# The potential of mobile phones in supporting open and distance learning (ODL) learners: The case of the University of Pretoria

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## Introduction

Recognising the need for full participation in the "knowledge society", South African higher education institutions today are refocusing their positions in global economies and rapidly embracing information and communication technologies (ICTs). This process of institutional repositioning has entailed a re-examination of institutional identities and their functions. Participation in the ICT-based knowledge society has led to a reassessment of, among other things, the complex notions of "graduateness", access and ICT usage (Czerniewicz & Brown, n.d).

## The institutional context (background)

The University of Pretoria was established in 1908. It is considered to be the most comprehensive residential and research University in South Africa, with more than 51 000 campus and off-campus students in 2012. Its Faculty of Education is the largest face-to-face faculty of its kind in the country.

The Unit for Distance Education was established in the Faculty of Education in 2002. It offers two undergraduate programmes and one postgraduate programme for teachers who want to upgrade their qualifications. In 2012, more than 19 000 teachers were enrolled in these programmes.

Given the realities of infrastructure in Africa and the lack of access to the Internet, these programmes are predominantly delivered through paper-based learning with face-to-face contact sessions. The programmes are specifically developed to suit the needs of teachers in rural communities in Africa. Since inception in 2002, more than 26 440 teachers have graduated from these programmes.

This case study illustrates attempts made by an open and distance learning (ODL) provider to harness appropriate and relevant technology to enhance learner support. It shows how the Unit for Distance Education in the Faculty of Education at the University of Pretoria has used, and is still using, mobile phones in an innovative way to enhance the quality of support for distance education learners. The evolutionary use of SMS technology (explained later in the case study) is linked to some of the quality criteria of the National Association of Distance Education and Open Learning in South Africa (NADEOSA).

## NADEOSA quality criteria illustrated

The NADEOSA quality criteria are a set of popular quality guidelines for designing and delivering credible distance education programmes (Welch & Reed, 2005). The University of Pretoria's experiences are used to illustrate some of these quality criteria. The study also points out the possibilities of extending the current NADEOSA quality criteria. This is illustrated towards the end of this case study.
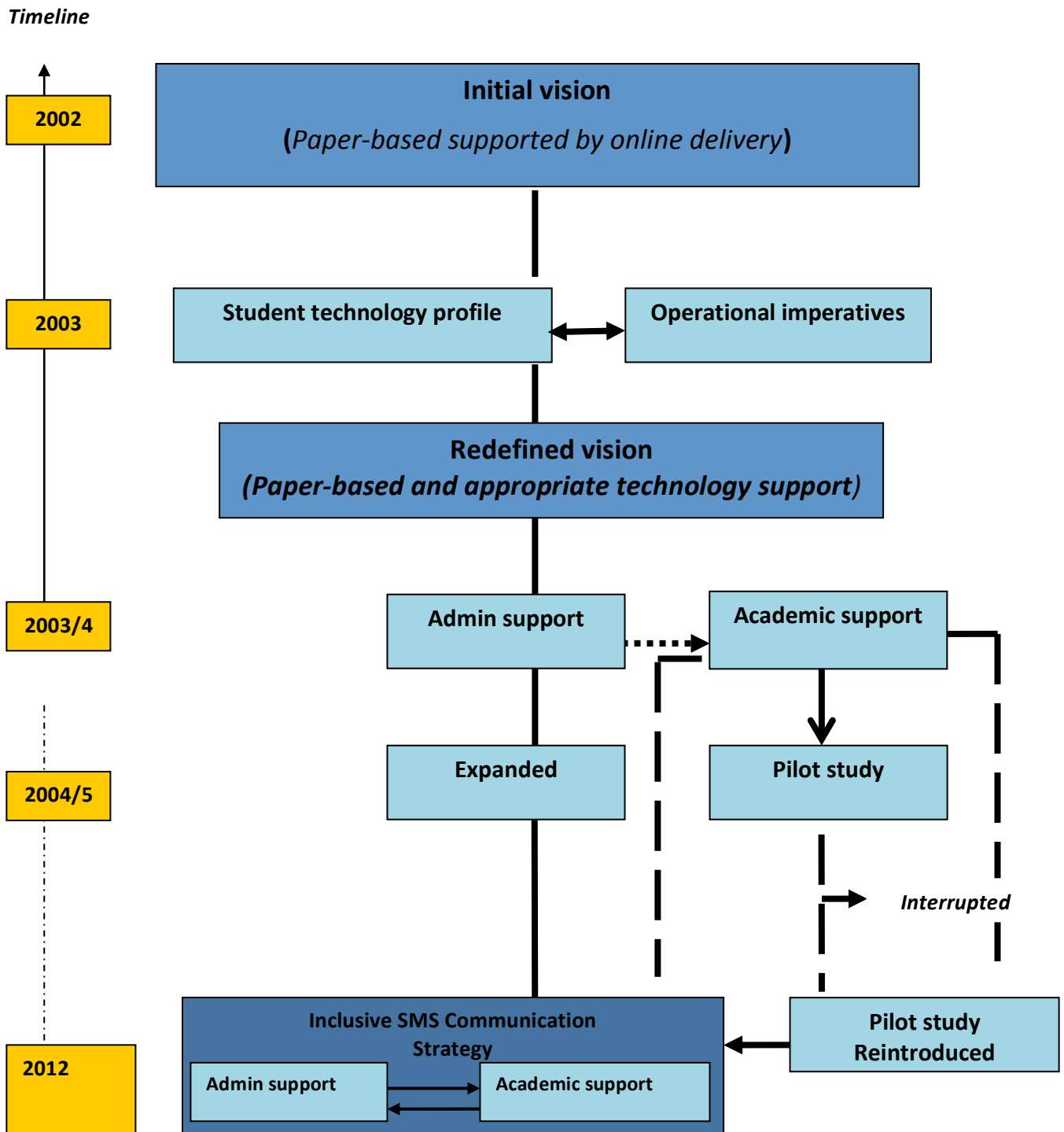
The specific NADEOSA quality criteria illustrated in this case study are the following:

