

New Practices in Flexible Learning

Txt Me: supporting disengaged youth using mobile technologies

Project report

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1 Executive summary

1.1 Target audience and addressing their needs

This project targeted 15–19 year-old students who have not previously succeeded in traditional classroom-based learning, and examined the option of mobile learning (m-learning) for vocational education and training (VET) providers. The project recognised that mobile phone use has become a pervasive communication tool among youth culture, and created recommendations and guidelines for VET providers on using this communication technology to support a sustainable learning culture with disengaged youth. Specifically, the project sought to find new ways to engage, motivate and sustain lifelong learning skills for these learners. Project personnel also recognised the problematic nature of the descriptor 'disengaged', and preferred to define the target group as 'alternatively engaged'.

1.2 Project goals

The project aimed to test the hypothesis that *m-learning strategies and mobile phone technology could motivate and support the retention of disengaged youth in learning programs and aid the development of lifelong learning skills through supporting collaborative, networked learning environments*. It aimed to include m-learning strategies in a blended approach, incorporating learning delivery in community, workplace and/or institutional contexts.

1.3 Project activities, trial and outcomes

The practitioners who worked with the target groups have a wealth of experience working with disengaged learners but were not, at the outset of the project, necessarily proficient or passionate about the use of communication technology as a learning tool.

The project research officers, in collaboration with the teaching practitioners at each trial site, applied action learning and research methodology to design, develop and trial m-learning strategies, using mobile phone technology.

The initial stages of the research identified the learning needs and styles of the learners, the access and usage patterns of mobile technology of both learners and practitioners, and the available technological infrastructure to support the use of m-learning strategies. In the design and development stages of the project, the professional development needs of the practitioners were established and a program was developed to provide the necessary skills development. Learning strategies were designed to match the different curricula and resources identified. Also at this stage in the project the telecommunication infrastructure was explored and decisions made about what system would be used to support the Short Messaging Services (SMS) trials. Decisions were also made about how to ensure all students had access to mobile phones and an appropriate amount of call credit for the purposes of the trial.

Implementation of the project was not without difficulties, most of which were caused by the unreliability of the online SMS gateway that was used as the avenue to send and receive messages between practitioners and students.

Despite the erratic nature of the telecommunication service and the frustration caused as a result of not being able to rely on the technology, the practitioners remained positive and found other ways to continue with the trials.

Most importantly, the students demonstrated real enthusiasm for the m-learning experience and the practitioners reported improved retention and participation rates.

1.4 Benefits to learners

The Txt Me project demonstrated that, for disengaged learners, it is necessary for VET practitioners to engage in and understand their world. It is only in this way that content and strategies can be made real and relevant. In spite of their high familiarity with technology, relationships were of greater importance to the young people involved in the Txt Me trial. In their personal world, technology was used to enhance and end relationships. Students wanted and responded to an individual, personalised relationship with their teacher.

SMS prompting was found to be very successful in both enhancing student participation and motivating them to meet deadlines for assessment. Both of these contributed to improved learning.

1.5 Benefits for VET sector

From the outset, the Txt Me project recognised that mobile phones are an unavoidable feature of youth culture in Australia. In most formal education and training settings, however, mobile phones are considered to be intrusive and counterproductive to learning goals. The project sought to establish whether or not there was a way to employ the technology to produce positive outcomes, in particular, for disengaged learners.

The results of the project provide direction for VET organisations and practitioners on the ways of harnessing this emerging technology to engage younger learners. Significantly, the project research has linked the learning styles of younger students to m-learning strategies, and shown the benefits of adopting approaches which recognise the significance of mobile technology in the lives of young people.

1.6 Conclusions

SMS messaging was found to be highly motivational and supportive of content delivery. As one practitioner reported, "This trial has created a lively dialogue between my students and me. SMS provides a sense of immediacy between us and I can see it becoming a regular teaching tool."

In the implementation of the new technology, practitioners were supported by the project team and it was observed that being involved in the project also had a positive impact on the practitioners. They obviously felt valued and extended by their role in the project. They clearly stated their perception that the mobile phone strategies provided fun and excitement for them and their students.

The most problematic aspect of the project related to the online SMS gateway, where there was a gap between what it was supposed to be able to do and what actually transpired. These issues need resolution prior to wider implementation of a very engaging strategy.

The project research confirmed the need for good teaching practice incorporating a constructivist (learner-centred) approach. Learners also showed a preference for involvement in the creation of the curriculum and the learning strategies.

2 Acknowledgements

Name	Organisation	Role in evaluation
Lesley Murray	Swan Community	Indigenous reviewer
Mardi Dwyer	Pilbara TAFE	Reviewer
Wanita Bartholomeusz	Swan TAFE	Indigenous reviewer
Christine Bateman		Project evaluation
Mary Aquino	Central TAFE	m-learning advisor

3 Background

The teacher stands at the front of the class – whiteboard marker in hand – demanding the undivided attention of the dozen or so restless young people captured in the classroom for a period of two hours. There is no sound except the drone of the teacher’s voice. Then suddenly the sound of the 1812 overture – a rendition in electronic tones - emanates from the bag of one of the students. The student rushes to leave the room, fumbling in his bag for his phone as he goes. The teacher growls and reinforces the ‘no phones in class’ policy. Up the back of the class a student composes an SMS message, attaches an unflattering ming-mong of the teacher and sends both to a friend who is sitting on the other side of the room.

This describes the mobile phone unfriendly classroom and provides the background to this research project. Is there a realistic alternative to this scenario? Can we, as learning facilitators and assessors, find more constructive applications for the ubiquitous mobile phone?

Whilst it is acknowledged that in some learning environments, mobile phones constitute an interruption that cannot productively be accommodated, this project set out to investigate the potential of mobile phones to engage and improve the participation rates of those young learners who have been described in the Western Australian Government’s *Youth Advantage Strategy* (2004) as ‘disengaged’.

3.1 Target group

The Txt Me project targeted 15–19 year-old students who have not previously succeeded in traditional classroom-based learning, and examined the option of mobile phone learning for vocational education and training (VET) providers. The project also targeted teaching practitioners by assisting them to explore the professional development needed to adopt mobile technologies as a normal delivery strategy.

