour prior to commencing the trials and following the trials. The graphs below show the increases in each aspect. As indicated, these increases occurred across each of the languages, school levels and school sectors.

Figures 9-11:Pre And Post Teacher Ratings on Student Achievement, Attitudes and Behaviour (I & J Management Services)



⁷NALSSP ICTPD Evaluation conducted by I & J Management Services

4.4.2 The Student Perspective

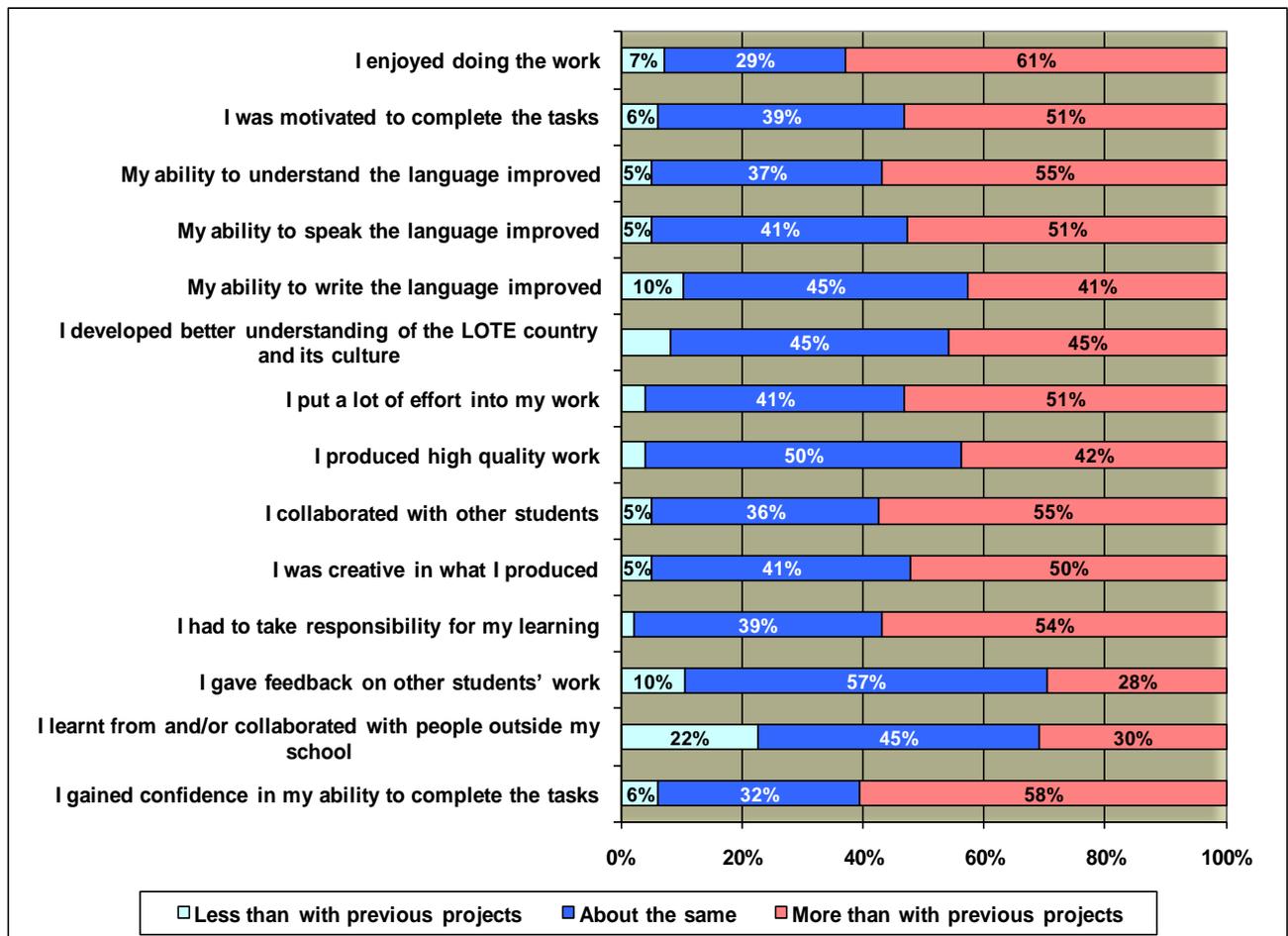
Students were asked, in their surveys, to think about the LOTE project or work that they had done using Web 2.0 technologies and compare this with LOTE classes without these technologies.

As indicated in Figure 7, their responses indicate shifts (i.e. selecting 'more than in previous LOTE classes') in all areas, particularly in the extent to which they:

- enjoyed doing the work (**61%**)
- gained confidence in their ability to complete the tasks (**58%**)
- collaborated with other students (**55%**)
- took responsibility for their own learning (**54%**)
- were more motivated to complete the tasks (**51%**)
- and put a lot of effort into their work.

Many also felt that their ability to understand the language (**55%**), speak the language (**51%**), and write the language (**41%**) had improved more than in previous LOTE classes.

Figure 12: Student perceptions of their learning in the Web 2.0 LOTE activities compared to their previous projects or work



The Positives

When asked to list the 'best things' about using Web 2.0 technology in their LOTE learning, well over **50%** of students included the words '*it was fun*' in their responses. Many of the students also talked about how much '*easier*' it was to understand and learn to write, read and speak a LOTE when using Web 2.0 technologies. They were also keen to point out that '*It helped us have fun but learn at the same time*'.

Those using iPods and Study Wiz appreciated the 'portability' of the devices, allowing them to learn at home, at school and in the playground. One student added that *'it helps me learn much better and it is easier to carry around than a text book'*.

Students across a range of technologies felt they were *'more in control of their learning'* as they worked through the self paced activities *'practised the things'* they *'were struggling with'* or took responsibility for various aspects of a collaborative group project with other students in the class. One student added that *the technologies had helped me understand more about my knowledge of Japanese'*.

The technologies also extended how they learned:

'We learnt how to write sentences and use the correct grammar by listening to Chinese people talking.'

'The games taught me more than when I am just memorizing.'

'It's a different way of learning instead of using your writing book.'

'We were not doing everything the same way, we were able to use different resources and technology.'

'We were learning while having fun and playing the different games but discovering what characters and tones were used for each word.'

'It was fun to use, because it got the whole class involved in a new way of learning the Chinese language.'

'I liked the flip camera and the microphone – I could see what my performance looked like.'

'I could practice speaking in front of a video camera.'

'By using the Web 2.0 technology, I would know how much I have improved and how much I have learnt compared to the previous year. It helps me to know what I have done well and what I haven't to try more to get my study better.'

Some detailed the new skills that they learnt as they used the technologies:

'I think that using the new microphones that we got helped me identify words by listening and made me more fluent in speaking them.'

'I think the best things about the clickers was how it encouraged me to learn more because I got to see my results and got to see how much I improved on my correct answers.'

'I believe that having the voting clickers and the iPod Touch's has improved our knowledge of Hiragana.'

'You could record your work through a video camera and therefore could reflect back on your own performance.'

'I found my reading, writing and speaking seemed to improve once the technology was introduced.'

The two best things about using the Quizdom is that it gives us a sense that we're playing a game, which then makes the work more fun, and I feel like I have more understanding because it's like a competition and I make sure that my answers are correct. I put in more effort.'

We used an iPod to make a Japanese play with friends and learned about their food and culture.'

Working on the iPads was awesome as we got to write on Zen Brush and it was like writing with real ink.'

Students specified the ways in which that had improved as result of the Web 2.0 technologies:

'I am now able to read and write better then could before.'

'I became a lot better in my reading, writing, and pronouncing using Japanese.'

'My confidence has improved, which means I can talk to people more than usual.'

'I learnt more Chinese than the usual Chinese classes.'

'The technologies gave me the ability to stretch my vocabulary.'

'My confidence in speaking fluently improved.'

'I became more interested in LOTE and I tried relatively harder.'

Those who used various technologies to link to students in other countries felt they had more opportunities to speak the language and learn more about their culture and lifestyle:

'We were able to communicate with people who had different skills and levels of understanding about the language.'