1.  Selection of technology is based on the needs, resources and capabilities of the learners and the provider, and the purposes of the programme on offer (Criterion 3.5).

2.  There is up-to-date, detailed information about present and potential learners. This is used to inform policy and planning of programme development, learner support and other relevant aspects of educational provision (Criterion 2).

3.  Choice of media and technology is justified in light of the aims of the course, required learning outcomes, learner needs, and capacity to access and use the technologies (Criterion 4.4).

4.  Implementation plans are realistic, both in terms of learning and teaching goals, and in terms of financial sustainability and design, to enable targets to be met (Criterion 1.8).

5.  Research into learners and their needs is a high priority and is used to inform all aspects of policy (Criterion 2.3).

**Development of the use of the SMS at the University of Pretoria**

*Figure 1* gives a bird's eye view of the evolutionary use of media technology in distance education programmes at the University of Pretoria. This spans from 2002, when the initiative for distance education programmes was launched with the initial intention of running paper-based distance education programmes supported by online delivery because of the capacity of the technological infrastructure of the University of Pretoria. The figure also shows that this vision was redefined. It highlights the operational imperatives and challenges the Unit for Distance Education experienced until 2012. The figure is explained in the accompanying paragraphs.

**Figure 1: Development of the use of the SMS at the University of Pretoria**

*Timeline*

| | |
|---|---|
| **2002** | **Initial vision** (*Paper-based supported by online delivery*) |
| **2003** | Student technology profile ⟷ Operational imperatives |
| | **Redefined vision** (*Paper-based and appropriate technology support*) |
| **2003/4** | Admin support ⟶ Academic support |
| | Expanded / Pilot study |
| **2004/5** | *Interrupted* |
| **2012** | Inclusive SMS Communication Strategy — Admin support ⟷ Academic support / Pilot study Reintroduced |

**Initial vision**

The popular belief throughout the world is that the use of ICTs in education is an almost unqualified positive development. Many examples are cited to illustrate its positive impact, and the injustice done to students if not fully explored (Hendrikz, 2010). However, the other side of the argument should be that, if learning is dependent on the use of ICTs, and students cannot afford or do not have access to them, the have-nots will be excluded. Due to the enduring myths about the inclusion of ICT in education, there is a tendency to assume that the World Wide Web means that the whole world is connected to the Internet (Waller, 2007). This is, however, not the case, as approximately 67.3% of the world's population is not connected to the Internet (Internet World Stats, 2012).

Although there was some improvement in Africa's position with regard to internet penetration by 2010, research on ground level show that the penetration rate in Africa by December 2011 was only 13.5%, the lowest of all regions in the world, while its broadband availability was less than 1% (Centre for Strategic and International Studies, 2012). In Africa, there is only one fixed broadband subscriber for every 1 000 people, while in Europe there are 200 subscribers for every 1 000 people (Internet World Stats, 2010). This invariably affects the proportion of households with Internet access, and it means that only four out of 100 Africans currently use the Internet (Centre for Strategic and International Studies, 2012).

Ironically, this problem is not only limited to Africa as there are clear divisions based on class, race, gender, age and geography, even in developed countries (Waller, 2007). On the other hand, mobile cellular penetration in Africa is much higher (55%) in comparison to Internet usage. The picture painted about trends in Africa is not entirely different in South Africa (BuddeComm, 2010), where the majority of the population is situated in rural areas.