On the basis of the Department of Education and Training’s (2004) *Youth Advantage Strategy*, the project team understands *disengaged youth* to refer to “over 30% of young Western Australians (who) drop out (of school) prior to completing their secondary schooling” (p. 1). This cohort is described as “those 15 to 19 year olds who are not currently benefiting from the education and training they have been receiving”.

Significantly, the *Youth Advantage Strategy* identifies these young people as

... facing significantly higher risk of being unemployed longer and more often; earning smaller lifetime (including retirement) incomes; being in low-skilled jobs, where opportunities for on-the-job- training are lacking; missing out on challenging and interesting employment; relying more on government assistance; never re-entering full-time study; and having a reduced sense of well-being, motivation and self-confidence. (p. 4)

As quoted by Marc Prensky (2003, p. 3),

The work of integrating this device – which obviates the expensive hardware and software issues that come with ‘bigger’ computers – can begin today, in those high schools and colleges with close to 100 percent phone penetration and willing teachers. There are legions of useful educational things that can be done with even the phones students already have in their pockets.

The Rumsey Report (2002) *Shaping the VET practitioner for the future*, identifies one of the most important skill and knowledge areas for VET practitioners as “expertise in emerging technologies and future techniques, processes, technologies, etc”. This same report also highlights the aging nature of the VET workforce. Both of these aspects of the Rumsey Report had relevance to this project as one of the trial sites did involve delivery practitioners who had no real confidence in their own ability to manage mobile communications technologies as one of their day-to-day delivery strategies.

In considering Prensky’s research, the project team came to understand the challenge of using m-learning strategies to engage young learners as largely bridging the digital divide between the young student (digital native) and older VET practitioner (digital immigrant) (Prensky 2001).

4 Context

4.1 National context

The Txt Me project has been conducted in the context of other Australian and global research projects focussing on mobile technologies. Briefly, in Australia, these include:

- The Australian Flexible Learning Framework has sponsored other research into the use of mobile technologies. In 2004 three Flexible Learning Leaders are investigating the use of mobile technologies in the provision of training. These are:
 - Simon Geddes from Army Training Technology
 - Marilyn Harvey from Training Online International QLD, and
 - Adrain Denya from TDT Australia.
- Centrelink is currently running a project entitled *Centrelink SMS* that aims to investigate the use of text messaging as a means of improving client participation rates.
- Western Australia's Curtin University Library and Information Service is trialling the 'SMS-a-Query' service, which allows students to text their queries to the library using their mobile phones.
- Central Area Regional Training Services (WA) is using text messaging as a means of maintaining contact with young Indigenous people in school-based traineeships. Their anecdotal evidence suggests a very high level of improvement in contacting and gaining responses from the clients using the technology.
- A Tasmanian New Practices in Flexible Learning project is exploring the utilisation of mobile technology (PDA's) in the delivery of training to learners while in the workplace. See <http://flexiblelearning.net.au/projects/mobilelearning.htm> for further details.
- At Networking 2003, Jacqui Conway and Shawn Crispin from Tropical North Institute of TAFE reported improved outcomes from utilising text messaging to build personal relationships with young learners participating in online delivery of VET in Schools courses.

It is apparent from these examples that the potential to harness young people's interest in using mobile technology has already been given much attention by practitioners and institutions. A thorough assay of the existing body of knowledge identified in Internet searches for related topics revealed a plethora of articles, journals, blogs, net entries, key summaries and manufacturer information for mobile learning devices. Any number of these findings may provide information to enable a VET practitioner to integrate a blended learning approach that utilises m-learning strategies.

The Txt Me project builds on this research.

4.2 Global context

There is intense interest, at global level, in the potential of m-learning. Prominent examples of international research projects are:

- MOBIlearn is a worldwide European-led research and development project exploring context-sensitive approaches to informal, problem-based and workplace learning utilising mobile technologies. The consortium includes 24 partners from Europe, Israel, Switzerland, USA and Australia. The MOBIlearn project started on 1st July, 2002 and will be completed on 31st December, 2004. (<http://www.mobilearn.org>)
- The m-learning pan European research and development program supported by the European Commission's Information Society Technologies programme is a 4.5 million pound program to develop products and services to capture the interest of young adults who are not taking in education and training and to assist develop life long learning objectives. (<http://www.m-learning.org>)
- Cambridge Training and Development (CTAD) are developing prototype products and modules of learning for use on current and emerging technologies. They target young people who are dropping out of school and focus on numeracy and literacy development.

5 Project goals and objectives

The project recognises that mobile phone use has become a pervasive communication tool among youth culture, and has aimed to develop recommendations and guidelines for VET providers on using this communication technology to support a sustainable learning culture with disengaged youth. Specifically, the project sought to find new ways to engage, motivate and sustain lifelong learning skills for these learners.

The project tested the hypothesis that m-learning strategies and mobile phone technology motivates and supports the retention of disengaged youth in learning programs and facilitates the development of lifelong learning skills through supporting collaborative, networked learning environments.

The overall goal of the project was to integrate readily accessible mobile technology into a vocational learning environment for the benefit of disengaged learners. It was hoped that this would increase learner engagement and would result in improvement in learning outcomes.

Another goal of the project was to explore professional development strategies that would facilitate practitioner engagement in the utilisation of the new technology. This included development of skills in the use of the technology and the development of learning strategies, as well as strategies for overcoming issues and problems related to the use of the technology. The project also focused on developing an understanding of the organisational issues relating to the implementation and support of mobile technology in the vocational learning environment.

It was also hoped that a network would develop among the practitioners of the action learning sets and also among the researchers and national and international colleagues.

The project aimed to work collaboratively with a wide range of organisations that have a similar concern for disengaged youth in the 15–19 year age group. This was achieved not only with the diverse action learning sets but also with the community organisations, training organisations and businesses that compiled the reference group. These were representative of State, national and international bodies. The reference group provided feedback on the project and contributed valuable expertise, advice and direction to information and resources.

6 Project development

The project plan consisted of the following phases:

- Planning and Scoping Phase
- Environment Scan Phase
- Design and Development Phase
- Implementation Phase
- Evaluation Phase

6.1 Planning and scoping phase

Initially, existing research was examined to explore the work of similar projects both nationally and internationally. The research focus was on m-learning and mobile phone technology use, as a means of providing flexible, accessible learning opportunities that would engage young people.