'We got to practice our talking a lot more and have actual general conversations.'

'I really enjoyed learning to show others about our country - talking to them straight up with the ning.'

'The best thing was being able to interact with people around the world in a safe and secure environment.'

'You can contact people from Indonesia and ask them questions that you would like to know about their country and it can help you with learning about their culture.'

'The best thing about using web technology was that we could interact students and learn from them what life is like, other than reading it out of a text book.'

'One of the best things was that you could ask questions personally to the Indonesian students, and translate what they said back, so this improved my Indonesian.'

Links between teachers and students via blogs and wikis were also regarded very positively by the students:

'I was able to communicate with others and the teacher to get help with work.'

'I could send my work to the teacher using the web instead of printing it off.'

'People were able to interact with others, commenting on peoples photos and blogs.'

'On chat we were able to gain help from the teacher when we were at home if we needed help with any homework or we didn't understand it.'

Students also showed their enthusiasm for continuing LOTE in the future. For example:

I thought it was a great way of learning Japanese, and helped a lot with writing hiragana. And I would want to use the iPads again in the future.'

'This experience was worthwhile and would be great to do in the future to learn more about Indonesian life.'

'I think that using technology is better than doing book work because I now want to learn and I now want to come to Indonesian.'

'I want to continue with it next year.'

Overall I think it was great and helped me learn more- it made me want to keep learning the language in the future.'

The Negatives

When asked to list the 'worst things' about using technology, around **20%** of the students replied '*nothing*'. A further **15%** highlighted various technical issues that had hindered their progress, particularly in regard to establishing and sustaining internet connection during lessons, but also due to computers '*crashing*', inability to get on to some sites because they were blocked and equipment that '*kept running out of batteries*'.

Some also noted that there were not enough devices for the class so '*not everyone could have a go at it*'. This was often due to the size of the class: '*there were so many of us you had few opportunities to use it*'. Some also noted that they were not able to use it a lot as there was limited time for LOTE. '*I had lots of fun doing these activities but I did not have time to finish*'. Some wished for more LOTE lessons: '*The worst thing about it was that we only got to use it once a week!*'

A small number of students found the technology difficult to use. One, for example, felt he '*got distracted playing games*' and another felt that '*they were not being taught as such*' when using the technologies. Two students noted that they were '*not good at technology*'. Another student in a class that used a wiki, was unable to get access at home so could not participate.

4.5 The Principal Perspective

The move towards 21st Century learning was cited by many of the Principals as a reason to participate in NALSSP. Many were reviewing and extending their use of ICT in teaching and learning across the school but this had not been seen as a priority in LOTE. Lifting engagement and retention levels in LOTE learning was however, considered important. With the additional funding and professional development offered through the NALSSP ICTPD Project, and in many cases the enthusiastic support of their LOTE teachers, the trials were seen as excellent opportunity to 'upskill' their LOTE teachers and change the way LOTE was taught in their school.

4.5.1 Factors Supporting the Implementation of NALSSP

At the end of the Project, Principals highlighted key factors that had supported the implementation of their NALSSP ICTPD trial in their school:

The LOTE Teachers

The 'expertise' and 'passion' of their LOTE teachers was highlighted by many of the Principals. For example:

'The staff involved were very keen to try this technology and explore how it might impact on student learning. They had a clear vision for what they hoped to achieve.'

'The enthusiasm of (the LOTE teacher), her willingness to share her learnings with colleagues both within and across domains.'

'A highly motivated LOTE teacher with a passion for the project.'

'A fantastic teacher willing to trial new technologies.'

'Staff expertise and passion, with a focus on personalising learning.'

'Committed teachers who are interested in the application of Technologies within the classroom.'

Funding

Funding for equipment, teacher time and professional development was highly valued and a key driver in their decision to become involved:

'The funding has enabled us to participate. Without this we could not have purchased these resources or attended appropriate PD.'

'The project provided funding not just for the hardware but allowed the Japanese teachers involved to undertake Professional Learning to help them make the best use of our resources. They were able to take some time release to develop the project.'

'Provision of needed funds, moral, technical and curriculum/pedagogical advice.'

'CRT release money and expert technical support.'

Support and Development for Participating Teachers

The teacher professional development, mentoring and support provided by the NALSSP Project Team, was recognised by some of the Principals as a strong factor in keeping their teachers informed and enthusiastic, providing practical information and ideas, and retaining the momentum over the project period.

'Support from the DEECD encouraged the LOTE teacher to be proactive with such opportunities.'

'Mentoring opportunities led to increased knowledge and skills in the use of Web 2.0.'

ICT Structure and Support within their School

Principals generally recognised the need for a reliable and effective ICT infrastructure within their school if Web 2.0 technologies were to be implemented successfully. Some listed their established level of ICT as an important factor in their success:

'The standard of technological use and knowledge in our school prior to the grant.'

'This LOTE project supported and was supported by a whole school Web 2.0 approach Open and flexible classroom design.'

'We had strong ICT infrastructure and support in the school.'

4.5.2 The Challenges

Time

Managing the time for this project was seen by many principals as a key challenge. One, for example, found that the teacher's attendance at the professional development created *'Interruptions to the school program'* as it is *'difficult to backfill a language teacher'*. Others spoke of the *'competing priorities within the school that made it difficult to provide the time needed for this project.'* One principal also raised concern about the focus of the LOTE teaching during the NALSSP ICTPD project, which meant that *'less time was available to cover some of the other basic LOTE skills.'*

A longer timeline and the ability to build the project into the yearly school planner from the beginning of the year, were suggested as ways to lessen the impact.

Technology Issues

As indicated above, some Principals felt confident that their technology resourcing and infrastructure supported the implementation of NALSSP. Others became aware of some of the technology issues through the more intense use within the LOTE classrooms:

'As we are a new school we needed to purchase all new ICT equipment rather than rely on expanding existing resources.'

'We had an unreliable network at the school to support ICT use in the LOTE classroom.'

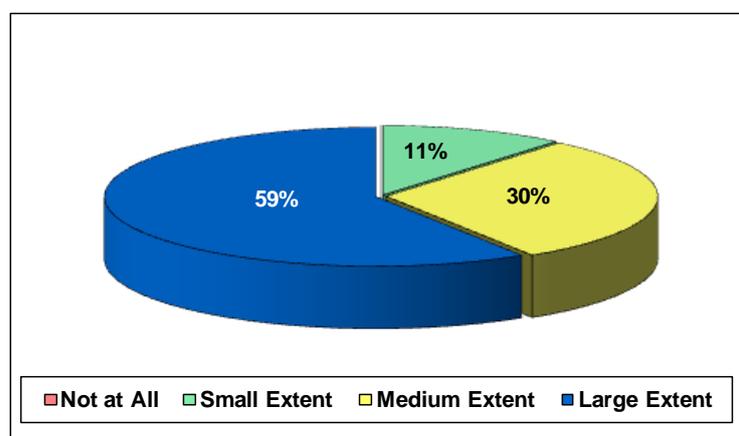
'Finding solutions to network connection issues associated with new technologies was difficult.'

'Our ICT rollout was delayed due to Telstra and building delays (in a new school).'

4.5.3 Increasing Principal Interest in using Web 2.0 Technologies

Through their involvement in the NALSSP project, Principals now had an increased interest in using Web 2.0 technologies across their school in the future. As indicated in the Figure 8, **over half** indicated very strong interest:

Figure 13: Increased Principal Interest in using Web 2.0 technologies in their school in the future



Their additional comments highlighted the impact of the NALSSP ICTPD project in accelerating their move towards the effective use of Web 2.0 technologies across all learning areas.

'We were already committed to doing this but it moved us along faster by providing support.'

'I am confident that this project will create interest that will be taken up by other staff over time. At the moment it has mainly been linked to the LOTE domain.'

'We were already on track, this has consolidated the need for this type of technology in schools - not just in grade classes.'

'We have been using interactive whiteboards in the classroom for some years now and this project has allowed us to extend this resource not just to the Japanese faculty but to the entire LOTE faculty and the Year 9 Campus.'

'Exposure to new learning technologies has shown that we have the technical know-how and teacher interest to pursue web 2 with greater vigour at a whole-staff level.'

