NCCA

National Council for Curriculum and Assessment
An Chomhairle Náisiúnta Curaclaim agus Measúnachta

nCte

Mobile-Assisted Language Learning

Report on the pilot project

September 2007

2

Contents

4

1. Introduction

One of the key Government objectives for Irish is to increase the use and knowledge of Irish as a community language
(Mary Hanafin, Minister for Education and Science, 11 March 2007).

1.1 ICT and language learning

Mobile devices and computer-mediated communication have been used for language learning during the course of research projects, pilot projects or third-level integrated scenarios for a range of target languages (Kiernan and Aizawa, 2004, Scwienhorst 2000, Appel 1999, Brammerts 1996, Lamy & Goodfellow, 1999). Projects in second level have rarely been documented or indeed used within the context of teaching and learning Irish.[1]

This pilot project was initiated by the NCCA, at the request of the Minister for Education and Science, to investigate the use of Information and Communications Technology (ICT) in post-primary schools in Ireland for teaching and learning Irish. The NCCA approached the National Centre for Technology in Education (NCTE) with a view to creating a partnership for the project.

Mobile telephones, laptops, the internet and a text-based web chat application were deployed and used with second year students and their Irish teachers in a school in County Meath on a pilot project basis. The pilot project ran for a period of four weeks (23 April- 18 May) after initial scoping and fitting period of five weeks and one week familiarisation period for teachers.

1.2 Aims of the project

The aims of the pilot project were to investigate the use of ICT to

---

[1] Monica Ward (Keogh, Koller, Ward, Úí Dhonnchadha and van Genabith, 2004) has reported on the use of an Intelligent Computer-Assisted Language Learning tool in primary schools in Ireland for teaching and learning Irish.

- promote student oracy in Irish
- increase student motivation
- increase student use of the four skills, reading, writing, speaking and listening, in Irish
- help students progress their Irish competency
- promote the use of Irish for communicating
- investigate the use of ICT to assist teachers in assessing students and students in self-assessment.

1.3 Involvement

In support of the pilot project, the NCCA and the NCTE convened a small advisory committee comprising representatives from the NCCA, NCTE, the pilot project school principal, State Examinations Commission (SEC), Foras na Gaeilge and WebSonic.[2] The committee was chaired by NCCA's CEO. This committee only convened to support the pilot project during the phase, April - May 2007.

One school participated in the pilot project for the duration April – May 2007. Ratoath College in County Meath is a new school which opened in 2005. The school accommodated first and second year students during the pilot project period in their temporary accommodation in Fairyhouse Racecourse. A new school building is under construction and due for completion for the 2007/8 school year. The project was run with second year students and their teachers. 69 of the 72 second year students were divided into three separate classes for Irish. One class were studying for ordinary level Irish with their teacher Nora[3] (16 students) and the other two classes were studying for higher level Irish with their two teachers Aisling (29 students) and Anna (24 students).

---

[2] WebSonic were contracted for software development and technical support provision for the pilot project.

[3] Teachers' names have been changed.

2. Pilot project description

The use of two pieces of hardware and some of their ancillary facilities were investigated during the course of this pilot project. Mobile phones using call and SMS facilities and laptops (combined with internet facilities) using text-based web chat were deployed to help meet the needs of teachers and students in achieving the aims listed in Section 1. The technologies were integrated and used as tools to facilitate the course of work planned by the teachers involved for the duration 23 April to 18 May. Indications of how these components progressed during the pilot project period in the classroom are included within each section.

This section outlines the additional aims set out within each of the project components, information relating to previous uses of similar technologies for teaching and learning languages, details of how the technologies were implemented on the pilot project and observations on their use gathered by NCCA education officer.

2.1 Mobile phones

Mobile-Assisted Language Learning (MALL)

Despite the popularity of mobile phones among students and their ready availability, few papers have documented their use as a tool for language learning and teaching. Mobile phones offer ever increasing functionality, with e-mail, internet access, text, camera, MP3 and chat facilities available. M-learning, mobilearning and mobile-assisted language learning (MALL) have all been used to describe the use of mobile phones for learning, with MALL more specifically referring to language learning. Moblogging refers to the use of mobile phones for web-logging (blogging).

Kiernan and Aizawa (2004) have reported on a small-scale project using text, e-mail and chat facilities of mobile phones for Japanese learners of English. They highlighted the portability of mobile phones, the 'any time' access to messages and the fact that they are *popular among students for communicating with each other* (2004: 72) as motivating factors for their use. A further point of note draws attention to the small

screens mobile phones have and the restriction on text message length – while mobile phones limit the size and amount of text which can be communicated per text message, beginner learners of a language are less inclined to use their first language in a text message as they can be in face to face communication.

Chinnery (2006) provides an overview of reported uses of mobile phones for language learning from a range of projects. These projects enlist MALL to provide learners with feedback and assistance via voice (Twarog and Pereszlenyi-Pinter, 1988), vocabulary quizzes, word and phrase translations via voice and email, (Brown, 2001), vocabulary instruction via SMS (Thornton and Houser, 2002; 2003; 2005, Levy and Kennedy, 2005) and English lessons from BBC World Service's Learning English section via SMS (Godwin-Jones, 2005).

MALL and the pilot project

In the context of this pilot project, students used mobile phones for
1. language practice and assessment (Section 2.1.1) by making calls to an automated system and responding to prompts
2. vocabulary learning (Section 2.1.2) by receiving vocabulary words and phrases through daily SMS.

In addition to fulfilling the overall aims outlined in Section 1.1, the mobile phone strand of the pilot project supported the following sub-aims: (1) to increase student motivation through the use of familiar technology each student uses every day, (2) to promote oracy through audio-lingual methods, (3) to increase student use of Irish and to increase competency in Irish. The system was also used by teachers to support assessment of student progress in oral skills in Irish.

2.1.1 Mobile phones in language practice and assessment

Each student participating in the pilot project was supplied with a mobile telephone, checked out on Monday morning and retained for the project duration. Teachers did a check on phones each Monday morning to ensure students were still in possession of phones. Mobile phones were restricted to dialling out to one pre-supplied number.

Students were requested to phone up the supplied telephone number and log-in to the system using individual student numbers and PINs. Use of the mobile phone for Irish took place during Irish classes in school, during students' free time in school and outside of school hours.

Once students had passed through the log-in process using individual student numbers and PINs, they were presented with a series of ten question prompts. These ten question prompts were randomly chosen from a series of twenty questions for this level or pool of questions. After each question prompt, the student was given the opportunity to respond to the prompt. After their response was recorded and played back, the student had the option to re-record their answer or move on to the next prompt.

Students worked their way through a series of levels, each comprising twenty questions. Level one was common across students studying for ordinary and higher level Junior Certificate Irish. Levels two to five inclusive were differentiated for students studying for ordinary and higher level Junior Certificate Irish. Topics were common across levels but questions differed. This component was integrated to ensure all students had a sense of achievement and progression across levels.

Teachers used laptops online to download, listen to and provide feedback on student responses for each question answered. The download option also included a Podcast for teachers to download and listen to student responses on the go. Feedback was based on the Junior Certificate oral Irish marking scheme. Teachers decided when students moved on to the next level of questions and which questions needed to be re-answered within any given level.

Feedback to students was supplied in the form of a question feedback booklet. This booklet facilitated the teachers' marking scheme for each question and a tick box for students once the question had been answered successfully. This booklet could be printed directly from the teachers' computer-based marking system or saved for later access.

The question feedback booklet served as a record of progress for students. Students' oral responses were also saved during the pilot project and made accessible to

download as a Podcast and take away as a record of their Irish production skills. The podcast also included text-based feedback information supplied by the teacher on each of the student's responses.

Questions to be included within the five levels were based on topics in the Junior Certificate Irish curriculum and within the plan of work for teachers involved in the pilot project.

- Level 1 – An dalta féin - teaghlach, mo chlann, áít chónaithe
- Level 2 – An scoil agus ábhair staidéir; eagrais atá sa cheantar
- Level 3 – Caitheamh aimsire – sport, ceol, teilifís
- Level 4 – Laethanta saoire

These topics were expanded to include some of those indicated by the students during an informal session outlining the pilot project and brainstorming for direction on content on 7 March. Some of these topics were absorbed within Level 3 – Caitheamh aimsire.