Most of the international research initiated under the MOBILearn and m-learning projects in the UK and European Union focused on higher intelligence mobile devices and product development that could be utilised to engage those who were considered disengaged. A member of the reference groups voiced the opinion that a restriction to SMS would limit our project to scaffolding learning.

Initially four sites were identified for trialling the Txt Me project. Unfortunately, the site located in the far north of Western Australia was unable to participate in the trial phase because of limited mobile phone network coverage and ownership demonstrated by the young people surveyed. The other sites are described below:

6.1.1 Trial Site 1

Trial Site 1 involved a group of Indigenous students aged 14–15 years. These young people attend a large State government high school and are enrolled in a school-based traineeship: Certificate I of Workplace Readiness. The students attend high school three days a week and TAFE the other two. One feature of the traineeship is the significant amount of time allocated to work placements in the second half of the semester-long enrolment.

This trial differed slightly from the other two in that the two TAFE practitioners employed in this trial were able to predict their direct contact with the learners on a once-a-week-basis. This carried significant implications for the type of m-learning strategy that they were able to implement. For example, it was possible for them to spend time with the learners to plan and develop the m-learning strategies.

6.1.2 Trial Site 2

The second trial site was an independent Community Youth Centre in one of the eastern metropolitan regions of Perth. Some of the young people served by the Centre are enrolled in the Certificate of General Education for Adults as one of the services the Centre provides. Their ages range between 15 and 19 years. These young people fit the description in the Department of Education and Training (2004) *Youth Advantage Strategy* as sharing negative experiences in formal education,

being involved with a range of social and justice agencies, lacking strong family support, having low literacy/numeracy skills, and low socio-economic backgrounds.

These students attend the Centre at will, understanding that education support services are available at prescribed times on Mondays and Tuesdays. In this context some individuals, for example, have not attended formal classes for up to three or four weeks at a time while attending to other matters.

The practitioner who implemented the Txt Me trial at this site identified the transient nature of the group as a major consideration in implementing the Txt Me trial.

6.1.3 Trial Site 3

This delivery site is located in a large regional shopping centre approximately 76 kilometres outside the Perth metropolitan area. It caters for students who wish to complete Year 10, 11 or 12 but who, for varying reasons, cannot attend their local high school. Certificate I in Hospitality and Information Technology are the VET components of Year 11 and 12 courses at present, with additional VET pathways planned for 2005. The Year 10 component is an equivalency bridging course.

The courses can be completed fully online. Most students live in various locations around WA. The Centre's Internet-delivery method emphasises individualised, flexible self-paced learning. It incorporates numerous innovative features such as real-time conversation in the online chat room, shared online whiteboards and video conferencing. Students also have the opportunity to exchange ideas, ask questions and, where appropriate, provide responses using the message board. Management at the Centre have been aware of the online SMS gateway for some time and were therefore very keen to participate in the Txt Me project.

The majority of students are young locals who have either disengaged from the school system altogether and who come and study at the Centre, or students from Year 11 or 12 who are continuing to study at the College but may have had to change subjects part way through the year and would normally have to wait until the beginning of the following year to pick up another. This is a huge advantage of the flexible learning facilities offered at this site: the rolling intake means young people do not have to extend their studies on to the next year. If they work hard, the student can actually pick up the new subject and complete it in the same year, so they can move along at their own pace.

6.2 Environment scan phase

6.2.1 Benchmarks of accessible technology of target groups

After conducting trial site research activities, the project team concluded that most of the targeted young people owned low-level mobile devices. This refocused the research onto what could be achieved with the tools the target groups possessed. Some individuals in the target groups did not possess or have access to mobile phones at all, although there were very few of these.

It was important to the Txt Me project that the technology and infrastructure chosen was highly accessible to students and practitioners. The surveys conducted at each delivery site had established that the benchmark of mobile phone functionality for the students involved in the trials was SMS capability. Therefore, SMS was chosen as the platform for developing the m-learning strategies for the trials.

6.2.2 Mobile phone usage patterns of target group learners and practitioners

A comprehensive survey of both learners and practitioners revealed considerable differences in mobile phone usage patterns and the individual's reasons for using the mobile phone. In general, while the young people used their phones for maintaining social networks, for entertainment and as ready-to-hand tools such as a calculator, clock, and notebook, older individuals (in this case the practitioners) used their phones primarily for sending and receiving brief telephone messages that they deemed to be of high importance.

The practitioners also demonstrated a range of attitudes to the concept of using mobile phones in the learning environment, although all were excited about participation in the project. While all practitioners volunteered for participation in the project, the motivation for doing so may have been varied and was not questioned.

6.2.3 Technology infrastructure

A series of workshops with the trialling practitioners was conducted to establish the desired functional requirements of the SMS technology infrastructure that they required to support the planned m-learning activities. Due to the variety of delivery sites, some situated off-campus, a web-based SMS gateway solution was preferred. The online SMS gateway solution needed to contain the following functions:

- A virtual SMS number was required for each practitioner. This was necessary to establish a relationship with the learners. The students surveyed were very wary of receiving messages that they could not readily identify. They also expressed a desire to know the practitioner's SMS number so that they could initiate contact and not be limited to only replying to received messages.
- The ability to send individual and group messages. The practitioners requested the ability to set up and save individual and group contacts and to have this function linked to existing student data sources would be a great time saver.
- The ability to easily identify, manage and track messages sent and received.

The project team evaluated the capacity of a number of online SMS gateway solutions against the functional requirements identified. An online SMS gateway solution was selected and access established for the project team.

Prior to the trials commencing the practitioners participated in a range of professional development sessions to develop the skills and knowledge required to implement m-learning activities using the online SMS gateway. These sessions were also designed to test the functionality and reliability of the online SMS gateway. During these sessions testing was undertaken in a fairly controlled environment with the project team and proved to be successful. However, throughout the trials the selected online SMS gateway proved to be unstable and on many occasions the message management functions were malfunctioning.