'Already had a high interest and have been using in other areas. This program provided further evidence of the effectiveness of strategically using quality web 2.0 technology.'

'Planning to extend into other KLA areas.'

'It has been successful, therefore we are keen to expand these successes.'

5 THE CIRCUMSTANCES INFLUENCING IMPLEMENTATION, OUTCOMES AND SUSTAINABILITY

Many of the teachers involved in the NALSSP project believe that it has transformed their LOTE classes. Using Web 2.0 technologies has enriched their teaching practice and, as a result, has changed the way their students learn LOTE. It has generated not only improved student language skills but also far more positive student attitudes to LOTE learning.

The experiences of the NALSSP schools have also highlighted factors that influence levels of success in both implementing the technologies in the classroom and generating positive student outcomes. They provide insight into the circumstances that are most likely to support and sustain the increasing and effective use of Web 2.0 technologies across LOTE classrooms in the future.

5.1 Professional Development, Support, and Sharing

Many of the teachers embarked on this project with limited understanding of what technologies were available and how they could be used. They did, however, have strong understanding of their students' LOTE learning capacity and needs and the teaching and learning goals they wished to address.

The induction program at the commencement of the project opened their minds to new ideas and possibilities and provided them with a clearer understanding of what Web 2.0 technologies were available and how they might support the teaching and learning in their classroom. Many also left with a realisation that Web 2.0 technologies involved an enormous range of options for exploration.

The Project Framework and Curriculum Planning documents provided at the commencement of the Project, guided their development of detailed plans and gave them a strong foundation on which to implement their projects. It was notable, however, that over the project period many of the teachers expanded the Web 2.0 technologies they were using and the activities they were implementing as their awareness of the possibilities increased. Much of this stemmed from the strong networking and sharing of information that was occurring, through the Ning in particular. Participants were also encouraged to seek out information from a range of sources and as indicated in their quotes below, they were gaining confidence in their capacity to introduce new technologies and strategies in their classes.

'I have learnt and tried so many new things in my classroom in the past term. It has given me the confidence to try new things and a network of colleagues from whom I can gain advice and expertise. My project has really only just started and I think my students have only just started to gain benefits from the program. I look forward to seeing how much they may benefit throughout the next year.'

'This project has been most effective. I have learned to incorporate Web 2 technologies into my teaching and have become convinced of their effectiveness. While I have limited the range of Web 2 technologies for the purposes of this Project in order to keep it manageable, my enthusiasm has been whetted and I will continue to add more Web 2 applications to my lessons. These will be incorporated into the curriculum design so that all LOTE staff will adopt these methodologies.'

Teachers also highlighted the benefits of involving their students in the development and evaluation of their project. Students were keen to share their knowledge of technology, provide feedback and make suggestions for improvement.

One teacher described it as *'Our Journey'* whereby *'my students and myself believe very strongly, if we had never started this journey together, we would never have gone this far, and definitely there were up & down moments in our journey, but we have been there and done that together. Nothing to be afraid of when using ICT in LOTE !!!'*

Strong support and advice from the NALSSP Project Team and the ongoing interaction with other participants provided many of them with the information, inspiration and confidence to *'have a go'*. Being part of the NALSSP Network was a key factor in the advances made over the trial period.

5.2 Time

The time release provided over the project period was significant, allowing participants to gather information, explore possibilities, develop plans, purchase, set up and learn how to use equipment, and prepare for their class. Dealing with the requirements of the NALSSP ICTPD project (including letters of consent, evaluation and reporting requirements) also used up much of this time. Although substantial progress was made, many teachers found that the time span for the set up and implementation of their project was not long enough to gain full benefit. While appreciating the time they were given and the gains they and their students made, they emphasised the importance of time for learning, planning and implementation of Web 2.0 technologies in the classroom.

5.3 Funding

Both teachers and Principals acknowledge that the funding received for equipment was essential to the success of their project. LOTE budgets did not, typically, cover technology. Access to computer laboratories was often very limited for specialist classes and, with the exception of schools that have 1:1 computing, LOTE teachers were moving across classrooms with only a small number of computers in them. There was also very little time in the LOTE lesson to set up the LOTE applications on the classroom computers. The capacity to purchase multiple devices, that were more portable and could be permanently loaded with the required applications, enabled the LOTE teachers to develop new teaching and learning opportunities.

5.4 Understanding the Scope of the Technologies

Choosing the most appropriate technologies and applications was for many of the teachers a new and *'daunting'* experience. As detailed above, the ongoing discussions and information on the Ning provided participants with information on what was available, what they could be used for, pricing and where to purchase them from.

The outcomes from the NALSSP ICTPD project convinced teachers and principals that the use of technology in the LOTE classroom has immense benefits. The portability of the iPods and iPads, for example, changed the way LOTE students learnt and where they learnt. Web 2.0 tools such as the *'Clickers'* provided students with the incentive to contribute more fully in class activities and Web conferencing, blogs and wikis provided authentic opportunities to converse with native speakers and learn more about their culture and way of life. As a result, the funding of technology for LOTE is now seen as an important consideration in these schools.

Knowledge of the different technologies available, gained through their own activities and through the experiences of other participants, increased their understanding of how to most effectively implement and use them in the classroom. This informed progress and increased the outcomes over the trial period. It is also shaping their future plans.

5.5 Technology Support

Setting up and implementing the technologies was very challenging for some teachers. Much depended on their familiarity and confidence in using technology, but the level of technology infrastructure and wireless connectivity in the school also influenced the extent to which they were successful. Strong technology use across the school was usually accompanied by more effective systems and infrastructure. Principal support was also important in ensuring that the LOTE activities were seen as a priority and technical assistance was available when needed.

5.6 Using Effective Teaching Approaches

The introduction of the Web 2.0 technologies was, in many of the LOTE classrooms, a catalyst for significant changes in LOTE teaching and learning. As discussed in section 4.3, it had become student centered rather than teacher centered. It was more flexible and individualised and extended beyond the classroom and beyond school hours.

Many teachers believed that these factors were driving the change in students' attitudes to LOTE and their willingness to take responsibility for their own learning. The relationship between students and teachers was changing as they learned to use the technologies together. The technologies also created more authentic and public opportunities for students to use their language, which encouraged them to practice, review and improve.

The teachers' planning documents indicated clear goals and understanding of the specific student needs they wished to address. In particular they aimed to increase student engagement in LOTE and increase retention rates through to VCE. But to achieve this, the activities targeted more specific development of LOTE skills and outcomes. The technologies that would develop and/or provide a way for students to demonstrate these skills and outcomes were carefully selected. Teachers then implemented them through activities that engendered, for example, independent learning, collaboration, cooperation and problem solving.

Teachers also found that the technologies increased the time that students spent on LOTE. As they were typically bound by timetabled sessions, that for some were limited to once or twice a week, lessons would finish at a specified time. This made it difficult to maintain the momentum of both individual and project work. Portable devices with self paced learning activities and scope for recording and practicing language development, together with wikis and blogs, extended the LOTE classes beyond the classroom and outside of school hours.

5.7 Interest and Support across the School Community

As indicated in section 4.5, Principals were generally very supportive of the NALSSP project, and interested in the outcomes. Many expressed strong confidence in the capacity of their participating teacher to plan and carry through the project professionally and successfully. They also felt that it had raised the interest of other staff members in the school who were seeing the potential of Web 2.0 technologies across other learning areas. Parent interest and support was also generated as they saw marked changes in their childrens' efforts in LOTE. This broad interest and approval provided further incentive and enthusiasm for the LOTE teacher and the students.

6 EXTENDING WEB 2.0 TECHNOLOGY USE ACROSS LOTE TEACHING AND LEARNING

The NALSSP ICTPD project has provided clear evidence that the use of Web 2.0 technologies in LOTE teaching practice can impact very positively on student learning outcomes. It has shown the potential of these technologies to address the NALSSP objective to 'significantly increase the number of Australian students becoming proficient at learning the language and understanding the cultures of the NALSSP target languages'.