During this session, the students suggested the following topics:

- Sport
    - Rugby
    - Gaeilc Football
    - Hurling / camogie
    - Horse riding
    - Dancing
    - Question on sport to answer – e.g. who won the match last week?
    - Describe a footballer
- Music
    - Play a piece of music – answer a question on who sings it or relating to the lyrics
    - Singers and bands
    - Listen to an Irish translation of lyrics of an English song and

- Television
    - General knowledge questions on the Simpsons, Coronation Street, Eastenders, Emerdale, Desperate Housewives, Friends, Lost, Podge and Rodge and Father Ted.
- Radio
    - Questions or use of the Toll Trolls
- General Knowledge / World news
    - True/false response
    - Who wants to be a millionaire?
- Computer games
    - Playstation Fifa '07

- guess what song it is
- Movies
    - Ask questions about newly released films and actors
    - Celebrity quiz
- Buzz general knowledge
- Puzzles and clues
    - Crosswords, word searches

Teachers prepared the topics to be encountered in their usual way in the classroom. This process was facilitated by the use of teacher laptops and data projector (when it arrived at the school). Students were exposed to and prepared to answer approximately ten of the possible twenty questions within the phone system. The remaining ten questions required the students to produce answers by drawing from what has been learned around the topics in class.

The first session using mobile phones in the classroom ran without any problems. Students readily adapted to using the mobile phones; the technology did not act as a barrier to teaching and learning. All three classes involved totalling 69 students attempted to log into the system with a capacity for 30 concurrent calls at once. Therefore, the only problem encountered by students was accessing the prompt system. Students entered and saved the prompt system phone number to their list of contacts, changed the wallpaper on the mobile screen and also changed their ring tones without any assistance from teachers. Once each student had familiarised themselves with their phone, they began to attempt making calls to the prompt system. Students seemed quite shy about recording responses in front of their classmates. Teachers later commented that recordings recorded outside of school hours, usually from home, got much louder and confident over time.

On first use, some students required some assistance navigating their way through the series of actions needed to access their set of question prompts (e.g. *Cuir isteach d'uimhir aitheantais* / enter your PIN). Once students had worked their way through the actions a few times, they no longer acted as a barrier to accessing the question prompts.

Students generally accessed the prompt system from home, with a few sessions taking place in class. The total amount of call time used per student during the four week period was approximately 2 hours and 6 minutes.[4]

Once students had worked their way through a level, they were given a new student number and PIN to log into the system again. It had been envisaged that teachers could automatically move their students on to the next level through their online interface once sufficient answers had been left for a level. Unfortunately, due to time constraints, it was not possible to implement this feature within the teachers' web-based interface. Students often complained about needing to use so many different numbers and PINs to access the system (see Section 4).

Students and teachers came up with additional uses of the mobile phone features. The phones supplied to students had a voice recording option included. One teacher asked students to record a voice mail on their phones at home in response to a specific teacher-defined task (e.g. *D'fhag tú do dhialann scoile sa bhaile agus tá do chaomhnóir ar buile. Scríobh teacsteachtaireachtaí chuid do Mham/do Dhaid ag rá leo teacht go dtí an scoil leis*). Each student played their recorded message in class the following day. The teacher felt that student progress made during five lessons teaching writing skills incorporating the use of mobile phones far exceeded the outcomes from a similar set of 15 lessons taught a few months prior to the pilot project.

2.1.2 Mobile phones in vocabulary learning

Each day, one vocabulary word or phrase was sent by SMS to students' phones (scheduled to arrive during allocated Irish classes or outside of school hours). The vocabulary was selected from the teachers' planned topics for the duration of the pilot project - an effort was made to include 'cool' words and phrases the students would be motivated to learn. The SMS delivered to students during the course of the pilot project ranged from single words, to phrases to multiple choice quiz vocabulary items (e.g. Reoiteoir = a) fridge, b) cooker, c) freezer). Students were required to incorporate the word or phrase into Irish conversations during their school day. It was intended that

---

[4] Call costs charged for the project duration were €2,209.24. Calls cost €0.254 per minute divided between 69 students.

students would also be required to use the new word as often as possible (but in a meaningful and contextualised way) during the course of their weekly text-based web chat component (see Section 2.2.1).

Students responded well to receiving SMS vocabulary texts each week day, to the extent that they requested that their teachers continue sending SMS vocabulary texts to their personal mobile phones during the Summer holidays. Other language teachers in the school expressed an interest in facilitating delivery of vocabulary words in their target language through SMS.

2.2 Text-based web chat

Text-based web-chat for language learning

Synchronous text-chat (written synchronous conversation) has been widely documented as a tool for language learning and teaching. Text-chat has been reported as benefiting students' oral participation and proficiency (Vetter and Chanier, 2006, Payne and Whitney, 2002). Vetter and Chanier (2006) report on two conclusions made about text-chat: (1) learners in text-chat participate more than in face-to-face conversation (Kern, 1995) and (2) participation is best shared between learners due to equalisation[5] (Warschauer, 1996). Kitade (2000) mentions a third finding about text-chat, *learners produce more complex structures* in text-chat (Vetter and Chanier, 2006).

O' Dowd and Eberbach (2004: 7) have reported on the benefits of using text-based communication through electronic media for language learning - supporting learner autonomy through the use of MOOs[6] (Schwienhorst, 2000), fostering language awareness through e-mail (Appel, 1999), developing learners' writing skills (St. John & Cash, 1995), improving grammatical correctness (Brammerts, 1996) and developing higher order thinking skills (von der Emde, Schneider and Kötter, 2001).

---

[5] a more balanced participation between speakers

[6] MOOs started out as text-based adventure games where a number of users could participate

Text-based web chat and the pilot project

In the context of this pilot project, students used text-based web chat to communicate with their classmates and teacher. Communication was focused on a prompt or task provided by the teacher (see Section 2.2.1 below).

In addition to the aims outlined in Section 1.1, the text-based web chat component of the pilot project was targeted at fulfilling the following sub-aims: (1) to promote the use of Irish for communicating, (2) to increase students' competency in Irish, (3) to use new but student-familiar tools to facilitate Irish teaching and learning and subsequently increase motivation and (4) to promote alternative forms of communication which facilitate oracy for students with hearing and/or speech impairments.

2.2.1 Text-based web chat application

It was intended that all students would take part in a text-chat lesson once per week. Laptops connected to the internet were used to facilitate a text-based web chat application. Students logged into the system and were assigned a randomly chosen partner to chat with. Chat partners were kept anonymous to alleviate the negative aspects of peer pressure and 'image' maintenance, to allow students to freely express their opinions in Irish in an anonymous way and to allow the teacher to be a chat partner in any instance. The anonymous teacher could target students with varying levels of competency and prompt them through chat to reach their maximum potential – students requiring more assistance could be helped along with scaffolded conversation while more advanced students could be challenged with more complex topics.

Students always had a link to an online dictionary.[7] This provided some of the scaffolding (Wood, Bruner, & Ross, 1976) necessary to support students' language production. Access to and use of computerised bilingual dictionaries has been reported to *help stimulate vocabulary learning* and help *all students to process new expressions rapidly and effectively* (Loucky, 2002: 132). English words were only permitted where the Irish word could not be sourced in the online dictionary and up to a maximum of approximately one English word per ten Irish words.

---

[7] http://www.englishirishdictionary.com/

Students were to be provided with prompts for discussion during a pre-chat session in class or viewable during the actual chat time. The teacher's laptop and the data projector were to be used to facilitate the prompt[8] which could be a topic from class, video, images, music or song lyrics. Text-based conversations were to ensue around the chosen prompt and monitored in real-time by the teacher but also saved to script for later examination. Learning through prompts or tasks has been reported to help the learning process through focusing the learner on meaning and hence stimulating the acquisition process (Ellis, 2003). Teachers were able to ascertain which student was which and also interrupt individual conversations if they needed to be redirected in content or target language being used.

The following stimuli were suggested by students for use in the text-based web chat component of the pilot project during the session on 7 March:

- Picture of clothes
- Movies / videos
- Songs
- Shape of a country – where is it and chat about it
- Watch a clip of a match – talk about it

- Timed view of a picture – 20 second look at a picture and then describe what you saw
- Compare and contrast two pictures
- Pictures of items inside and outside the building

Unfortunately, due to complications with the internet connection in the school, it was not possible for all students involved in the pilot project to participate in the chat sessions. On two separate occasions, teachers attempted to use laptops to access the internet with their classes but the internet connection failed. On a third attempt, technical support provided by WebSonic and the school's deputy principal enabled one class to access the chat component of the project online. A subsequent attempt by this class teacher enabled her class to have a second web-chat session.