6.2.4 Strategies for managing cost to project participants

From the start of the project the costs incurred by students using personal mobile phone network access to participate in m-learning activities was an issue that was consistently raised by the practitioners and students. This issue and the equity issues relating to students who do not own a mobile phone will need to be addressed by organisations wishing to implement this technology in the learning environment. However for the Txt Me project strategies for compensating students for the costs associated with using their personal mobile phones to participate in the trials were developed. In two of the target groups the students were issued with vouchers to redeem mobile phone credit from their telecommunications providers. For the

Indigenous students enrolled in the school-based traineeship, a decision was made to loan each student with a prepaid mobile phone with multi-media capability. This decision was made due to the fact that this group, unlike the other two, met face-to-face on a weekly basis in a classroom situation and phones were available through Indigenous training support at the local institution. The teaching staff felt that having all students with the same model of mobile phone would support a more equitable approach.

6.2.5 Characteristics of learning environments that support the needs of target disengaged young people

Two aspects of the learning environment were considered important to this project. Firstly, a supportive learning environment for disengaged young people is genuinely concerned with the development of healthy, mutually respectful relationships between practitioners and learners.

The distinguishing feature of today's youth is not technology...it is aloneness.... Because of the social changes of the past 25 years, teens today have spent more time alone than any other generation. They are missing a coherent sense of community. (Tell, C 1999-2000)

The second characteristic of a supportive learning environment is the genuine attempt on the part of practitioners to integrate, with the requirements of the curricula, tasks that their target group perceives as real and relevant to their needs.

White (2004), in a discussion on the role of young people in society, is quoted in the *Online Journal of Youth Culture* as saying that,

If we are truly interested in motivating kids to learn and apply this learning to the broader spectrum of social literacy, then we must make stronger efforts at integrating meaningful curriculum and instruction that includes real-world connections. These connections allow kids to develop the scaffolding needed to construct knowledge. Youth culture can enhance a transformative rather than transmissive social education by providing these connections.

6.3 Design and development phase

6.3.1 Underpinning ethos

The Environment Scan Phase of the project very clearly demonstrated some factors that underpin the use of m-strategies in learning.

- 'Digital immigrants' (Prensky 2001) employed in this field must demonstrate a genuine interest in and respect for youth culture, in particular the use of Information and Communications Technologies within it. "Technology is youth culture." (Katz, J quoted by Tell, C 1999-2000)
- The proposed audience, being 'digital natives' (Prensky 2001), thinks in terms of graphics first, text second (Prensky 1998).
- The language of Short Mobile Messaging represents a new and therefore foreign dialect of English for digital immigrants. It does not conform to the rules of Standard Australian English, *and is not required to*.
- Communicating effectively via text messaging requires the participant to think in small chunks of information. That is, the information must be conveyed and understood within about 150 characters.
- M-learning aims to fill people's downtime: that is, it must occupy no more than 10 minutes at any one time.

- It is critical to differentiate between learning and information gathering – learning requires reflection.
- The purpose of text messaging is *communication*, not content. (Tell, C 1999-2000)
- Digital immigrants must understand appropriate protocol in the use of text messaging. They otherwise risk being seen as invading or hijacking the recipient's personal space.

6.3.2 Learning styles, cultural nuances and learning needs of the target group

The Txt Me project tested the concept of using mobile phones to enhance the engagement and participation rates of disengaged young people in the context of both Indigenous learning styles and youth culture. The digital immigrants (practitioners) who designed and delivered the learning content and assessment tasks demonstrated that they were well able to maximise the engagement and learning support opportunities afforded by the technology.

The Txt Me project specifically aimed to target the relevance of mobile phones in the learning practices of Indigenous young Australians. From the outset, it must be realised that, "Aboriginal children (like all children) can learn in a variety of ways, but they come to school more used to learning *by doing* something rather than by learning *to do it*". (Harris, 1980, p. 18)

This being said, Aboriginal children are more likely to be accustomed to learning under the following conditions (*Solid English* 1999, pp. 19 and 21):

- Learning by doing
"Learning stems from solving real problems in the here and now, not contrived or hypothetical problems that may or may not happen in the future."
- Contextualisation
"When working with Aboriginal students, it may be more effective to focus initially on the whole and to gradually shift focus to explore component parts, having first established the place of those parts within the whole."
- Watching and learning
"This is not to say that verbal instruction hinders learning for Aboriginal students: merely that they may not be tuned into verbal instruction to the extent that non-Aboriginal students are."
- Group orientation
"Aboriginal students feel more comfortable and secure within the group and support each other's learning...sharing tasks, sharing risks, sharing outcomes, sharing learning."
- Relevance
"As for all students, it is important that the things Aboriginal students are expected to engage at school are things they can relate to so a degree of consistency can be achieved between their life at school and their life at home."

- Orientation to persons

“Teachers who make a concerted effort to build with students (and their families) a relationship based on mutual trust and respect are likely to get further...”

While the comments taken from *Solid English* are specifically aimed at teachers in the compulsory sectors, there is no reason to assume that they would be any less applicable to teachers of young Aboriginal people in the 15 – 19 year age group.

The article entitled *Generation What? Connecting with Today's Youth* by Carol Tell (1999) explores the notion that “Technology is youth culture.... Technology is part of their ideology, their language, everything they do.” (p.3)

Tell repeats the suggestion of Jon Katz that “...rather than look down on students for adopting computers as their newest mode of communication, practitioners need to get over their fear and scepticism, for the sake of their students”. (Tell, 1999, p.5)

In 1998, Prensky proposed 10 criteria that characterise the thinking and behaviour of ‘digital natives’. These are

- twitch speed vs conventional speed
- parallel processing vs linear processing
- random access vs linear thinking
- graphics first vs text first
- connected vs stand-alone
- active vs passive
- play vs work
- payoff vs patience
- fantasy vs reality, and
- technology as friend vs technology as foe.

6.3.3 Identify mobile technology experience of trainers

The two practitioners participating in the Txt Me project at trail site 1 felt significant uncertainty about their ability to manage the technological requirements of the project. While they are both experienced practitioners, neither of them had ever used an online SMS gateway before. They were supported in their familiarisation with the technology but still felt that it was a significant stretch for them in the short lead-in time available. At the outset of the trial phase the practitioner at trail site 2 considered himself to be highly technologically informed and capable, while the practitioner at trail site 3 is also highly skilled in the use of information and communication technologies.