Importantly, it has also highlighted the circumstances that are most likely to influence and support LOTE teachers to significantly change the way they teach and the way their students learn Asian languages. Extending the use of Web 2.0 technologies across Asian LOTE classes is likely to have immense benefits. However, the learnings from the NALSSP ICTPD project have clearly shown that LOTE teachers and their schools need a range of information and support to do this successfully.

6.1 Knowledge Building

The teachers participating in the Project received substantial assistance in terms of funding for equipment, time release, professional development and resources. They also gained strong support and ideas through the network of LOTE teachers and members of the NALSSP ICTPD Project Team. Involvement in the trials provided them with a focus on advancing their Web 2.0 project and the incentive and guidance to plan it and implement it as a high priority. Ways to generate this interest and commitment across the broader cohort of Asian LOTE teachers requires careful consideration, particularly in regard to:

- Creating opportunities for teacher development and support,
- Creating and providing access to a bank of teaching and learning ideas and resources for LOTE.
- Promoting the value of ICT and Web 2.0 technologies in LOTE learning with school leaders, and
- Exploring ways to fund technology resourcing for LOTE in schools.

6.1.1 Opportunities for Teacher Development and Support

Relevant professional learning, delivered in a variety of ways and addressing a range of levels, is essential in encouraging and supporting Asian LOTE teachers to implement Web 2.0 technologies in their LOTE classrooms. The effective use of Web 2.0 technologies relies on teachers knowing what is possible, recognising the benefits for students and understanding how it might apply to their own teaching context. The practical knowledge developed by the teachers during the NALSSP ICTPD project provides a valuable foundation for LOTE teachers introducing Web 2.0 technologies in the future. Access to the ideas and resources developed through the project will provide LOTE teachers with the support, knowledge and confidence to adapt these to their classroom context.

Many of the NALSSP teachers have increased not only their knowledge, but also their confidence in using the technologies in their LOTE teaching. As a consequence, many have expressed a willingness to share their ideas more broadly. Illuminate sessions, LOTE Conferences and LOTE association activities provide opportunities for more formally presenting these ideas and resources. An extension of the NALSSP Ning would also provide information, more informally, as required. Teachers can ask specific questions, share teaching ideas and pass on or seek information about the technologies available, where to purchase them and how to use them effectively in the LOTE classroom.

In many schools, particularly at the primary level, there is only one LOTE teacher. Establishing local networks, possibly led by NALSSP teachers, would enable teachers to develop and share ideas and resources and observe, learn from and provide feedback on each other's classes.

6.1.2 Developing and Showcasing Teaching Ideas and Resources

Creating and providing access to a bank of teaching and learning ideas and resources for using Web 2.0 technologies in LOTE classes would provide motivation and support for LOTE teachers. The Ultranet and FUSE⁸ (an online portal designed to host and deliver a range of teaching and learning content and Web 2.0 tools) provide valuable sites for locating these resources.

The range and type of information it provides and the way it is presented could be drawn initially from the NALSSP ICTPD project, but it should be maintained as a dynamic site which reflects the rapidly changing technologies and the evolving possibilities for using them in the classroom. The Digital Stories, developed by the NALSSP participants, would provide a most valuable introductory resource for teachers, particularly in motivating them to become involved and showing them the scope of the technologies and the range of teaching possibilities across all LOTE learning levels. Samples of the Curriculum Plans, specific teaching approaches and assessment tools and strategies could also inspire, inform and equip LOTE teachers. More specifically, teachers need access to information on the technologies and associated applications that can be used, where to purchase them and how they can most effectively be used in the LOTE classroom.

6.2 Technology Infrastructure, Equipment and Support Requirements

The increasing use of Web 2.0 technologies across a range of key learning areas places growing demand on the technology infrastructure, resourcing and technical assistance required within classrooms. Introducing Web 2.0 technologies in LOTE classrooms will add to this demand, particularly where LOTE teachers are new users of the technologies and therefore require assistance in their purchase, set up and implementation.

The strategies for building and sharing knowledge, discussed in 6.1 above, would assist LOTE teachers in gaining access to technical assistance and information outside of their school. However, school based solutions are also important. Technology support personnel within schools need access to some of the information discussed in the LOTE networking forums, as well as opportunities to pass on their expertise in relevant areas.

The purchase of many of the hand held devices and software used in the NALSSP trials was extensive. The potential to purchase similar equipment at reduced or bulk prices should be explored, particularly if Asian LOTE networks or associations provide the base through which interest can be established and purchases made.

6.3 Increasing School Leadership Support

Leadership support was considered by participating teachers as a key factor in the success of their NALSSP trials. Leadership endorsement becomes particularly important when more LOTE teachers wish to adopt similar practices in

⁸ <https://fuse.education.vic.gov.au/view.aspx?pin=UXW42Z>

their classrooms without the funding support and professional development that was available in NALSSP ICTPD. Leaders therefore need to be well informed, through a range of forums, about the positive impact of technologies in LOTE classes and the need to increase the level of priority given to LOTE classes when technology resourcing and support is being planned and allocated.

7 CONCLUSION

The evaluation of the NALSSP ICTPD project has provided very clear evidence that the effective use of ICT, particularly Web 2.0 technologies, can transform the way Asian LOTE teachers teach and the way their students learn.

The key outcomes and benefits, which the NALSSP ICTPD Project was designed to address, have undoubtedly been achieved through these trials. In particular, the schools involved have seen:

- the development of enhanced skills and confidence in LOTE teachers, relating to the use of ICT and web 2.0 technologies in their classrooms
- increased teacher use of ICT and Web 2.0 technologies in the learning and teaching of LOTE,
- enhanced engagement of students learning LOTE,
- increased student outcomes in both dimensions of the LOTE VELS Domain - communicating in a LOTE and intercultural knowledge & language awareness,
- enhanced interaction between students and teachers in the learning of LOTE, and
- increased sharing of ICT-LOTE expertise among and across school communities.

All of the participating teachers who responded to the survey have indicated their intentions to continue the use of ICT and Web 2.0 technologies in their classroom in the future. They acknowledge that they have much more to learn and many new ideas to explore and implement but feel that the NALSSP ICTPD Project has given them the confidence, knowledge and motivation, as well as a strong network of supportive teachers, to build on their achievements and outcomes to date. As one teacher explained:

'I feel I have moved from seeing an opportunity to access money for equipment to seeing the equipment as just a part of a far more significant change in my teaching. It is transforming the way I teach - slowly at the moment, but there is momentum to keep going and keep improving.'

The funding, the support from the NALSSP Project team and the commitment and enthusiasm of the teachers involved contributed substantially to the success of the NALSSP ICTPD Project. The experiences and learnings of the teachers involved provide a strong foundation for extending, enhancing and supporting the effective integration Web 2.0 technologies across Asian LOTE classes in the future.

APPENDICES

APPENDIX 1: CASE STUDIES

CASE STUDY 1

CASE STUDY 2

CASE STUDY 3

CASE STUDY 4

APPENDIX 2: NALSSP ICTPD ePOTENTIAL DATA SUMMARY

CASE STUDY 1

Located in an outer eastern suburb of Melbourne, this primary school places strong emphasis on the importance of learning a language other than English and developing an appreciation and respect for other cultures. As a multi-cultural community with students from Australian, European, Asian, African and Middle Eastern backgrounds, the school community believes, as stated on their website, that 'the development of these skills is important if children are to function effectively in our diverse society'. All children, from Prep onwards, learn Chinese. The school is also acknowledged as a *Catalyst School* due to its encouragement and implementation of ICT use across the school curriculum. The students typically have high level skills and a wide range of experience using ICT.

As a committed user of Web 2.0 technologies in teaching and learning, the LOTE teacher saw the NALSSP ICTPD Project as an opportunity to expand her knowledge and provide her students with new opportunities in their LOTE learning. Her project, involving a Year 4 class, was based on the research question: ***Would the handheld devices assist and improve Year 4 students' skills in reading & writing Chinese?*** It was designed to address the range of language needs across a class that included students with no Chinese background, students who were born in Australia and have some degree of Chinese language background, and some who are from China with very strong Chinese language.