Due to the intermittent and unreliable access to the web-based text chat component, teachers did not supply prompts (for example, video, photograph or image) for students to guide discussion. Students were instructed to introduce themselves to their

---

[8] Due to bandwidth restrictions in the school, it was not possible to have each student to simultaneously download and view each day's stimulus to their own laptops.

anonymous partners and to talk about themselves. Chat scripts recorded trial-based discussion rather than flowing conversation (e.g. *an bhfuil sé ag obair?* / is it working? *An bhfuil aon duine ann?* / is there anyone there?).

In a similar fashion to the question feedback booklet and store of recorded student responses, saved scripts were also made available to the students to save and take away as samples of their Irish performance. In this instance, no feedback was printed for students as conversation opportunities did not amount to what had been anticipated.

2.3 Pilot project limitations

The pilot project was run within a short period of time, April – May 2007. For this reason, certain features of the technology used were restricted. Any further expansion of the pilot project would attempt to investigate the use of voice to voice communication of students and teachers.

Due to the unpredictable nature of the internet connection at the school involved in the pilot project, it was not possible for all students to access and use the text-based web chat application as envisaged. Its use and evaluation within the scope of the pilot project are therefore, somewhat limited.

During project scoping, certain desirable features were identified by teachers and students for inclusion. Unfortunately, due to time restrictions, it was not possible to incorporate these features for the short pilot project period. These features will be borne in mind for any future expansion of the pilot project.

Features mentioned include
- avatar / photo and pseudonyms to accompany students' identities in text-based web chat application
- stimulus for text-based web chat application to be provided through each students' interface with the system
- voice-to-voice chat for students

- individual teacher log in to access only their class responses
- exemplary response selection to accompany students' downloaded responses
- use of student voice postcards as biometric log-in identifier.

3. Evaluation methodology

The pilot project was evaluated internally to identify pilot project outcomes and limitations. The internal evaluation was conducted by NCCA. The evaluation results presented in this document will feed into any proposal for further expansion of the pilot project.

3.1 Internal evaluation

It was hoped that student results gathered by teachers along with text-based chat scripts recorded during chat sessions and feedback booklets compiled by teachers on students' oral responses could collectively be used to examine student progression or lack thereof quantitatively over time. Unfortunately, due to the problems encountered with the internet connection at the school, any recorded text-based chat scripts from the one class accessing the text-based web chat project component did not present any coherent record of student competency. Teachers' questionnaires did pose a question (see appendix 2: Question A2) to elicit whether teachers felt that students' competence had progressed during the project period. The students' questionnaire also posed a question (see appendix 1: Question 4) relating to competency. It is hoped that the data gathered from these two sources will be sufficient in showing the participants' view of competency, if somewhat more qualitatively and subjectively than originally planned.

Teachers were asked to keep a **reflective diary** over the course of the pilot project, from the planning stages beginning 7 March 2007 through to the completion of the pilot project on 18 May. It was anticipated that this diary would track teachers' views of the project as it progresses over time and include items such as benefits/challenges experienced, time investment, identification of learning, and student participation, uptake, reaction and motivation. One joint reflective diary was submitted by the three teachers involved (see Section 4).

Teacher and student questionnaires were conducted to ascertain the qualitative aspects of the aims identified in Section 1 – motivation, enjoyment and student learning

– as well as positive/challenging experiences, work load, time investment in relation to student achievement and use of other teaching tools. One teacher questionnaire and 61 student questionnaires were returned for analysis.

The NCCA education officer noted **observations** throughout the pilot project period. These observations were taken from first-hand experience of the project in action and from second-hand details reported by the teachers involved over the phone and by e-mail. These observations are included in Sections 2 and 4.

Impromptu feedback was also gathered in all classrooms when the pilot project was nearing completion. Teachers and students discussed their general observations and experiences of using the integrated technologies and taking part in the project. This feedback was recorded by the NCCA education officer. One class of students each provided five items of written feedback on their experiences and perspectives. All feedback is included in Section 4.

3.2 External evaluation

This pilot phase of the project will not be externally evaluated. Any further expansions of the pilot project after this initial phase would be subject to external evaluation.

4. Evaluation results

4.1 Teachers' reflective diary

All teachers submitted a joint reflective diary on their collective experiences of working on the pilot project. Data from the teachers' combined reflective diary was generally positive. Any challenges or difficulties identified were followed by suggestions on changes to the teachers' interface to overcome these challenges or difficulties.

Teachers found the new way of providing feedback to students gave them an opportunity to hear *quiet/shy/withdrawn* students as well as investing more time than is usually possible during a fixed class period, listening to and providing feedback on every student's spoken Irish. Teachers were also able to examine student's progress in their use of grammar and syntax through conversation. The teachers stressed how this form of examination is not usually possible for each individual student in the classroom and is how examination is usually based on the student's written production *which does not always match a student's oral abilities in the target language.*

Teachers liked the shift from teacher-led learning to more student-led or autonomous learning, *the use of the phone in class and at home transfers the focus away from teacher to student.* Teachers commented that students were not inhibited by the use of the technology; in fact, *their technological background far outweighs that of their teachers* and *gives students a new dimension to learning a language.* Teachers mentioned the *ownership* students were enabled to have over their own learning and how they were facilitated in developing their *abilities in the spoken language at his/her own pace.* Learning Irish through using the integrated technologies facilitated more differentiated learning for each student, *very good students have no hesitation in asking for a new student number and password, while the average/weaker student has the opportunity to repeat the necessary questions in the privacy of his/her own home.*

Teachers felt that their students' self-esteem and confidence was enhanced through using the technologies for learning and practising Irish. Students were facilitated in having a greater sense of freedom in responding to prompts as only the teacher and

the student themselves need hear the response. Teachers felt this was a *very positive point for weaker students in a mixed ability higher level class.*

Teachers provided an example of student learning being much faster when the technology was incorporated that it had been when the same material had been taught previously. Teaching a topic previously over 15 lessons using more traditional methods had yielded lower results than 5 lessons using the text message editing and voice record function (dictation function) on the mobile phones. Teachers outlined that students were so happy with the SMS (text-message) component of the project, that they have *expressed an interest in receiving a daily word on their own phones during the Summer holidays.*

Teachers also identified some challenges associated with integrating the technology into their teaching. Integrating the technology required a lot more **time** investment for correcting student responses and meeting as an Irish team to collaborate on the project. They felt that this extra time investment had a negative impact on other classes they were responsible for. Teachers did provide suggestions on how to cut down teacher time through students having the same log in for the duration of their time using the technology, that teachers log into an individual space where only their class results are displayed (to save searching through other class results for the relevant student response) and that students are identified by name rather than number (to save searching through many numbers). Teachers felt that the Irish team would require a dedicated 40 minute slot per week to meet and discuss the project progress should the project be expanded beyond the pilot phase.

Teachers felt they needed to be **more prepared** for each class than normal as the technology component required more preparation to ensure the reliable delivery of a lesson. The unreliability of the internet connection in the school also presented a challenge to teachers. They mentioned that they would always require an alternative lesson plan should the technology fail.

The teacher of the class which was able to access the chat component recommended that strict classroom planning and classroom management rules are put in place before using laptops for the chat component in a whole-class setting. This teacher teaches

through Irish and expects students to communicate through Irish during Irish classes. She was quite disheartened when students were using English to verbally communicate (rather than by text in the chat session) in class during the trial chat session. Teachers suggested that *strategic planning and language rules* ought to be in place in advance of any class incorporating newer technologies.

Teachers would like to be facilitated in **drawing up their own questions** for each level and indeed their own levels and in having the facility to **change questions over time**. For the pilot project, all teachers were commissioned to develop questions for the prompt system and its levels. These were recorded and remained static for the duration of the pilot project. Teachers would have preferred to have the flexibility to adapt these questions and levels over time, as they evaluated their students' progress during the pilot project. They felt that *a constant revision of the questions is essential.*

Many of the challenges and difficulties identified by teachers could be addressed in amendments to the software system should the project be extended. Other difficulties identified (need for strategic planning) could be considered and implemented in light of any expansion to the pilot project.