6.3.4 Professional learning strategy

Implementing planned text-messaging strategies in real learning situations required multi-layered preparation. Technical staff carried out considerable research and liaison within the telecommunications industry in order to provide the required technological mechanisms and support, and teaching practitioners were heavily supported with appropriate professional development.

The implementation of e-learning strategies was seen to provide a model for the implementation of m-learning.

Based on feedback from the trialling practitioners, the findings of the Txt Me project indicate that best professional learning integrating Information and Communication Technology strategies into curriculum occurs when teachers/trainers:

- have a frame of reference for what constitutes progress
- see examples of leading practice in action
- consider the learning is relevant to their context
- are provided with support 'just in time'
- undertake their learning as part of a whole TAFE/school initiative, and
- personalise the learning experience ahead of the technology.

In this project this has been achieved by:

Frame of reference for what constitutes progress	This was provided by the body of research in m-learning, and the potential that the strategy was perceived to achieve in meeting the needs of disengaged youth.
Examples of practice in action	This was provided both by the research and also by one of the project team being involved as a practitioner.
Learning is relevant to their context	All learning contexts were actively engaged in delivering learning to learners defined as 'disengaged'.
Just in time support	This was provided by the project team.
Learning is part of a bigger initiative	The practitioners from each action learning set were linked to give a sense of a larger collaborative environment.
Personalise the learning experience ahead of the technology	While this was achieved, in retrospect, more time could have been spent on induction with both practitioners and learners.

Both the training and education sectors are focusing on the use of action learning strategies to implement changes in pedagogy. This strategy is effective because it provides the practitioner with an opportunity to actually implement the changed delivery into their day-to-day work environment and to reflect on its success. It is evident that this action learning methodology is more real and relevant. There is the reality, however, that even these strategies are costly in terms of time and resources. Managers need to ensure that sufficient resources are committed to develop the skills and knowledge, learning resources and infrastructure required to implement and sustain m-learning strategies.

6.3.5 Professional development of teaching practitioners

- Early in the planning stage of the project, delivery practitioners were invited to attend an introductory professional development session in which the concept and goals of the project were outlined. This provided an opportunity for members of the project to meet each other, to thoroughly explore their concerns and

questions, and to create *esprit 'd corps* (enthusiasm and dedication to a common goal).

- During the second professional development session, the goals of the Txt Me project were discussed in more depth. They were to:
 - explore the SMS on-line gateway in more depth
 - be introduced to the concept of online games and their potential for learning, and
 - brainstorm ideas for possible delivery strategies.

Because of the difficulties the project encountered in procuring a suitable telecommunication solution, the second professional development session was only able to provide a limited trial of the SMS gateway concept.

- Consequently, this aspect of the practitioners' professional development was addressed in a third session, after the technical situation was resolved and the gateway installed. The desired outcome of the third professional development session was that each practitioner should feel comfortable and competent in the use of online texting through the gateway. This session also provided practitioners with the opportunity to discuss their planned approach once more before taking it live to the target groups.
- After the trial phase of the project began, each site was visited several times by members of the project team. Further, on-going one-to-one support was provided through trial site visits and telephone debriefing sessions.

6.4 Implementation phase

6.4.1 Project time frame

The Implementation Phase of the Txt Me trial ran over four weeks in the second half of the third term. At this stage the practitioners were familiar with the concepts underpinning the project and had received some training in the use of the SMS gateway. Each trial site was linked to a researcher for mentoring and support.

6.4.2 Evaluation strategy, the evaluation methodology and instruments to be deployed, and the reporting process.

It was decided that evaluation of the project would be approached from several perspectives. To this end, the practitioners at each trial site were made aware of the following plan:

Trial evaluation plan
Early implementation interview – researcher + practitioner
Practitioner journal – hard copy or posting in WebCT shell
Samples of student work where appropriate
Focus group sessions - practitioner + learners
Audio records if appropriate
Statistics questionnaire
Issues – as they arise – hard copy or WebCT shell

Infrastructure review

End-of-trial debriefing team meeting - researcher + practitioners

To assist them in their collection of feedback from the learners, each practitioner was provided with the following prompts:

Practitioner prompts - focus group sessions:

1. *What would you tell the Prime Minister about teachers using mobile phone technologies?*
2. *What things do you like most about being able to contact and get information from your teacher using mobile technologies?*
3. *What issues are you having with your teacher/s contacting using SMS or other phone contact?*
4. *Has contact by phone made any difference in the way you learn? How?*
5. *In five years from now, what do classrooms look like?*
6. *What do you know about mobile technologies that your teacher does not?*
7. *How could you assist a teacher to develop stuff that you find important to learn using mobile technologies?*
8. *Why do you think teachers have difficulty making learning materials interesting and useful?*
9. *Design a phone that can do all the things you want it to do to make learning easier.*
10. *Do you think that these projects that trial new things and new ways to learn are useful? How? Why?*

The following tool was developed for debriefing, on a one-to-one basis, the practitioners who were involved in the Txt Me trial:

Issues for discussion with practitioners – evaluation of Txt Me trials

1. *How are you feeling/What are you thinking about your trial at the moment?*
2. *What were your expectations of this project?*
3. *Has the project met/not met/ exceeded etc your expectations? In what ways/Why?*
4. *Is your trial progressing as you anticipated it would? If not, talk about the differences.*

5. *Do you anticipate that the outcomes justify the amount of effort involved?*
6. *Has the use of mobile phones enhanced your teacher-learner relationships? How? Why?*
7. *If you were to use this device/strategy again, what would you do differently?*
8. *What do you understand the main benefits of the mobile phone to be in a learning environment?*
9. *Are you dealing with any particular learner in whom you have seen improved levels of engagement since you introduced the Txt Me trial?*
10. *What feedback have you heard from your students, either solicited or unsolicited about the Txt Me project trial?*
11. *What interest or feedback has the project generated amongst other lecturers?*
12. *What advice would you give to lecturers who express an interest in using m-learning strategies?*
13. *Have you learned or gained any specific benefit from your involvement in the project? If so, please describe. If not, please discuss.*
14. *What feedback do you think it is particularly important that the project researchers record in their final report?*

Practitioners were also invited to attend a final team meeting at which they each presented their journal notes, observations, and learner focus-group findings, and also summarised their own learning experiences.