Although there is a range of student learning abilities, the students across the class are generally very positive and motivated in their overall learning and many achieve high standards. The teacher was therefore very keen to provide them with activities that engaged and extended them, not only as learners, but also as peer coaches and assistants in the LOTE activities. Using a variety of Web 2.0 technologies, she developed activities that enabled personalised learning, provided opportunities for collaboration, extended the learning beyond the classroom and encouraged students to take responsibility for their own learning.

Using Apple iPads, students were reading and interacting with online Chinese stories, designed to address different skill levels. These devices provided a large screen, which made reading the downloadable eBooks easy and enjoyable. The size of the print could also be adjusted to suit individual needs. The range of stories and the associated illustrations catered for the different Chinese language reading levels and the individual needs and interests of the students, encouraging them to '*read for enjoyment*'. In particular, the interactive elements on the screen generated learning and increased interest and engagement in the stories. Students were encouraged to set their personal learning goals and challenge themselves to advance through the various levels of reading.

The MyIDs were handheld devices onto which the teacher loaded a range of Chinese language learning applications. Some of these had been accessed from China. The larger screen (compared to iPods) meant that a wider range of activities was possible. Students could use the devices as a dictionary or as a writing pad. They were able to learn and practise the writing of Chinese characters, write stories and interact with a range of games that promoted listening, speaking and reading skills. Instant feedback on their responses enabled them to learn, improve aspects such as their pronunciation and progress at the own rate. As well as working independently, the students could also use the devices in small group activities or pairs, encouraging collaboration and peer teaching and support.

Data on the progress of each student was collected on the MyIDs and stored, enabling the teacher to monitor progress and spend time with individual students requiring assistance. Students also set up their personal learning goals for each semester in Chinese learning, which they shared with their teachers, parents and classmates.

The need to extend the students with Chinese speaking backgrounds, to ensure they were retaining their language skills, was considered important by both parents and teachers. The range of Online books and games addressed this need, but the teacher also encouraged these students to write their own stories in Chinese and then record them on the MyID devices. They would then share these stories with the rest of the class, as well as other classes in the school.

A very different LOTE learning opportunity was also established over the trial period, using Elluminate Live. This web conferencing facility provided them with a direct video link to a rural primary school that did not have access to LOTE classes. Two high achieving students (who were not from a Chinese speaking background) were nominated as Super Coaches. They were to teach the other class some basic Chinese greetings and numbers, as well as a song. These students prepared their lesson and practiced it in front of their classmates, who provided feedback and then supported them as they delivered their lesson to the other class. This peer coaching generated enjoyment and learning across

both schools. The high achieving Super Coaches were extended as they planned and presented their lessons to the other class and the activities generated a great deal of learning across both classes as all students joined in the activities, repeating and practising the key words and phrases.

Web 2.0 technologies were also effectively integrated into the assessment and evaluation practices during the trial. The progress data stored on the MyID devices was saved in a format which was suitable for students to add to their eXpress space on the Ultranet. In addition, a LOTE wiki, which also included an online poll, provided a forum for students to reflect on their learning progress, experiences and future goals.

The range of activities provided in this LOTE class stimulated a great deal of enthusiasm. The students spoke enthusiastically about their experiences and progress in learning Chinese and their intentions to continue learning a language. One suggested he would now consider *'maybe learning other languages'*.

The students compared their LOTE classes during the trial with past LOTE learning where they had not used the Web 2.0 technologies:

'I love learning Chinese this year ...its fun and interesting, and I'm learning much more than before.'

'I have learnt more this year than in all the previous years. It inspires you.'

Asked to explain why it was so much better, their answers included:

'It is student driven – and you can try new things at home as well.'

'The games are fun and you can learn from them.'

'The variety of activities is important. It helps you to learn writing, reading speaking and listening to Chinese.'

'You have more confidence in your ability to learn the language.'

'You work together.'

For one student the change was evident across the whole classroom

'You can hear the difference in the learning – we are not just sitting at a desk not talking.'

Over the trial period, the LOTE teacher was seeing significant advances across the range of students. The non Chinese language background students had become more interested in improving their Chinese. This was evidenced in their willingness to practice in their own time, independently and with their peers, in order improve their understanding and pronunciation of Chinese. It was particularly notable in the boys who had generally been more difficult to engage in LOTE learning. *'They just love the devices ...their Chinese language skills have been improved positively'*. While noting improvement in their ability to write Chinese characters, she added that *'even though we still need to remind them about the basic strokes, at least they are willingly to write, without any complaints.'*

Chinese language background students were also benefiting from the technologies. The teacher reported that *students* took more ownership of their work *'especially when they used the talking album to present their ideas of Chinese creative writing'*. This, she believed, *'showed their very positive motivation to do well in their native language'*. They were, for example, recording their stories, listening to them and recording again until they were satisfied with the final product. She also noted that *'their determination to share their works with other students was overwhelming'*. They had *'demonstrated a very positive model for others to learn from.'*

In line with the VELS dimensions, the teacher felt that the Web 2.0 technologies had assisted her to more effectively develop the knowledge of linguistic elements in Chinese, including vocabulary and grammar, and the skills of reading and using visual cues and signs, through familiarity with a wide variety of texts and genres in electronic form.

Through the range of activities established in the classroom, students were also beginning to understand the power of Web 2.0 technologies in developing their understanding of the language and culture of China. As detailed in her reflection at the end of the trial, the teacher regards this as an ongoing and very exciting journey for both her students and herself:

'I felt this research was a "stepping stone" for me and my students to broaden our views, skills, thoughts, beliefs and knowledge in using Web 2.0 technologies, and ICT devices in LOTE, ... (it has) made our Chinese language teaching and learning not the same again, ever.'

CASE STUDY 2

Set in a rural area approximately 70 km from Melbourne, this independent co-educational school caters for students in years 5 to 12. The school has a strong focus on Learning with Information Technology across all curriculum areas. As detailed on its website, this is supported by an extensive wireless and fibre optic network, spanning the entire campus, and access to several computer laboratories with desk top or laptop computers.

The school is situated in a '*mono-cultural community with few Asian students*'. In addition, the distance from Melbourne further restricts the opportunities for students studying Indonesian to communicate with Indonesian speakers. The NALSSP ICT PD project was therefore seen by the Indonesian teacher as a way to enhance the teaching and learning of Indonesian.

Her trial focused on the Research Question: ***How will my students' spontaneous speaking skills improve through the use of Skype and Vodcasting?*** It was conducted in her Year 10 LOTE class, which was relatively small and therefore more manageable. They also had more time allocated to LOTE each week when compared to the lower classes, but were not bound by the VCE requirements in higher levels.

The project was designed to develop the students' confidence in speaking Indonesian and increase what were considered to be relatively low conversational skills. Vodcasts, Skype and Netbook computers were the main technologies used to prepare for and engage in Indonesian conversations, initially with Year 10 Indonesian students in another Victorian school, and then with a number of 'expert' Indonesian speakers.

The topic of conversation with the year 10 class was family and hobbies. In preparation, the trial students developed the questions they would ask, practiced asking them in Indonesian and, using flip cameras, recorded themselves talking in Indonesian about their own family and hobbies. These vodcasts were uploaded and shared on a class blog. Listening and seeing themselves speak enabled the students to self assess and improve what they said and how they said it. They also rehearsed with their classmates, gaining further feedback from them on ways to improve. Considerable effort was put into this preparation period in order to reach a level that satisfied them.

During the sessions, each student in the trial school established the video link with their 'partner' from the other class using Skype on their Netbooks. The sessions were hindered by technical problems, including difficulties logging on, connections dropping out or lagging, and difficulties hearing or seeing the other students. However, over the two sessions most managed to have some conversation with their 'partner'.

In a class debriefing, following the second session, the students reiterated some of the technical difficulties they had, but in particular they noted the difference that their preparation had made. They felt that their questions and answers had been far more comprehensive compared with the other class. They were disappointed that the other class was not as prepared and were therefore unable to respond or did not have the questions ready, making it very difficult to '*keep the conversation going*'. One student commented that it became '*more like an interview than a conversation*.' The experience had, however, made them more aware of what was needed in order to maintain the flow of a conversation. Particularly important was the '*in between language that we normally use*', such as '*you have a go*' or '*thank you*'. Being able to '*explain the same question in different ways*' was also considered to be important when '*they did not understand you*.'