4.2 Teacher and student questionnaires

4.2.1 Teacher questionnaires
Only one teacher responded to the questionnaire. This could be attributed to the busy exam time of year when the questionnaires were supplied to teachers. This is the period when the pilot project came to a close. The remaining two teacher questionnaires may be submitted in September 2007 when teachers return to school.

Due to the single response, results within this section will be summarised under the questionnaire sections rather than results being examined within each individual question posed.

Student learning
This teacher felt that students learned more as a result of using the integrated technologies than they would have using more traditional methods of teaching and

learning. She felt that they were more *switched on* due to their heightened interest and motivation in using the technologies. She stated that students were more open to speaking and using their Irish than they were before the pilot project and that the use of the technologies focused their attention on the task in hand. She noted small improvements in students' listening, reading and writing and a big improvement in their speaking skills. She added a note that her class were not facilitated in using the chat component so greater improvements in the writing and reading skills were not apparent.

Time investment

This teacher specified that involvement in the pilot project had required a lot of additional time. She estimated that ca. 4 hours were required to meet with other members of the Irish team, provide feedback on students' recorded responses and for administration work that would not otherwise have been required. This teacher felt that extra time invested during the course of the project was worthwhile as the project *really benefited our weaker students – they had to take part* [there was] *nowhere/no-one for them to hide behind.* Students used the technologies a few times a week in school and at home during the four week pilot phase.

Technology components

This teacher focused on the integration of the mobile phones in her answers as she had not been facilitated in using the chat component. One difficulty in integrating the mobile phones identified was that all Irish classes were scheduled at the same time. Due to the 30 consecutive call limit, only one class could really use the prompt system at a time. This teacher also integrated her own laptop during the course of the project for teaching and learning.

The challenges identified in integrating the technology were (1) noise in the classroom, (2) if students misunderstood a question they needed more assistance and (3) when the phones shut off [calls were dropped] suddenly. The benefits identified were (1) the interest of the students, (2) that the language can be modern and (3) that all students were interacting simultaneously and not waiting on the teacher.

When asked if they had found any additional uses of the technologies, this teacher replied that she had used the students' recorded responses in class via her laptop as she would usually use a listening comprehension. She questioned students on the different replies.

Motivation

This teacher felt that students were more motivated to learn Irish during the pilot project than they had been prior to the pilot project. She stated that they were *really excited and couldn't wait to start.* She expanded her response by stating that students were *demanding feedback* [on their recorded responses] *constantly.* This teacher stated that she was unsure whether students were more or less motivated to speak Irish as a result of using the integrated technologies. She felt that their usage of English in the classroom increased while discussing using the mobile phones. This reflects a similar comment evident in the teachers' reflective journal where students were using too much English during class time to discuss using the chat component of the project.

Enjoyment

This teacher indicated that she had enjoyed working with the technology. She found it *interesting, new, different* and *innovative.* She also specified that she had *learnt a lot.* This teacher stated that she felt that the students also enjoyed using the technology – their *sense of achievement* was *very high* and they too found it *new* and *different.*

Concluding comments

When asked for any additional comments or suggestions, this teacher made four suggestions for changes to be incorporated into the system should the pilot project be expanded:

1. make correcting more user-friendly. Teachers identified correcting (providing feedback to students' recorded responses) as very time consuming.
2. only one ID should be issued to each student
3. each teacher should log into their own class's details only. During the pilot project, teachers were required to scroll through a list of student numbers to identify their own students before they could commence providing feedback on students' recorded responses.
4. the need to revisit a few levels and instructions to make amendments to them.

4.2.2 Student questionnaires

Of the 69 students who took part in the pilot project, 61 students completed the students' evaluation questionnaire. The response rate was 88.41%. All valid percentages are rounded up to the nearest percent.

Q.1: Which teacher do you have for Irish?

Table 3.1 Number of respondents per class

	Count	Valid %	Level
Teacher A (Nora)	13	21%	Ordinary level
Teacher B (Anna)	23	38%	Higher level
Teacher C (Aisling)	25	41%	Higher level
Total	61	100%	

n=61, missing=0

Table 3.1 details the number of respondents per class. 13 of the 16 students in teacher A's class, 23 of the 24 students in teacher B's class and 25 of the 29 students in teacher C's class responded to the questionnaire.

Q. 2: Did you enjoy using the mobile phones and chat for speaking and learning Irish? *Yes / No*

Table 3.2: Levels of respondents' enjoyment in using integrated technologies for Irish

	Count	Valid %
Yes	58	95%
No	3	5%
Total	61	100%

n=61, missing=0

The majority of respondents (95%) indicated that they had enjoyed using the introduced technologies for speaking and learning Irish. A small proportion (5%) stated that they had not enjoyed using the technologies.

Students were asked to give a reason for their answer. The most frequent positive response was that the technologies facilitated their learning and that the respondents felt that their **competency had improved** or had learned more as a result of using the technologies…*I'm getting better grades.* Another student reported that *I learned more Irish; I would never have used so much Irish in class.* Many of the responses indicating that students had learned more as a result of using the technologies focused on the fact that their *spoken* Irish had improved, …because *I learned more and I'm able to*

speak better Irish. Other respondents stated that *I spoke more Irish in my sentences on and off the phone and I learned new words* and *…because it improved my ability to speak Irish quick*[ly] *without stalling.*

The next most frequent response indicated that the technologies represented something **new** or **different** to the usual tools or methods employed in the classroom and that as a result, respondents had learned more; students stated *…because it was a change from just writing in our copies* and *it was more interesting than normal homework.* Other respondents stated that *it's more effective and it gets you thinking* and *…because it was different, I loved it...*

The next most salient point made by students was that using the technology was **more fun** and **enjoyable** than more traditional methods. Students commented that *it's a more fun way to learn Irish and it helps you a lot as well* and *I liked it because it put a lot of fun into learning Irish and I think it was beneficial to me for my Junior Cert.*

Other positive themes emerging were:
1. that the technology represented a **more anonymous way to learn** and practise Irish, *no pressure because you can do it by yourself and not to an audience and you can do the same question as much as you want / because there is no examiner looking at you if you mess up.* The majority of the responses fitting into this category came from students studying for ordinary level Irish.
2. that you could **practise at any time and move at your own pace,** *you could speak any time and you could always revise your answer*
3. that you **could listen to and revise your answer**, *it improved my oral because I could hear what I said after I said it and I could hear my pronunciation*
4. that they enjoyed being able to use a **technology that they use everyday** for learning Irish, *I think using mobile phones to teach teenagers Irish is a good idea because most teenagers are always stuck to their phone and they couldn't live without it!*

Three respondents stated that they did not enjoy using the technologies for teaching and learning Irish. One reason stated was that the student did not feel that he/she had learned much and already knew what was being covered via the technologies.

Teachers had planned the levels on the prompt system to begin with materials already covered by the students for revision purposes and to gradually move on to newer materials as students progressed through the levels.

Other responses from students answering 'no' focused on two areas which would need to be addressed for any future expansion – the phones hanging up mid-call and the many passwords and PINS that students were required to keep track of to log into the voice-prompt system. These items will feature in Section 6 – conclusion and recommendations.

Q. 3: Did you enjoy speaking Irish more when using the mobile phones and chat than you did before the project? *Yes / Same as before / No*

Table 3.3: Levels of respondents' increased enjoyment for speaking Irish

	Count	Valid %
Yes	43	74%
Same as before	12	21%
No	3	5%
Total	58	100%

n=58, missing=3

58 students responded to question three. 74% of the 58 respondents reported that they enjoyed speaking Irish more when using the integrated technologies than they had before using the technologies. 26% (21%: same as before, 5%: no) of respondents reported no change in their overall enjoyment of speaking Irish while using the technologies.

When asked to explain their answers, most responses slotted into similar themes to those encountered in question two. There were many further references to **fun** and **enjoyment** in using the *new age technology* to speak and learn Irish. Students enjoyed using the integrated technology as a tool to learn Irish and this had a knock-on effect on their enjoyment of speaking Irish. Willis (2007) reports on research which *suggests that superior learning takes place when classroom experiences are enjoyable and relevant to students' lives, interests, and experiences.*

Students reported on increased enjoyment being due to the **different way** they were learning and practising Irish. Students reported enjoying it *because it was a change*

and *it was more fun than learning it normally.* The focus was moved to a different language skill, from writing to speaking. Students referred to a reduction in writing or not using their books, *we didn't have to do as much writing as before.* Another student made reference to the fact that *it was more active learning.* Students enjoyed speaking Irish more in this context as the approach was more student-centred and autonomous*, it gives you more freedom and you can repeat your answers as much as you like.* The anytime and anyplace access to the system also featured in responses.