Following the completion of the trial phase of the project, the research team collected all data, collaborated with the practitioners to develop the case studies, collected statistical data, and further collaborated in the writing of the final report. At each stage of the process, close links were maintained with project management and the project reference group.

7 Project achievements

The project achieved in large part, the stated aims and objectives. The following concrete deliverables have been developed:

- A set of recommendations and guidelines for VET providers has been developed, that provides specific and practical strategies, for practitioners to utilise mobile phones as a teaching and learning resource.
- Three case studies have been developed that clearly outline the qualitative results of the m-learning trials with three separate student groups.
- Recommendations for the establishment of infrastructure needed to support the use of m-learning have also been developed.
- Guidelines for Professional Development for practitioners have been developed.

Another significant achievement that the project can claim is the positive learning experience of the learners involved at the three trial sites. The project aimed to establish whether the utilisation of SMS would assist in motivating and engaging disengaged learners within a blended learning context. Overwhelmingly, at all three trial sites this was found to be the case. The strategies used by teaching practitioners included prompts as reminders of tasks or activities, games and quizzes, collection of information, direction to other learning contexts, such as bulletin boards, and motivational messages. These were delivered either to individual learners or to groups of learners utilising an SMS gateway. However, activities that were related to mobile phones such as instructions for use and reading about service provision were also found to be engaging. There was consistently positive feedback about the m-learning trial from all the learners participating in the trials.

Similarly, the project had the effect of converting even the most sceptical of the practitioners to m-learning enthusiasts.

8 Project learning

The learning that has taken place as a result of the Txt Me project has been collated here according to the nature of the involvement of the participating individuals.

8.1 Disengaged learners

Feedback to their practitioners indicates that students learned more about:

- the architecture of the mobile phone
- how to use the web-based bulletin board more effectively
- organisational skills
- face-to-face communication skills
- mobile phone etiquette
- subject-specific content, and
- key competencies such as team work and using technology.

8.2 Project practitioners

The practitioners in the project team showed a willingness to work beyond their normal delivery expectations in developing strategies, learning new technology, attending meetings, providing feedback, writing extensive reports and contributing to the online WebCT- based communication. Their feedback clearly indicated that they derived their motivation from:

- the benefits they saw to their learners
- the collaboration and support amongst the project team
- the networked relationships that developed, and
- their sense of value to the project team and the outcomes of the project itself.

As a result of this commitment, a great deal of learning was achieved by the Txt Me practitioners and the project team members.

Teaching practitioners reported having learned more about

- communication technologies, in particular the Online Gateway and SMS
- WebCT
- youth culture and learning mode preferences
- the application of innovative delivery strategies, and
- relevant professional networks

8.3 Project team members

Project team members reported having learned more about

- relevant national and international bodies of research

- high-level communication technologies
- online gateways
- relevant professional networks
- youth culture and preferred learning modes, and
- innovative assessment and delivery strategies.

The body of research gathered and reviewed by the project team on mobile phone learning delivery, which extends beyond the use of the mobile phone, provides information on the direction and possibilities for mobile technology use in learning situations. This information is useful for practitioners and learning institutions that are looking for new ways of conducting business that are engaging, relevant to employment, provide access to anywhere, anytime learning and contribute to improved learner outcomes.

The project has application for teachers and lecturers who want to use mobile phones to improve the engagement of their students. A selection of successful strategies is provided, together with feedback on their success within the teaching environment. Models are also provided for a process for implementation.

The reasons for the success of the strategy as voiced by the practitioners include:

- Young people are heavily engaged in mobile technology use and this project was simply an extension to their current activities.
- Young people are interested in contributing to the development of material which gives them security of place in the learning space.
- Young people enjoy the motivational aspects of being contacted via mobile phone.
- Students naturally adapt to changes in mobile technology architecture.

However, it was also found that:

- Young people have a saturation point ...they view any further contact past this point as spam.
- Young people view their mobile phone as a private device.
- Young people are reluctant to share information including electronic contacts without lots of reassurance that their details are treated respectfully.

Several issues arose as a result of the project which include:

- The implementation of the SMS portal is a relatively easy process, however, the reliability of this contact device is poor.
- Student's interactions with the practitioner may change as a result of contact using mobile devices, as their learning spaces are then 'seen' to include any 'time' when they have their phone switched on.
- The use of this method for contacting students is beneficial for those who have an established credit rating and who have a relatively good sense of independence when it comes to using technologies. The use of the technology was not perceived to increase the responsibility and reliability of learners in the short term.
- The expectations of students did not match the level of engagement that the SMS activities generated.
- Learner reliability and responsibility in terms of being able to manage their phone use did not improve in the small trial period – if they didn't have it before.

The issues that confront learning institutions in implementing these services include:

- Costs to purchase an SMS gateway service.
- Training and ongoing professional development for staff.
- Requirement that students own a mobile device - equity issues associated with learners who do not own a mobile device.

9 Project result/impact

The impact of the Txt Me Project has been most significant for all those involved. Sharing of knowledge and experience has also occurred as the project has provided links with other conference and seminar presentations, reference group consultation and discussions and negotiations with telecommunications providers. This has broadened the impact of the project within the education and training systems and within business. Parents have also been provided with information through the consent process for student participation. Reporting about the project through community partnership bodies in the pilot regions has further informed community groups about the possibilities of using m-learning strategies with young people.

As a result of this process there are implementation plans for SMS in all of the trial sites and a raised awareness of what can be achieved in learning through the use of accessible mobile technology. This has also acknowledged confirmation of the importance of good teaching practice that includes a social constructivist model.

Professional learning events at each site are also planned to up-skill teaching staff who will be involved in delivery to disengaged learners in 2005. This professional learning will include the benefits of SMS and how it supports social constructivist learning, use of the technology and infrastructure and strategies to engage learners.

9.1 Technology

While the pilot use of the online gateway involved some difficult issues, the communication that has occurred between the project and the telecommunication providers has raised an awareness of the potential market in the learning sector. Future implementation in education and training settings in the region will further this communication and identify a solution that will function effectively. The challenge of identifying suitable gateway infrastructure is something that other practitioners wanting to implement these strategies will have to consider.