Overall, the interaction had not extended their vocabulary, but it had boosted their confidence in their own skills and made them realise what they needed to improve. As one student commented, '*We didn't have the language to change the conversation*'. They agreed that if they had been conversing with those who were better than them at speaking Indonesian it would be more beneficial as it would '*take you up to a higher level*'.

Responding to this, the teacher organised sessions with a number of Indonesian colleagues from universities and also some of her past Indonesian students. Students again prepared and practiced for these sessions, developing and recording '*3 minute conversations with each other*'.

During the session, their one to one interactions with these 'experts' were very '*conversational*', covering a range of areas. Although finding it '*nerve wracking*', following the session the students understood how beneficial the experience of '*working with people who were better than you*.' had been:

'It was more like a normal conversation ...a lot more interesting and you learnt more.'

'Even if you do not have the language quite right they can pick up what you are trying to say and assist you to say it correctly. They taught us new phrases.'

'Talking to people who speak Indonesian stretched your Indonesian skills - it was an opportunity to rise above your normal level of Indonesian....got your Indonesian skills rolling.'

'They were really nice – kept on helping you, repeating words that you struggled with till you got it right.'

The conversations had also boosted the students' confidence in their ability to speak Indonesian:

'I felt a bit nervous but realised that I knew more than I thought I did.'

'They asked me lots of questions and I could understand them.'

'The conversation helped me to remember words that I had learnt a few years back'

The technical issues that hindered the links to the partner school did not occur during links to the 'experts', highlighting the importance of clear and uninterrupted connectivity.

Student self assessment was also an important part of these activities. The students listened to their vodcasts and used evaluation templates to rate their progress and add details on what they were doing well and what they needed to improve on. After listening to their final vodcasts at the end of the trial, students were rating themselves higher, particularly in relation to:

- Accuracy of the vocabulary and grammar.
- Providing greater clarity in regard to pronunciation, intonation, stress and tempo.
- Maintaining and advancing the exchange appropriately and effectively.
- Supporting and elaborating on ideas and opinions with reasons, examples, evidence and new ideas.
- Using appropriate grammar and vocabulary for the context, audience and purpose of the task.
- Providing greater clarity in regard to pronunciation, intonation, stress and tempo.

Their reflections on how they had improved provided further detail. For example:

'I have improved with confidence and being able to speak without having notes. It was a lot easier and just flowed – I didn't have to stop a lot and think about it'

'When doing this new video and comparing it with the old one, I found that I had improved in my fluency and general speaking skills. Through this program, my speaking and vocabulary skills have been better and there are much less awkward moments or pauses. I can recover and change if I am incorrect and overall I feel more confident with my Indonesian'

The teacher felt that the activities had provided her students with an opportunity to extend themselves. She noted a marked difference in their confidence and ability to speak freely. Overall fluency had improved and the students were more engaged and eager to improve. The tasks had provided her students with the 'authenticity' they needed to 'focus on and improve their language learning'.

The teacher praised the support and guidance that she had received from her technical staff over the trial period 'If I had not had such support I would not have known where to begin'. They were also able to identify and resolve connection difficulties between the two schools. Support for the project at a leadership level was also very strong and many of the staff were showing interest in what had been achieved.

The timetabled classes meant that organising the sessions had not been easy. It was 'hard' to bring the 'experts' together during the restricted times they were needed. Scheduling a meeting of two classes was also problematic.

However, the teacher feels she has learnt a great deal and will 'definitely do it again'. She will continue vodcasting as a way for students to practise and review their progress and intends to link to another class of Indonesian students once a term as well as creating opportunities to speak to more advanced Indonesian speakers. Both she and her Indonesian students are looking forward to the year ahead.

CASE STUDY 3

This Catholic school for boys was established in a large regional Victorian town over a century ago. Many of its students are drawn from rural areas and small towns that extend well beyond this central township. In order to cater for their very diverse range of socio economic backgrounds, the school maintains an inclusive enrolment policy with relatively low fees and offers a broad range of curricular and co-curricular options to cater for boys with a wide range of needs.

All students learn Japanese in Year 7 but it is optional from Year 8 onwards. The ability to read and write hiragana is important in enabling and inspiring students to continue Japanese beyond Year 7 when it is no longer compulsory. However, this is considered to be 'a hurdle' for many of the boys, who consider it too difficult and often 'boring', despite the wide range of activities and games that are used in the classroom'. The teacher believes that reading hiragana script is essential if students are to become independent Japanese language learners. As Japanese textbooks, worksheets and information is written in Hiragana, 'without the capacity to read this script, students cannot learn independently....they rely on their teacher or they need to memorise everything they wish to say'.

The NALSSP ICTPD Project opened the opportunity to introduce ICT resources that would increase and support students' recognition of Hiragana script. In particular, the teacher saw it as a way to engage students and address the needs of those who 'find it difficult to learn hiragana using the traditional "pen and paper" methods'. Her project was therefore designed to address the following: **How can ICT and Web 2 Technologies be used to increase the ability of Year 7 Japanese students to read hiragana? What ICT resources and devices will have the greatest impact on the learning of hiragana in the Year 7 classroom?**

The incentive to introduce Web 2.0 technologies had increased with the recent introduction of 'Thin Client' laptop computers across Year 7 classrooms. They provided students with substantially more individual and flexible access to the technology required. The teacher was also able to use the NALSSP project funds to purchase iPods for her students, further increasing the scope for self directed, personalised learning across the class.

Over her 20 years of teaching experience, the teacher had continued to explore and develop new ways to enhance her teaching practice and increase student learning. She recognised the need and was very willing to increase her 'very limited skills in ICT', as she believed that the use of ICT would be 'motivating for students and therefore contribute to greater learning'. In particular, it would assist their learning of Japanese script, therefore reducing 'a real barrier to progress'. She also knew that introducing ICT and Web 2.0 technologies in her classroom would be, for her, 'a huge learning experience'.

The outcomes from the two day NALSSP Induction Program were very different from what she had imagined. She had expected to sit at a computer and be trained in the use of the different technologies. Instead, the program provided many ideas and highlighted the many possibilities but she left wondering how she would manage this very daunting challenge. However, with school leadership support and substantial technology assistance from the ICT Director, she set about planning and implementing her trial project.

A set of iPods were purchased and various applications for learning Japanese were loaded on to them. As she researched the possibilities and developed and implemented her project, the teacher learnt a great deal through the discussions and ideas that were generated via the NALSSP Project Ning. The 'patience, support and assistance' from the NALSSP Project Manager was also highly valued. The teacher greatly appreciated this support as she continued to 'learn from others along the way'. She was also 'learning the language' around these new technologies and was therefore 'now able to talk about it'. The positive impact of the technologies as she introduced them to her students increased her confidence as well as her drive to continue her learning.

Both the Thin Clients and the iPods engaged her students in their learning. Their motivation to learn and their deep involvement in their learning had increased significantly. The teacher felt the iPods, in particular, had encouraged students to become more self directed and personally involved in their learning. They offered 'intimate and personalised learning spaces that enabled the students to focus only on their own learning – they were not distracted by what was happening on the screens around them'. Various games were used on these devices to develop rapid recognition of hiragana.

The teacher was also changing the way she taught. Her teaching was now *'more student centered rather than teacher centered'*. The technologies were new, both to her and to the students, and therefore they were learning together. Students were also assisting each other more, rather than relying on her. She also noted that the learning environment was more challenging. It provided opportunities for students to take greater responsibility for their own learning and to drive their own learning. Both the teaching and the learning in the class had become more individualised as students were being given more opportunity to progress at their own pace.

Particularly in the early stages of the project, the teacher was very aware that the increase in independent learning required her to closely monitor how and to what extent each student was learning – *'were they just playing games or were they learning?'* As the project progressed, she felt very confident that these activities were addressing her initial project goals:

'Students are enthusiastic about the ICT Resources and thus about the Japanese classes. Students are able to read more Japanese. They are no longer limited, and in some cases, frustrated, by the capacity to memorise as they could not read, or could not read well.'