Students again referred to their **competency improving** and stated that they **learned more**, …*because before the mobile phone project I wasn't good at pronouncing words or speaking and this made me better*. Many of the improvements referred to increased vocabulary and ease of speaking. One student stated *I wasn't able to speak Irish well before but now I have a lot more words to choose* [from] *that I have learned.* Enjoyment levels for speaking Irish increased proportionately to increases in competency, ability and fluency, *because I learned more and was able to speak it more fluently.* Increases in competency were attributed to the amount of speaking practice students were facilitated in having, *it gave me more practice at home and my teacher could still correct me.* Another student stated that *you get more used to speaking in Irish and you learn more easily.*

Students reported *more confidence* in speaking Irish and that they *didn't hesitate to answer the questions*. Other students attributed their increased enjoyment for speaking Irish to:

- the **variety of questions** they were asked, *because of all the different questions*
- the **reduction in pressure** and **increased anonymity** within the environment, *you don't get nervous as much as you would if you were talking to the teacher.* Another student stated that t*here was less pressure and you could learn from your mistakes.*
- their ability to **hear their own response played back** and **re-record their answers**, *because it recorded it and I could hear it played back.* A further respondent stated *because you could hear what you said and you could expand on what you had said before by pressing 2.*

- the **challenge** associated with keeping up with the prompts and responses. Students reported that they *thought the challenge was fun* and how it *was a challenge to keep speaking Irish.*

The majority of respondents selecting 'same as before' reported positively within the open-ended extension to question three. Those students selecting 'no' expanded on their answers by stating that they *did not like speaking Irish or* that *speaking Irish doesn't make them enjoy Irish more.* Only one of the negative responses (selecting 'same as before' or 'no') came from a student studying for ordinary level Irish, *I think it is as important to do the book as well.* The remaining 15 negative responses came from students studying for higher level Irish.

Q. 4: Did you learn more Irish as a result of using the mobile phones and chat?
Yes / Same as before / No

Table 3.4: Levels of respondents' increased learning

	Count	Valid %
Yes	38	67%
Same as before	14	24%
No	5	9%
Total	57	100%

n=57, missing=4

57 of the total 61 respondents supplied an answer to this question. The majority of students (67%) indicated that they felt they had learned *more* Irish as a result of using the integrated technologies as a tool. 33% (24%: same as before, 9%: no) of respondents stated that their levels of Irish learning had not increased as a result of using the technologies.

Q. 5: Did you use your Irish more during the project than you did before it?
Yes / Same as before / No

Table 3.5: Respondents' use of Irish

	Count	Valid %
Yes	47	78%
Same as before	9	15%
No	4	7%
Total	60	100%

n=60, missing=1

60 respondents answered this question. 78% of students responded positively to this question stating that they had used more Irish for the duration of the project and with the technologies than they had previously. 22% of students (15%: same as before, 7%: no) felt that they had not used any more Irish than usual as a result of participating in the project.

Q. 6: Would you recommend that next year's second years also work on the project? *Yes / No*

Table 3.6: Recommendation for other students

	Count	Valid %
Yes	56	93%
No	4	7%
Total	60	100%

n=60, missing=1

The vast majority of the 60 respondents (93%) recommended that the forthcoming second year class should also take part in the project and use the integrated technologies. Only 7% did not recommend that other students should take part in the project; none of these respondents are studying for ordinary level Irish.

Students were asked to elaborate on their answers in the second part of question 6. The most common reasons supplied advocating others' involvement were that it was **fun / enjoyable** and that **learning or progression had occurred**. One student wrote *it's surprising how much Irish you actually know when you are asked the questions. It was a good and fun way of learning and expanding more Irish.* Another student stated *I enjoyed it and it would be cool if they could do it too.*

Students identified a number of areas they felt they had improved in:
- **speaking**, *it's better for your Irish speaking and you learn new words with the SMS* and *it helps with speaking Irish and it's a good way to learn how to speak Irish*
- **conversation**, *because it does help them speak Irish and to have a conversation in Irish*
- **vocabulary acquisition** (*more words*), *because it's a big opportunity to learn more Irish and it would boost their vocabulary in the language*

- **understanding / comprehension**, *it will improve their Irish in general and make Irish easier to understand* and *it will help them understand Irish a lot easier.*

Students felt that they had benefited from participating in the project and that other students should also have an equal opportunity to do so, *because it would help them like it helped us.* Some students reiterated that they felt they had learned *more* during the project than usual, *it's a great experience and you learn a lot more than usual.* Other students felt that the new technological tools were beneficial for learning Irish, *because it's really fun instead of just using books.*

Only 7% (n=4) of respondents felt that others should not take part in the project. These students felt they had not benefited from participation in the project or would learn more using more traditional methods of teaching and learning, *I wouldn't because I think they would learn more from using books…(even though the phones were good fun).* One further comment referred to how the system *did not work very well.* The discussion will return to this final point in the context of the next question.

Q. 7: List three observations about using the mobile phones (benefits, challenges, things to change / improve…)

Students listed their observations on using the mobile phones to access the voice prompt system and receive vocabulary SMS daily. These have been categorised below according to prompts in the question.

The **benefits** associated with using the mobile phones again reflect themes identified earlier in this section. Students felt that

- they had learned more Irish, *benefits are you learn more* and *helps learn new Irish words / I learned more vocabulary*
- their speaking and comprehension skills had improved, *it helped with spoken Irish* and i*t also helps your listening to Irish*
- they were more confident in speaking Irish, *helps you answer questions without hesitating*
- they could practise at any time, anywhere and as often as they wanted to, *it encourages you to try, try again*.

Students also made comments suggesting their own capacity for autonomous learning was being realised, *helps you with your Irish speaking. It was good the way you heard your voice so you can correct yourself.* Students again remarked on the fun aspect of learning Irish through the use of the integrated technologies, *it was a new and fun way to learn Irish.* They referred to how the mobile phones were a different tool for learning Irish, *the phones were good and would help me speak better Irish rather than writing it down all the time.*

The **challenges** identified were generally in relation to the workings of the prompt system. Students outlined difficulties with the quality (clarity), speed and volume of the recorded prompts. Students responded that *the lady was talking way too fast and I couldn't really hear her.* Students also indicated that calls were regularly cut off mid-session (*it cuts you off sometimes which is annoying*) or that it was difficult to access the system to begin with when many people were trying to access the prompt system simultaneously (*sometimes you can't get through to it*). Only 30 calls could be received at any one, so in instances where students all attempted to access the system at once, only 30 would be able to do so.

The next most common difficulty identified was keeping track of the amount of student numbers and PINs students required to log into the system over time. Students stated that *it was hard to use because you have to keep changing numbers after every level.* As mentioned in Section 2.1.1, it had been envisaged that students would be moved onto the next level automatically by the teacher through the teachers' web-based interface. Unfortunately, during the pilot phase, students required a new student number and PIN to access each new level and also to repeat questions within their current level.

A few students felt that the questions were too easy while others felt that they were too difficult, especially *if you didn't know what the grammar means.* A small number of students reported that they had not received any SMS to their phones and one student reported receiving calls from unknown individuals. As students were not made aware of their mobile telephone number, they were not facilitated in passing around their number to receive calls.

Suggestions for **changes / improvements** to the system centred on those items mentioned under challenges above. These are all issues relating to the software/hardware solution and can be rectified should the project be expanded.

Students felt that the audio used for prompts ought to be louder and that the speaker should speak slower and clearer. Students would like more than 30 concurrent calls to be permitted at once so that they never have any difficulty logging into the system. They also requested that live call sessions were more robust so that they did not drop off mid-session. Students also suggested that they can move on to the next level automatically rather than requiring a new student number and PIN to log into the prompt system, as well as having the ability to move back and forth through levels.