9.2 Parent and community awareness

As a result of the Txt Me project there has been a raised awareness among parents and community groups of the significance and validity of mobile phone use among young people. While a few parents have responded to this negatively as a result of the implied pressure it puts on them to provide their young person with a mobile phone, others have indicated a greater understanding of the benefits that can be derived from the young person's use of the mobile phone.

9.3 Sharing in the learning community

Wherever members of the project team have presented information about the Txt Me project they have been overwhelmed by the interest and enthusiasm that is raised. An ever-increasing network of interested practitioners has developed who have expressed their interest in being included in implementation strategies or kept informed of the project's development.

A great deal of interest has been generated locally, nationally and internationally in the results of this project. Through the networking done by the project team, and the operation of the reference group, the findings of the research have been reported in

an on-going way in a broad range of forums. Project team members have been asked to provide keynote addresses and workshops at forums across the nation.

10 Conclusions

SMS messaging was found to be highly motivational and supportive of content delivery. As one practitioner reported, “This trial has created a lively dialogue between my students and me. SMS provides a sense of immediacy between us and I can see it becoming a regular teaching tool. “

It was observed that being involved in the project clearly had a positive impact on the practitioners. They obviously felt valued and extended by their role in the project. They clearly stated their perception that the mobile phone strategies provided fun and excitement for them and their students.

The most problematic aspect of the project related to the online gateway which did not live up to the claims of the technology experts. These issues need resolution prior to wider implementation of m-learning strategies.

The project research confirmed the need for good teaching practice incorporating a constructivist approach. Learners also showed a preference for involvement in the creation of the curriculum and the learning strategies. They were:

- keen to have their opinions valued in reflection on the outcomes of the activities
- enthusiastic about the use of a technology, with which they were familiar, being used in a learning context
- (most were) willing to extend learning into their own time, and
- interested in the ‘activity’ that was generated by many of the tasks.

They had fun while learning and they appreciated the relationship building between the practitioner and themselves.

Interestingly, the reflections of the practitioners also indicated an appreciation of the new relationships that developed with their students.

M-learning strategies were embedded in learning environments to manage students’ behaviour as well as, more specifically, to deliver learning activities. In this context, mobile phone strategies also proved to be highly effective.

The practitioners who have been involved in the Txt Me project have reported many benefits of using mobile technology in the classroom:

- “It encourages reflection on current practices and ensures that information delivery is in small chunks and is simple to understand.”
- “Chaotic – but kids love it.”

While comments such as these may be perceived to reflect a practitioner ‘view’ that learning environments should be content-driven, structured, organised and classroom-based, the introduction of the innovative m-learning strategy has encouraged the practitioners to reflect on these assumptions too.

Generally, the project practitioners have been excited about their participation in the project and keen to have the use of the technology to add value to their learning. It has been stated that even though the use of mobile phones engages young learners it is important that the activities are not ‘gimmicky’ as the learners will soon switch off if this is so.

For both practitioners and learners it is important that the m-learning implementation has real meaning and reflects workplace practices. Increasing use of mobile technology can be demonstrated in the workplace and this can be linked to delivery strategies.

Concerns about diminished effective literacy have been voiced by the Indigenous reference group members, in response to the use of mobile phones in learning. Some parties have felt that the acceptance of 'slang' would provide inappropriate models for learners already struggling to master spelling and grammar. However, the practitioners in the project have noticed that the use of text messaging increases the learners' perception of audience, purpose and appropriate modes of communication. While the young people involved in the trials did use what they term 'demon' spelling, this was not standardised. Rather, it was usually based on the sender's perception of the receiver's ability to interpret the abbreviation used.

It is also a learning environment where learners who struggle with spelling are not admonished and can therefore feel confident about participating. Greater participation was observed amongst Indigenous learners as a result of the activities that involved a text response in the classroom environment.

10.1 Policy issues

The implementation of m-learning will bring with it requirements to review policy and procedures for operation. Equity and access issues were of concern to the Txt Me trial participants. These were satisfactorily dealt with in the context of the Txt Me project but the fact remains that the possibility of most students being able to afford a mobile device will highlight the lack of access by the minority.

Mobile devices, especially mobile phones, are viewed as personal communication tools by their owners. There are, therefore, confidentiality issues that need to be addressed in the release of mobile phone numbers for student and teacher access. A lack of tolerance has been noticed for 'spam' – unwanted interactive content delivered to electronic devices. Learners in the Txt Me trials were also quick to disengage if bombarded with learning information, especially in non-delivery hours.

Duty of care has already become an expanded issue with increased mobile telephone use. Many teachers and parents from schools involved in the project have voiced concerns about the increased incidence of bullying using mobile devices. The practitioners involved in the Txt Me project recognised that bullying was not an issue connected to the technology but it is a social issue. As such, it confirms the importance of having an effective induction process where protocols are developed and consequences negotiated.

10.2 Technology

The Txt Me trial has shown that teachers and trainers require technology that is reliable and delivers what it is advertised to do.

Many practitioners still shy away from using ICT in their programs as they don't believe it compares to the traditional learning delivery program and they have experienced unreliability issues in its early implementation.

These issues have emerged as important considerations in the implementation and use of mobile phone technology. It is important that professional learning programs do not 'over promise' and that early delivery is supported so that practitioners experience the benefits rather than the disasters. Issues for consideration are not

only the costs of professional learning and support but also the practitioner downtime and need for professional development in learning and implementing a new strategy.

The conclusions from the research project relate to disengaged youth and the pedagogy that engages them, the implementation of engaging strategies and professional learning for teachers. Further conclusions can be drawn about the research process.

10.3 Disengaged youth

The Txt Me project demonstrated that, for disengaged learners, it is necessary for practitioners to engage in and understand their world. It is only in this way that content and strategies can be made real and relevant. In spite of their high familiarity with technology, relationships were of greater importance to the young people involved in the Txt Me trial. In their personal world, technology was used to enhance and end relationships. Students wanted and responded to an individual, personalised relationship with their teacher.

SMS prompting was found to be very successful in both enhancing student participation and meeting deadlines for assessment. Both of these contributed to improved learning outcomes.

The utilisation of SMS language is not part of formal language development. Rather, it is a communication context, with its own rules and responsibilities. Throughout the trial, there appeared to be no correlation between the use of text language and lack of understanding of formal language.