She also believed that her students had *'accepted the personal challenge to learn to read Japanese'*. The students confirmed this in many of their comments at the end of the project. They believed that they had increased their skills in reading Hiragana. For example:

'The apps on our iPods helped me recognise Hiragana symbols and words that I did not recognise at the start of the year and didn't think I would ever recognise.'

'They increased my skills - I learnt better strokes.'

'They were very useful – I've learnt heaps more since we've had them.'

'I learnt way more than I would using books.'

'Now I've learnt to say things in Japanese like the (words for) family members - which is really good for me.'

They also enjoyed their learning:

'It was different because I had not used an iPod touch before and I think it was a fun way to learn. It was better not having to write as much in our books.'

'It brightened up the class.'

'It was fun and interactive.'

'Using these games makes you want to learn more – if you learn more, the better you'll do.'

Over the project period, the teacher felt she had *'progressed hugely'* in her understanding of how ICT and Web 2.0 technologies can support the learning of LOTE. She recognises that she would not have gained this knowledge without the support of the NALSSP participants and the NALSSP Project team. But at the school level, she also felt strongly supported by key members of her leadership team. Assistance from the ICT Director was particularly important in giving her the confidence and the support to introduce the technologies in her classroom. She was able to do the research, and present the ideas and he would set up the infrastructure and equipment accordingly. They both saw this as a way to ensure that the activities were generated from the teaching and learning perspective, rather than the technology perspective.

The portability and the accessibility of the Thin Clients and the iPods also supported the effective implementation of the project. Access to a computer laboratory would have been limited and the need to book its use in advance would not have provided the flexibility required to address the teaching and learning needs.

The teacher feels she has made very significant progress since she attended the induction program at the commencement of the project. As indicated below, she intends to continue building on this knowledge and experience and has many plans for her future classes.

'This project has been most effective. I have learned to incorporate Web 2 technologies into my teaching and have become convinced of their effectiveness. While I have limited the range of Web 2 technologies for the purposes of this Project in order to keep it manageable, my enthusiasm has been whetted and I will continue.'

CASE STUDY 4

Established in 2009, this large government Secondary College, caters for a diverse range of students, many from non English speaking backgrounds and a high percentage with low socio economic backgrounds. The Year 9 Indonesian class participating in the NALSSP ICTPD trial, consisted of around twenty students, some of whom are low achievers or disengaged learners. As in many schools, the number of students who continue learning a LOTE in the final years of schooling is relatively low and therefore sustaining engagement in Year 9, the final year in which it is a compulsory subject, is problematic. In developing her NALSSP project, the LOTE teacher therefore established a plan to *'maintain an engaging learning environment within her Year 9 class'* and *'produce a curriculum that installs an interest in these students to pursue LOTE in the Senior Years'*.

Her project was designed to address the question ***'How will the introduction of 21st century educational practices and resources effect the motivation of Year 9 students at Gleneagles in their studies of Indonesian LOTE?'***

Aware that her students were very comfortable users of ICT and were engaged in the use of web 2.0 technologies for social networking, she focused on the establishment of a web space, *LOTE 2.0*, in which their LOTE work and experiences could be shared. This would be available to parents, teachers, students and the school community. Of particular significance was the inclusion of a space set up for their sister school in Malaysia. It was regarded by the teacher as a way to *'revolutionise'* the annual LOTE study tour to Malaysia, which is hosted by the sister school. Firstly, it formed a significant link between the students on the study tour, their parents, and the teacher prior to, during and after the tour. The teacher described it as follows:

'The web space is a password-entry lounge that invites the target parties to access information, read blogs, see photos, and post on a forum that addresses key issues in relation to the tour. Parents can ask questions, the accompanying teachers can answer – and other parents of the students who are going on tour can read these posts which may answer the questions they have. By using a forum like this – the communication trail between families, school, students, teachers and parents at home is produced instantly – reducing the need for numerous parent information evenings, the letters sent home, and the missed phone calls.'

The site also provided an important link for those who were not attending the study tour. They could be directly involved with the tour students and the teacher as well as establishing links with the Malaysian students. Students on the tour (and their hosts) could detail their experiences in blogs and via video conferencing, post photos and work together with those back at the school through games and activities.

The individual blogs enabled communication at a range of levels. Students could use them to communicate directly with their families and the teacher. Timely support was, for example, provided for a student who was homesick and another who was not feeling well. Photos and stories could be sent home and instant responses received.

The interaction with the Malaysian school extended beyond the study tour period and involved all students. This included activities in which, for example, students could share their music and teach each other songs. This was particularly motivating and effective for some of the low achieving students: *'for me, music is the best way to speak the language'*. Students were also working together through games and joint activities as well as *'just chatting'*. Importantly, these more informal links provided them with authentic opportunities to use the language.

The site also opened many new opportunities for teaching and learning within the LOTE classroom. Students were able to establish their own ePortfolios, within which they could *'demonstrate their achievement and participation'*. Their blogs provided a forum through which they could upload work, send drafts for feedback, discuss progress with their teacher, plan joint projects with their peers and undertake LOTE games and learning activities. Parents could also become more involved in the work their students were undertaking in Indonesian

As only two of the students had used blogs prior to the trial, the class commenced by writing basic posts in English. With a focus on Indonesian Culture, they *'wrote their own text and learnt how to embed images, reference their information and images and provide links'*. As students became more comfortable with the idea of blogging, they were encouraged to communicate in Indonesian. These activities were often structured, where students were writing about specific topics or using particular grammar points that had been taught during the class. They were also encouraged to express their thoughts and opinions and reflect on their learning. Students and the teacher would respond with feedback.

Students saw the site as a valuable learning space. As indicated in the following comments, the students, *'really enjoyed the LOTE site'* because it:

'Helped me stay in touch with my classmates when they went to Malaysia.'

'Gave me the opportunity to talk to my teacher about homework outside of school.'

'Motivated me with my studies of Indonesian.'

'Helped me achieve good results.'

Others saw the benefits in being able to *'talk to people overseas* and in particular, doing this *'in a safe way'*. Staying *'in touch with classmates when they went to Malaysia'* was also appreciated by those who did not travel. Students enjoyed writing their own blogs, and *'commenting on other students' photos and blogs when they were on their trip to Malaysia'*. One added: *'The only thing I would like to say is that this website is amazing terma kashi!!!'*

Having the opportunity, to communicate with their peers in and outside of school hours, was also regarded positively: *'We could make live blogs and my class mates could read and comment on them and answer any questions.'* Teacher access was also highly regarded: *'We were able to gain help from the teacher when we were at home if we needed help with any homework or we didn't understand it'.*

Although Indonesian technology applications were hard to come by, the teacher adapted various applications to create further *'new learning and teaching activities which developed students skills and knowledge in a variety of learning engagements.'* For example, using an application for creating comic strips, the students were required to develop their own comic strips and write the captions in Indonesian. These were established on their blogs to be shared amongst their peers. Students regarded this as *'a fun way to learn'*.

Various assessment strategies and learning tasks were used over the project period but, within these, students had choices that satisfied their learning needs and preferences. For example, they were required to produce audio files in which they recorded themselves reading, or speaking. A range of options was offered that included poems, songs, a creative piece, stories or a body of text. These audio files were then uploaded on to the site. Assessment by the teacher, as well as self and peer assessment, was guided through assessment rubrics and detailed self reflection sheets. Students were encouraged to reflect on what they had learned, the degree of difficulty experienced and how they would do things differently next time, as well as their learning styles and preferences, their strengths and areas for future improvement. Student surveys were used to gather student perspectives and experiences prior to and during the project. Assessment and improvement also became more continuous as students uploaded their work onto their blogs and received immediate feedback from their teacher and in many cases their peers. The *LOTE 2.0* site also enabled and encouraged parents to take greater interest in their student's progress.

Through the project, the teacher saw substantial changes in her students' motivation, enjoyment, persistence, confidence and capacity to communicate in Indonesian. Many of the responses from her students endorsed this view:

'I think this year of LOTE was the best one yet. It made me really enjoy learning Indonesian.'