Students also made suggestions for improvements to the system which were independent to challenges encountered while using the system. They requested that more questions were present at leach level so that they could continue practising beyond a limit of 20 questions. They also requested more activities and questions relating to their everyday interests and lives, *make day to day questions on stuff like sports, music or other things of our interest.* One suggestion was *they should put a camera on the phone and every day they should send us a word on the phone and we should have to take a picture of whatever the word is.* The conscious decision to provide basic phones without photograph facilities to students was made before the phones were acquired.

> Q. 8: List three observations about using chat (benefits, challenges, things to change / improve…)

As mentioned in Section 2.1.1, only one class were enabled to try out the text-based web chat facility due to difficulties encountered with the internet connection in the school. The first attempt at using the technology was with technical assistance and the second time was without. The class which attempted using the text-based web chat facility had 29 students (Aisling's class). 25 of these students responded to the questionnaire and provided an input on the text-based web chat component.

Responses will again be divided up into sections reflecting the question prompt - benefits, challenges and changes / improvements.

Students identified the **benefits** associated with the chat component. Those identified were that students again felt that they were learning Irish. They commented on improvements to their spelling, written Irish, conversational skills, speaking and confidence – *it improves spelling* and *it helps to make conversations in Irish*. Students again enjoyed using the chat component for learning Irish, *chat was a fun way of speaking.* Many students commented positively on being paired with an anonymous chat partner. They enjoyed interacting in Irish, learning how to type fadas and using their Irish in a meaningful way – to take part in a live conversation and be understood by your chat partner. *Gets you used to having conversations with strangers* and *it was good because you could talk to your friends without knowing who they were.* Students were aware that their teacher was monitoring conversations and commented positively on the teacher's ability to make sure they were speaking Irish.

Very few students reported on **challenges** associated with using the chat component. Some challenges identified were that it was *hard to set up* and that it was a *complicated procedure to get onto the chat page.* Some of the negative comments could be attributed to the few times the students were enabled to access the chat component. It may have been the case that with familiarity over time, accessing the chat component would not have presented any challenge to students.

Fewer suggestions were made for **improvements** to the system – *they should make the page open fully on the screen* and *you should have a particular topic to talk about because people don't know what to say sometimes.* As mentioned in Section 2.1.1, it was intended that students would be provided with a stimulus for conversation (be it a photograph or title of a story to jointly write). However, following problems encountered with access to the internet, conversations were left more open for students with the intent of structuring the lesson more following trials with the system.

Q. 9: Any other comments / suggestions?

Students' closing remarks were generally positive or made further suggestions for improvements to the system. Positive comments reflected how students had enjoyed using the mobile phones and chat component (where it was used) for learning and practising Irish and would like to have had a longer period participating in the pilot project. Some students also repeated their recommendation that future second year classes should also have the opportunity to take part in a similar pilot project. Some of those students who were facilitated in trying out both components reflected on how they preferred the chat component to using mobile phones.

Suggestions made reflected those identified in previous questions. Additional comments were that prompts on the mobile phone system could ask you to spell a word so that your writing improves alongside your speaking.

A few students stated that they thought the technologies should be employed less than they were during the pilot project and that they preferred the teacher.

4.3 NCCA education officer's observations

The NCCA education officer involved in the pilot project recorded her observations of the pilot project in action and feedback from students and teachers for the duration of the pilot project. Record was also taken of the impromptu feedback mentioned in Section 3.1.

Many of the observations and feedback gathered have already been reflected and discussed in teachers' and students' data gathered through the reflective diary and questionnaires. Many observations recorded during the running of the project have been mentioned in Section 2 and suggestions made for changes to the software will be included in Section 6.

What may be missing from the description of the pilot project in Section 2 and which warrants mention is the level of excitement and exuberance of the students in using the technology employed. Similarly, teachers were also very enthusiastic about using the

technologies. During training, when encountering their web-based interface to provide feedback on students' responses for the first time, one teacher remarked how it was *more interesting and interactive than sitting with a red pen.* Teachers also reflected on their ability to hear students who are usually quiet or shy in class and how certain students' confidence was notably increasing as they listened to their responses recorded over time.

The three teachers involved had varying levels of computer skills before the pilot project. They all embraced the use of technology and progressed through using the components with their students and themselves. Two short training sessions were facilitated at the school involved for teachers and a third day-long session was facilitated at NCCA offices. In hindsight, one day outside of the usual school day and environment would have been sufficient. Teachers were supported beyond training by e-mail and over the telephone for the duration of the pilot project. Much of the contact made by teachers was to suggest amendments to the system and feedback booklet format and troubleshoot any difficulty they had in navigating the students' recorded responses.

During the training session at NCCA, teachers also discussed a number of possible uses of the text-based web chat component as they were trying it out. These uses reflected the content of the Junior Certificate examination for Irish. They suggested that students could:
- build up a story between chat partners, one line each (scéal)
- discuss and write a summary of a story (scéal)
- write a letter between chat partners (litir)
- discuss a poem (filíocht).

Impromptu feedback

Impromptu feedback gathered from teachers and students nearing the end of the pilot project indicated that students had enjoyed and benefited from using the technologies. Students studying towards ordinary level Irish suggested that the phone prompt system only be used for practise and revision purposes rather than a graded test as they felt there were quality issues with the sound quality of the voice prompt (clarity, volume and speed). Other students in the same class felt that the phones would be better for

examination purposes as they had the opportunity to re-play and alter their answers if they were not satisfied with their original response(s). They again highlighted the issue of dropped calls. Students did benefit from using the technologies; one student reflected on how the voice-prompt system had assisted him in preparing for an interview to attend the Gaeltacht.

Teachers felt that the integrated technologies had proven beneficial for students and teachers. They stressed the additional time-investment which was required to participate in the project and made suggestions for amendments to the system:

- automatic averaging of scores on students' feedback booklet (where the average does not include unanswered questions)
- faster PDF feedback sheet generation for printing or batch generation and printing on a whole-class basis
- technical support for school-based variables (e.g. internet connection)
- less clicking to be required when providing feedback for students' responses (default setting to 'marked').

Five items of feedback

The five written items of feedback provided by students in one class again reflected the themes emerging from the students' questionnaires. Positive entries reflected the learning and enjoyment that students had experienced.

> *It helped us speak with 'teacher C' better.*
>
> *It was good for learning and speaking Irish instead of writing it down all the time.*
>
> *The phone was very easy to use because of the instructions.*

Challenges identified by students within each student's five items pertained to the quality of the audio recordings, dropped calls and multiple numbers required to access the phone prompt levels.

5. Cost of running the pilot project

Cost of the pilot project 18 April – 31 May 2007

Item	# Units	Price / unit	Total price[9]
SOFTWARE			
Software development and technical support			30,250
Voice XML Hosting (30 concurrent calls)			1,000
SMS bundle from Clickatell	*3,000*	0.045	135
HARDWARE			
Mobile phones			
Handsets	*85*	Free	Free
Rental per phone per month[10]		9.75	725.05[11]
Phone rental charge for 1 June - 1 Sept			1,517.25
Calling UK number (+441315146002) – price per minute		0.254	
Total call charges for project duration (18 April-31 May)			2,209.24[12]
Laptops	*13*	1,099.46	14,293
Ipods	*6*	159	954
Printer	*1*	361.79	361.79
Data projector	*1*	1,351.21	1,351.21
Internet infrastructure for school: cabling and			750[13]

---

[9] Total price indicates the cost of running the project for the four week period 23 April - 18 May 2007. Some project items incurred additional costs in the lead up to and following the pilot dates. These costs are included for the pilot project.

[10] Mobile phones are incurring rental charges during the Summer period of approximately €510 per month.

[11] Details: phone rental 18 April – 31 May = €725.05; phone rental June = €505.75

[12] Details: calls made April: €883.84; calls made in May: €1,325.40 (ca.145 hours talk time).

[13] Estimated cost – NCTE are awaiting the invoice for the work contracted by the school involved.

Item	# Units	Price / unit	Total price[9]
routers			
Teacher commission (3 x 2 days each)	6	222.45	1,334.70
NCCA Education Officer T&S			364.43
TOTAL COST			**55,245.67**
Total cost per student (#69)			800.66

The high costs of the pilot project can also be attributed to the pressures of time and the need to accelerate the project work before the end of the school term.

The total cost per student for the pilot project period (4 weeks) excluding start up costs was **€42.67**.