10.4 Practitioners

The introduction of new practice in a supported environment led to reflection on current practice in all action learning sets. Supported and collaborative introduction to new practices was found to be engaging for practitioners.

Txt Me trial practitioners needed to clearly understand the potential of the technology for added value in terms of the achievement of learning outcomes. However, it was also accepted that, invariably, young people were more comfortable with the use of technology.

It was also reinforced that, as was found with the implementation of ICT in other curriculum contexts, unreliable technology and high expectations of what technology can achieve invariably had a negative impact on the willingness of practitioners to invest time in acquiring related skills.

10.5 Future applications of mobile learning

Anywhere, anytime delivery of learning using mobile phone devices will require a more highly developed level of infrastructure than we currently have in Australia. While the devices are currently available, the wireless infrastructure does not economically support their use in education and learning. The financial resources that have been invested in the UK, European Union and the US will need to be considered here if we are to move into that arena.

11 Recommendations

Based on the action research, the recommendations from the project apply to two categories: practitioners and learning institutions. Overwhelmingly, the project team endorsed the following recommendations:

11.1 Practitioners

- Build relationships with young people. The benefits and successes of mobile phone strategies are inextricably linked to the need to listen to what they have to say.
- Use SMS to support and complement other delivery strategies in engaging disengaged youth.
- Provide mobile phones for those young people who don't have them in order to meet access and equity requirements.
- Use content and tools that are real and relevant for young people.
- Understand youth culture.
- Use personalised individual approaches for young learners.

Finally, it is recommended that strategies that achieve these outcomes be built into the curriculum and delivery strategies of programs for disengaged young people.

11.2 Learning institutions

- Ensure that practitioners who are assigned to deliver programs to disengaged youth possess the skills and attitudes required to achieve the recommendations mentioned above.
- Provide the professional learning strategies required to achieve the objectives listed above.
- Adequately support professional learning, by developing particular delivery competencies and supporting the introduction of new technologies that enhance teaching delivery.
- Trial research methodologies (particularly related to the implementation of new technology) with a small trial group prior to involving larger numbers of practitioners and students.
- Carefully consider methods for compensating learners for their calls. The Txt Me trial provided learners with redeemable gift vouchers. This caused some challenges as some students spent their vouchers prior to the project implementation. Some found they were unable to use these vouchers to purchase credit. Some learners kept the vouchers and found cheaper ways of replying to the teacher prompts.
- Thoroughly discuss and explore with learners the protocols for use of mobile phones in the learning environment. Emphasise the importance of this aspect of the project to the practitioners and ensure that it is accomplished by all action learning sets. Some of the issues that may need discussion are:
 - the expectations of practitioners and learners

- negotiation and definition of boundaries between learners and teacher, and learners and learners
- development of protocols for interaction
- risk management
- possible learning and social consequences of the implementation of m-learning strategies.
- Provide ongoing professional support for practitioners who are implementing m-learning strategies for the first time. During the project one of the researchers was in regular contact with the practitioners to record their joys and frustrations and to offer support. The practitioners' feedback indicated that this was a form of reflection which was helpful to them.

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13 Glossary of terms

3G	Third generation technologies supported by advanced wireless systems
Action learning	The strategies by which educators engage learners by involving them actively in the process of collaboration and reflection
Framework	A term denoting the inclusion of activities or projects as part of the Australian Flexible Learning Framework for the National Vocational Education and Training System 2000-2004
Blended learning	The constructivist approach to teaching and learning whereby the practitioner adopts m-learning principles of facilitating and utilising underpinning knowledge of participants as yet another form of service delivery or learning modality
Blogs	Internet-based learning journals and digital deposit points, forums for discussion
Character	A letter used in SMS messaging – often restricted to 160 characters per message
Chunking	The components of a learning experience which collectively add up to the whole experience – often used to denote the manner by which young people construct their own learning by grabbing bits of information to collectively create the whole and often arrived at in unified social settings
Co-creative	Multi-user collaborative tasking
Demon spelling	The term young people involved in the Txt Me project frequently used to describe the non-standard spelling they use in text-messaging.
Digital immigrants	People who have either been restricted from contact with digital technologies or who are in the process of adapting to the use of these technologies
Digital natives	Young people who have grown up with digital technologies as part of their everyday lives
Flexible	A range of options afforded the participant in the process of learning
Focus groups	Key teaching principle for bringing project participants together to engage in collaborative and reflexive activities both in face-to-face format and online in chat sessions or discussion groups.
Gateway	A web-based (Internet) facility whereby the messages can be created, ordered and sent via the personal computer, and groups networks and database systems set up using the framework of this service offered by Telcommunication providers (Telco's).
ICT	Information Communication Technologies

Interconnectivity	The relationship and network elements of technologies, including software applications and concept frameworks within which user space is seamless
Interoperability	The links between technologies and the operable structures which are shared in concept and in practical application
K-12	Kindergarten through to end of secondary education
Ming-mong	The term used to describe the use of sending images from one mobile device to another, with captions or text included
m-learning	Learning that happens when the participant is not at a fixed, predetermined location, or learning that happens when the learner takes advantage of the learning opportunities offered by mobile technologies as described in the WP4 guidelines for learning / teaching / tutoring in a mobile environment
m-logging	Internet-based database systems which showcase images and other media sent via MMS facilities and functions of mobile technologies
MMS	Multi Media Services
Onset	The term used to denote the uptake of mobile technologies and the rates by which this uptake is monitored and acknowledged
On-time	Immediate response to information sharing or 'just-in-time' information sharing as it occurs
Participants	Young people engaged in the trial site projects.
PC	Personal Computer
PDA	Personal Digital Assistants
Practitioners	Employed educators who conduct the trial site projects
Randoms	A term used by youth to denote people who are 'strangers' or unknown to their contact immediate circle
Scaffolding	Mechanism by which learning experiences are supported by modes of communication and information sharing
SMS	A term used when referring to the messaging functions of the mobile phone – meaning is Short Messaging Services
Spam	The level at which contact using technologies exceeds expectation or elicits negative reaction
Tag	Identifier placed at the beginning of an SMS message. It denotes who the message has been sent from when anonymous random numbers are allocated by the Telco gateway
Telco	Telecommunication agent or service provider

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