'I enjoyed my experience about using the Web 2.0 project. It was fun and productive.'

LOTE 2.0 website has motivated me to come to class and learn more about studies for Indonesia.

There is also increased interest in continuing LOTE.

The NALSSP provided the teacher with the incentive and some funds to establish what has become a very powerful teaching resource. Due to delays in purchasing equipment and the very short time frame for the trials, she acknowledges that that they are, however *'only just beginning'*. As the project progressed, she could see more opportunities that have inspired her to explore new ideas *'beyond the call of the project.'*

She is now confident in her capacity to *'continue the development and delivery of 21st century educational practices'* and to *'lead other teachers with this modern and practice based pedagogy'*. By undertaking her own research *'that focused on finding solutions'* to problems within her own practice, she was able to *'connect with the learning process and change my pedagogy with the greatest level of authenticity'*.

As a result of her work, she has been invited to complete the study through a PhD. This has confirmed for her that *'my project has been a success, and the importance for the continuation of this research is recognised on a large scale'*.

APPENDIX 2: ePotential Data Summary Report

NALSSP Project
ePotential Data Comparison Report
6 December 2010

The ePotential ICT Capabilities Resource is an online tool developed to address the need for teachers and schools to have a benchmark of their ICT capabilities, and to provide teachers with resources for their ongoing professional learning in ICT.

The ePotential Teacher ICT Capabilities Survey data collected from the start and end of the NALSSP Project have been compared to identify the key findings from the research project.

Survey Recipient Report

- There was an 87% response rate to the ICT Teacher Capabilities Survey with 46 out of the 53 participants completing the survey at least once this year. (1 participant was not included in the ePotential data as they were a late inclusion to the project and 1 participant was ticked as not applicable to responding to the survey).
- 30 of the participants responded twice to the survey, at the beginning and end of the project (55%).

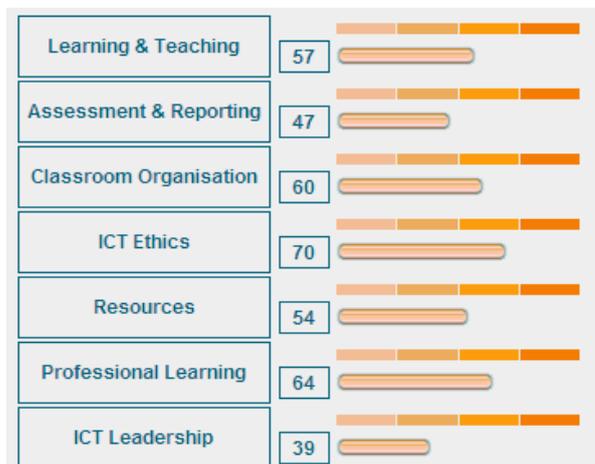
Survey Results

18th August 2010



Capability	Average Phase
Learning & Teaching	Emergent
Assessment & Reporting	Emergent
Classroom Organisation	Innovative
ICT Ethics	Innovative
Resources	Emergent
Professional Learning	Innovative
ICT Leadership	Emergent

6 December 2010



Capability	Average Phase
Learning & Teaching	Innovative
Assessment & Reporting	Emergent
Classroom Organisation	Innovative
ICT Ethics	Innovative
Resources	Innovative
Professional Learning	Innovative
ICT Leadership	Emergent

- All key areas remained in the same phases during the project except for Learning and Teaching and Resources which both moved from Emergent to Innovative.
- There has been an increase in the averages of all key areas of between 7 and 12%.
- The greatest increase in key area averages were in Learning and Teaching (12%), Assessment and Reporting (11%), Classroom Organisation (9%) and ICT Professional Learning (10%).

Key Findings

Below are a number of notable differences between the Teacher ICT Capabilities Survey at the beginning and end of the project.

Learning and Teaching

The notable findings from the Learning and Teaching key area for the NALSSP Project are the increased use of ICT for increasing, practicing and demonstrating skills and for communication and collaboration.

The most significant increases at the end of the project in Learning and Teaching – Supporting Students were:

- I support students to use ICT to demonstrate their knowledge and understanding of concepts and issues. ↑26%
- I support students to use ICT to improve digital literacy skills. ↑23%
- I support students to use ICT to communicate with others (formally and informally). ↑23%
- I encourage students to use ICT to support collaborative teamwork. ↑23%
- I support students to use ICT to improve their ability to understand and process large quantities of information. ↑20%

The most significant increases at the end of the project in Learning and Teaching – Frequency of Classroom Activity were:

- Students use presentation software to communicate a concept. ↑31%
- Use of ICT games for practicing skills, developing strategies and solving problems. ↑25%
- Use of drill and practice software to reinforce concepts and skills. ↑24%
- Students participate in online collaborative projects. ↑23%
- Use of multimedia resources, such as interactive, to develop literacies. ↑21%

Assessment and Reporting

The notable findings from the Assessment and Reporting key area for the NALSSP Project are the significantly increased use of ICT for student self assessment and reflection and use of hand held devices for ongoing assessment and reporting.

The most significant increases at the end of the project in Assessment and Reporting were:

- Encourage and promote the use of ICT for student self assessment, enabling deeper reflection. ↑25%
- Use ICT to capture evidence of student performance. ↑22%
- Use hand held devices (such as iPods, smartphones) for assessment, recording student progress and reporting. ↑19%
- Use student generated digital learning portfolios. ↑18%
- Use ICT for student assessment tasks, such as online tests or surveys. ↑14%

Classroom Organisation

The notable findings from the Classroom Organisation key area for the NALSSP Project are the increased use of ICT for personalising learning and catering for different learning styles.

The most significant increases at the end of the project in Classroom Organisation were:

- Providing personalised learning opportunities. ↑27%
- Catering for different learning styles and needs. ↑14%

Teacher directed use of ICT has decreased greatly by the end of the project:

- Students negotiate and manage their use of ICT in the classroom. ↑16%
- Students use ICT when scheduled and directed by me. ↓15%

ICT Ethics

The notable findings from the ICT Ethics key area for the NALSSP Project is that there is either no or only slight differences in the responses and that the greatest increase was the awareness of copyright and privacy laws.

The increases at the end of the project in ICT Ethics were:

- I ensure my students and I adhere to copyright and privacy laws when using the digital materials of others. ↑11%

Resources

The notable findings from the Resources key area for the NALSSP Project are the increased use of ICT for communicating and collaborating and accessing of ICT resources.

The most significant increases at the end of the project in Resources were:

- Online Conferences e.g. Elluminate or Microsoft LiveMeeting. ↑29%
- iPod or other MP3 players. ↑19%
- Videoconferencing. ↑17%
- Interactive Whiteboard (IWB). ↑14%
- Microphone for digital recording. ↑14%

The most significant increases for Resources – Utilisation and promotion of resources were:

- I can locate and use ICT tools and resources for my classes. ↑27%
- I can access ICT resources from education specific sources outside my school. ↑25%
- I ensure resources in my classroom are relevant to learning activities. ↑25%

ICT Professional Learning

The notable findings from the ICT Professional Learning key area for the NALSSP Project are the increased use of ICT professional learning opportunities outside of school.

The most significant increases at the end of the project in ICT Professional Learning – ICT Professional Learning Activities were:

- I maintain a digital professional portfolio. ↑13%
- I collaborate with colleagues on authentic problems and issues. ↑11%

The most significant increases at the end of the project in ICT Professional Learning – ICT Professional Learning Methods were:

- I undertake professional learning activities that are external to my school. ↑10%

ICT Leadership

The notable findings from the ICT Leadership key area for the NALSSP Project are that the greatest increases were in the confidence of leading ICT in your schools and participating in ICT projects outside of your school.

The most significant increases in ICT Leadership were:

- I initiate discussion with others on the use of ICT. ↑13%
- I lead an ICT culture which ensures funding is allocated for the sustaining, scaling and refreshing of ICT for learning and teaching. ↑11%
- I build partnerships using ICT with industry and community groups to facilitate authentic learning opportunities for students. ↑11%
- I contribute to ICT Professional Learning at a network or regional level. ↑10%