Phone rental (one month)	9.75
SMS charges (1 per day for 20 school days)	0.90
Call charges (total charges / number of children)	32.02
Total per student	**42.67**

6. Conclusion and recommendations

This section has been divided up between conclusion and recommendations. The conclusion provides a summary of findings from students and teachers on using the integrated technologies – the benefits and challenges associated with using the components of the pilot project. The recommendations section summarises recommendations made by students and teachers on the content of the system and the software employed. Further recommendations which have become apparent through the course of the discussion in this document are also included. All recommendations should be considered for any expansion to the pilot project.

6.1 Conclusion

6.1.1 Students' reflections

Mobile phone component

Data from students' questionnaires indicate that the technologies were well received. The majority of students (67% of 57 respondents) felt they had made progress in speaking Irish, remarking on their increased vocabulary, improved comprehension, competence and grammar. Students stated the positive move away from more traditional ways of learning and practising Irish; they cited using the integrated technologies as a new and exciting way to learn Irish. 95% of the 61 students responding to the questionnaire also enjoyed using the technology for speaking and learning Irish; there were many references to *fun* and *enjoyable.* The technology did not present any barrier to the teaching and learning process, in fact, the technologies broke down barriers to students' learning and speaking of Irish. They embraced the technology as it is *new age* and a tool they use in their daily lives. Students felt more comfortable practising their Irish on the phones than they did in person, stating that they felt less pressure and were more confident to speak Irish using the mobile phones. Students studying for ordinary level Irish in particular, commented on how they felt more at ease using the mobile phones to practise. All students remarked on their increased ability to learn autonomously, at their own pace and at any time or place. The majority of students (93% of the 60 respondents) recommended that other

students should be provided with the opportunity to use the technology to practise and learn Irish. Students also commented positively on their ability to listen to their recorded responses as often as they wanted to and on their ability to change their answer if they were dissatisfied with it.

Most of the challenges identified were associated with the quality, speed and volume of the recorded prompts, dropped calls and frustration with the volume of student numbers and PINs they were required to keep track of to pass through the log-in process. Students also mentioned their frustration about the volume limit on concurrent calls.

Smaller numbers of difficulties were encountered with some students not receiving any text messages or with questions within the prompt system being too hard or too easy. Some students who reported not liking Irish stated that they didn't like Irish any better as a result of participating in the project. Others emphasised that they felt they would learn more from the book and preferred more interaction with their teacher rather than the phones.

Text-based web chat component

Those students who were enabled to use the text-based web chat component commented positively on being paired with an anonymous chat partner and the teacher's ability to monitor their conversation. They also stated that they had enjoyed using technology for writing as well as speaking and learning how to use technology for writing Irish (e.g. inserting a fada). Students were very enthusiastic about using chat and requested more time using the system.

The challenge identified with the chat system was students' difficulty in accessing the system for the first time.

6.1.2 Teachers' reflections

Mobile phone component

Teachers reported favourably on the use of the mobile phones for teaching and learning. They noted how the system benefited students' learning and was especially

effective for weaker students. Teachers commented on the positive shift from teacher-led learning to more student-led learning; students were enabled to work at their own pace and in their own time. Use of the mobile phones facilitated more differentiated learning for all students and a greater sense of ownership for students over their learning. Teachers noted increased motivation among students; they stated that students found using the integrated technologies more interesting, different and fun. Students also appeared to have improved self-esteem and more confidence over time in speaking Irish (and therefore more likely to do so more often). Teachers commented on how use of technology which the students use in their everyday lives had a positive impact on their learning; it focused students on the task in hand. Teachers noted that students learned faster when the integrated technologies were used as a tool in teaching and learning.

From the teachers' own perspectives on the use of technology, they felt that the system facilitated their hearing more quiet and shy students who would usually be less vocal in the classroom. Teachers felt they could give more time to each student through the technology than they would usually be able to facilitate in the classroom. This increased amount of contact time with the students' voices allowed the teachers to examine students' grammatical and oral competency through their speech rather than being restricted to their written production for assessing students.

Teachers found the new way of providing feedback to students more interactive and fun than more traditional methods of providing feedback. They stated that the system was *interesting, new, innovative and different.* Teachers reported positively on their ability to use more *modern* language and on how successful the SMS vocabulary delivery had been.

Challenges identified by teachers in using the mobile phones for teaching and learning included some of those identified above within the students' comments – quality of the sound used within the voice prompt system and the volume of dropped calls. Teachers noted the amount of extra time required to provide feedback on students' recordings, meet with the Irish team and general administration work. One teacher estimated this extra time at ca. 4 hours per week. Teachers felt that this extra time requirement had a detrimental effect on other classes they were responsible for. Having stated that extra

time was required, teachers did report that they felt the extra time investment was very worthwhile.

Teachers also commented on their students' use of English in discussing the technologies among themselves in class. This goes against the teachers' policy of exclusive use of the target language during Irish class.

Text-based web chat component

Only one teacher was facilitated in accessing and using the text-based web chat component with her class. She stated that students enjoyed using the system but that a strict language policy and strategic plan should be in place for classroom management. The persistent unreliability of the school's internet connection posed difficulties for all teachers. The system could only be accessed on a whole class basis for the first time when technical assistance was facilitated. The second time this class accessed the system was independent of technical assistance. Due to the unreliability of the internet connection, teachers would always need to prepare their lessons in an alternative fashion to ensure delivery of content on the day.

6.2 Recommendations

The following amendments and additions would be recommended for any further expansion of the pilot project. The amendments are being recommended as a result of suggestions made by teachers and students participating in the pilot project. The additions are being recommended so that the scope of any extension to the pilot project can be extended.

6.2.1 Recommended amendments

Software system

- allow individual teacher log in to access only their class responses
- identify students by name rather than number within the teachers' interface and only one name should be assigned to each student
- automatically average grades on students' feedback sheets for recorded responses within that set of responses (and not include non-responses in the equation)

- allow more user-friendly entry of teacher feedback. Default settings should be set at 'marked' to reduce volume of *clicking* required
- facilitate teachers in moving students between levels. The system should default to allow students to move to the next level where they have completed all questions in any given level. Teachers can reset this student's level when they are providing feedback to the student.
- ensure faster PDF generation of student feedback booklets or batch generation on a class basis rather than on an individual student basis
- facilitate teachers in uploading their own questions and levels within questions. They should also be enabled to change these questions / levels at any stage
- ensure audio prompts are of good quality – clear, timely and of correct volume
- integrate chat window into customised language learning interface where a prompt and direction can be provided alongside students' chat screen
- increase capacity for more concurrent calls; the current ratio of call capacity to number of students of 30:69 is too low
- ensure more robust call function to eliminate dropped calls

System content
- increase the number of questions centred around students' everyday interests and lives

6.2.2 Recommended additions

Software system
- use student voice postcards as biometric[14] log-in identifier
- integrate voice to voice conversation / human to human (via VOIP,[15] for example, Skype)
- integrate tandem e-mailing

---

[14] Biometrics for voice recognition may also be incorporated so that a student's voice will differentiate them from their classmates for log-in identification. Every student would record an initial 'voice postcard' (e.g. 'my name is X') for individual voice identification. This voice postcard will be used to *calculate vocal measurements of an individual's vocal tract…and convert these measurements into a voice print – a unique digital representation of an individual's voice* (See Voicevault: http://www.voicevault.com)

[15] VOIP: Voice Over Internet Protocol

- include avatar / photo and pseudonyms to accompany students' identities in text-based web chat application
- provide exemplary response selection to accompany students' downloaded responses. This exemplary response could be another student's response from the same class. It can be played alongside a student's own response for comparison.

6.2.3 Additional recommendations

- provide technical support for schools in implementing the technologies. Teachers should not be made responsible for maintenance of equipment or infrastructure (for example, internet connection)
- provide dedicated time each week for all staff in a school involved in any expansion of the project to meet and discuss progression
- establish a strategic plan and language rules for all classes to be involved
- facilitate teachers and students in participating in any further pilot projects for a longer period of time. This would decrease teacher pressure and allow students more time to integrate the technologies.

7. Acknowledgements

8. References

Appel, M. C. (1999). *Tandem language learning by e-mail: Some basic principles and a case study:* Centre for Language and Communication Studies, Occasional Paper 54. Dublin: Trinity College.

Brammerts, H. (1996). Language learning in tandem using the internet. In: Warschauer, M. (ed.), *Telecollaboration in foreign language learning.* University of Hawaii: second language teaching and curriculum centre, 121-130.

Brown, E. (Ed.) (2001). Mobile learning explorations at the Stanford learning lab. *Speaking of Computers, 55.* Stanford, CA: Board of Trustees of the Leland Stanford Junior University.

Chinnery, G. M. (2006). Emerging technologies. Going to the MALL: Mobile Assisted Language Learning. *Language Learning and Technology 10(1),* 9-16.

Ellis, R. (2003). *Task Based Language Learning and Teaching.* Oxford: Oxford University Press.

Godwin, J. (2005). Messaging, gaming, peer-to-peer sharing: Language learning strategies and tools for the millennial generation. *Language Learning and Technology, 9(1),* 17-22.

Kern, R. G. (1995). Restructuring classroom interaction with network computers: Effects on quantity and characteristics of language production. *The Modern Language Journal 79, 457-476.*

Keogh, K., Koller, T., Ward, M., Úí Dhonnchadha, E. & van Genabith, J. (2004). *CL for CALL in the Primary School* eLearning for Computational Linguistics and Computational Linguistics for eLearning. International Workshop in Association with COLING 2004, Geneva, Switzerland.

Kiernan, P. J. and Aizawa, K. (2004). Cell phones in task-based learning. Are cell phones useful language learning tools? *ReCALL 16(1),* 71-84*.*

Kitade, K. (2000). L2 Learners' discourse and SLA theories in CMC: collaborative interaction in chat. *ReCALL 13(2),* 143-166*.*

Lamy, M. and Goodfellow, R. (1999). 'Reflective conversation' in the virtual language classroom. *Language Learning and Technology 2(2),* 43-61*.*

Levy, M. and Kennedy, C. (2005). Learning Italian via mobile SMS. In A. Kukulska-Hulme & J. Traxler (Eds.), *Mobile Learning: A Handbook for Educators and Trainers.* London: Taylor and Francis.

Loucky, J. P. (2002). Assessing the potential of computerized bilingual dictionaries fro enhancing English vocabulary learning. In: Lewis, P. D. N. (ed.), *The Changing Face of CALL: A Japanese Perspective.* Lisse, Netherlands: Swets and Zeitlinger, 123-138.

O' Dowd, R. and Eberbach, K. (2004). Guides on the side? Tasks and challenges for teachers in telecollaborative projects. *ReCALL 16(1),* 5-19.

Payne, J. S. and Whitney, P. J. (2002). Developing L2 oral proficiency through synchronous CMC: Output, working memory and interlanguage development. *CALICO Journal 20(1),* 7-32.

Schwienhorst, K. (2000). *Virtual reality and learner autonomy in second language acquisition.* Unpublished PhD thesis, Trinity College Dublin.

St. John, E. and Cash, D. (1996). Language learning via e-mail: demonstrable success with German. In: Warschauer, M. (ed.), *Virtual Connections.* University of Hawaii: Second Language Teaching and Curriculum Centre, 191-198.

Thornton, P. and Houser, C. (2002). M-learning in transit. In P. Lewis (Ed.), *The changing face of CALL.* Lisse, The Netherlands: Swets and Zeitlinger, 229-243.

Thornton, P. and Houser, C. (2003). Using mobile web and video phones in English language teaching: Projects with Japanese college students. In B. Morrison, C. Green, & G. Motteram (Eds.), *Directions in CALL: Experience, experiments and evaluation.* Hong Kong: English Language Centre, Hong Kong Polytechnic University, 207-224.

Thornton, P. and Houser, C. (2005). Using mobile phones in English education in Japan. *Journal of Computer Assisted Language Learning, 21,* 217-228.

Twarog, L. and Pereszlenyi-Pinter (1988). Telephone-assisted language study and Ohio University: A report. *The Modern Language Journal, 72,* 426-434.

Vetter, A. and Chanier, T. (2006). Supporting oral production for professional purposes in synchronous communication with heterogeneous learners. *ReCALL 18(1),* 5-23.

Von der Emde, S., Schneider, J. and Kötter, M. (2001). Technically speaking:Transforming language learning through virtual learning environments (MOOs). *The Modern Language Journal* **85**(2), 210-225.

Warschauer, M. (1996). Comparing face-to-face and electronic discussion in the second language classroom. *CALICO Journal 13(2),* 7-26.

Willis, J. (2007). The Neuroscience of joyful education. *Educational Leadership* **64.** Available online at: http://www.ascd.org. Accessed: 27/6/'07.

Wood, D. J., Bruner, J., & Ross, G. (1976). The role of tutoring in problem solving. *Journal of Child Psychology and Psychiatry, 17,* 89–100.

Appendices

Appendix 1 – Students' Questionnaire

Students' MALL Project Questionnaire

1. Which teacher do you have for Irish?
Ms. A ☐   Ms. B ☐   Ms. C ☐

2. Did you **enjoy using** the mobile phones and chat for speaking and learning Irish?
Yes   ☐   No   ☐

| Please give a reason for your answer: |
| |
| |

3. Did you **enjoy speaking Irish more** when using the mobile phones and chat that you did before the project?
Yes   ☐   Same as before   ☐   No   ☐

| Please give a reason for your answer: |
| |
| |

4. Did you **learn** more Irish as a result of using the mobile phones and chat?
Yes   ☐   Same as before   ☐   No   ☐

5. Did you **use** your Irish more during the project that you did before it?
Yes   ☐   Same as before   ☐   No   ☐

6. Would you recommend that next year's second years also work on the project?
Yes   ☐   No   ☐

| Why? |
| |
| |

7. List three observations about using the mobile phones (benefits, challenges, things to change / improve…)

1	
2	
3	

8. List three observations about using the chat (benefits, challenges, things to change / improve…)

1	
2	
3	

8. Any other comments / suggestions?

Appendix 2 – Teachers' Questionnaire

Teachers' Reflection on MALL Pilot Project

A. Student learning

1. Do you feel that students learned more while using the technology than they would have while using more traditional methods of teaching and learning?

      Yes ☐   No   ☐

      Why?

| |
| |
| |

2. Have you seen a noticeable improvement in students' competency in Irish over the four week pilot period?

      Yes ☐   No   ☐

      If yes, would you attribute this to the use of the technology?

| |
| |
| |

3. Are students more / less open to speaking and using Irish as a result of the project?

More open ☐	Same as before ☐	Less open ☐

4. To what extent do you think students' proficiency in the following skills have improved over the four week pilot period?

Skill	Same as before	Small improvement	Big improvement
Listening	☐	☐	☐
Speaking	☐	☐	☐
Reading	☐	☐	☐
Writing	☐	☐	☐

B. Time investment

1. How often did you meet as an Irish team to discuss / work on the pilot project?

| |
| |

2. On average, how much extra time were you required to invest during an average week to integrate the technology into your teaching?

| |
| |

3. List the main items that required an additional time investment to prepare and an indication of how long each one required.

	Item	Length of time
1		
2		

3	

4. How often did students use the technology during school hours?
Daily ☐   A few times a week ☐   Once a week ☐

5. How often did students use the technology outside of school hours?

Daily (excluding weekends)	☐	Daily (including weekends)	☐
A few times a week	☐	Once a week	☐

6. Do you feel that any extra time invested during the course of the project was worthwhile in terms of student learning and oracy?
Yes ☐   No ☐
Please explain your answer

C. Technology Components
1. How did you integrate the technology into your classroom for the four week pilot?

2. List three of the main *challenges*, if any, of working with the mobile phones

1	
2	
3	

3. List three of the main *benefits* of working with the mobile phones

1	
2	
3	

4. List three of the main *challenges*, if any, of working with the chat component

1	
2	
3	

5. List three of the main benefits of working with the chat component

1	
2	
3	

6. Did you find any additional uses of the technologies available for the project?

Yes ☐ No ☐

If yes, please describe the additional use

D. Motivation

1. Were students more or less motivated to *learn* Irish while using the technology?

More motivated ☐ Same as before ☐ Less motivated ☐

Please explain your answer

2. Were students more or less motivated to *speak* Irish while using the technology?

More motivated ☐ Same as before ☐ Less motivated ☐

Please explain your answer

E. Enjoyment

1. Did you enjoy working with the technology?

Yes ☐ No ☐

Please explain your answer

2. Did students enjoy working with the technology?

Yes ☐ No ☐

If yes, can you give an example of student enjoyment?

3. Additional comments / suggestions?