Being one of the premier research universities in South Africa, the University of Pretoria has a well-developed ICT infrastructure that compares favourably to any university in the developed world. The University has a comprehensive IT infrastructure and officially started to use online technology in the delivery of its contact programmes as early as 1998. The bandwidth available to the University of Pretoria in 2012 is 1 Gbps, of which 168 Mbps is reserved for international traffic. As at the time of writing this case study, the University of Pretoria has 150 computer laboratories with just over 6 000 computers and these are available for student use. The ratio of computers to students is 7:1. Bandwidth in the IT laboratories is 100 Mbps to the desktop with 1 Gbps uplinks to the core of 10 Gbps. Training courses have been introduced to enable academics to optimise web-based learning opportunities and to further enrich the learning environment. Infrastructure was also put in place for them to communicate with their students via SMS technology. The University embarked on an e-learning strategy because the technology is available and affordable to its contact students and appropriate for use by their academics. The profile of the University of Pretoria's contact students mirrors that of any good university in a developed context. Therefore, it makes sense to approach the distance education programmes at the Faculty of Education in the same way.

However, the profile of the distance education students differs from the profile of the contact students. Distance education students enrolled in the Unit for Distance Education comprises thousands of teachers (mainly black teachers) who were disadvantaged in the apartheid era by inadequate and low-quality teacher training programmes at inferior teacher training colleges established specifically for black teachers. Thus, the decision of the Faculty to embrace distance education was a moral one meant to redress the legacies of apartheid. The teachers

that are targeted with the distance education programmes predominantly teach in rural areas throughout South Africa and have limited access to ICT infrastructure. Thus, although the learning management system and the necessary ICT infrastructure for contact students were available to deliver the distance education programmes online, it was later proved to be inappropriate due to the technology profile of distance education students.

**The technology profile of distance education students**

The University of Pretoria was capable of delivering online distance education programmes, but that would have excluded thousands of students from continuing their studies. As reflected in *Table 1*, the technology profile of distance education students in 2002 and 2003 showed that almost all students had access to or owned a mobile phone, but very few had access to an email address, computer or the Internet.

**Table 1: Profile of first-time enrolment (2002 to 2003)**

|                            | 2002  | 2003  |
|----------------------------|-------|-------|
| Number of students         | 1 760 | 4 306 |
| Cell phone                 | 95%   | 98%   |
| E-mail                     | 0     | 9     |
| Computers at home or work  | 3%    | 4%    |
| Internet                   | 1%    | 3%    |

The University of Pretoria recognised that the distance education student population differed in many ways from the contact student population.

**Redefined vision**

Due to the situation mentioned above, the University of Pretoria decided that the presentation of the distance education programmes should predominately be paper-based with structured opportunities for face-to-face sessions and other student support services within the limitations of the students' technology profile.

The availability of mobile phones to students prompted the Unit for Distance Education to embark on a comprehensive project to optimise the possibilities of text messaging (SMSs) to enhance the quality of administrative support to students. Since the Unit for Distance Education started in 2002, ownership of mobile phones has been relatively high among distance education students.

As seen in *Table 2*, by 2008, 99% of students had mobile phones, as opposed to fewer than 35% who had access to email and only 3% who had access to the Internet. However, by 2012, the low trends in Internet access had grown to 25%, while the table indicates that all newly enrolled students have access to mobile phones.

**Table 2: Profile of students who enrolled for the first time: 2004 to 2012**

|  | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2012 |
|---|---|---|---|---|---|---|---|---|
| Number of students | 3 187 | 3 553 | 5 087 | 5 643 | 8 011 | 6 102 | 5 675 | 3 354 |
| Cell phone | 98% | 98% | 99% | 99% | 99% | 99% | 99% | 100% |
| Internet | 0% | 1% | 2% | 1% | 3% | 8% | 13% | 25% |

Tracking students' demographics in terms of their accessibility to technology is in itself an example of good practice by a provider as it enhances proper planning. Because the profile of students served is known, the University of Pretoria decided to explore possibilities of augmenting the traditional paper-based delivery mode with SMS in order to support its dispersed student clientele. The Unit for Distance Education largely serves educators who are over 40 years of age. The common challenge faced by students with this profile is that they get overwhelmed by the myriad of commitments and responsibilities they have as full-time employees and as the head of a family, to a point where they normally overlook some of their academic responsibilities. Thus, the University of Pretoria initially used the SMS largely for administrative support; reminding students of important events like tutorial dates, assignment due dates and examination dates. From 2004, the system was upgraded so that whenever a parcel was sent to students, they would receive an SMS with the tracking number of the parcel by default.

The upgrading initially focused on communication to students using the "push approach". With this approach, the University of Pretoria had control over the content, time and to recipient of the SMS. The University of Pretoria later introduced a "short code" where students could communicate with the University and the SMS was received as an email on the student's desktop. This "pull approach" invited students to engage with the University via SMS. It was now possible for students to register for contact sessions via SMS, for example. The need to ensure that the available infrastructure could deal with the messages that come through and their management cannot be underestimated in the use of this technology.

**Operational imperatives**

The University of Pretoria has an administrative model in place that supports the academic model of its distance education initiative. The use of existing resources, structures and processes within the University was a primary objective, although some functions were outsourced from the start. Up-to-date detailed information about present and potential learners is used by the Unit for Distance Education to inform policy and planning of programme development and learner support provision. This information includes the age, geographical, technology and workplace profiles of students. For instance, the demographics of students enrolled in distance education between 2002 and 2004 showed that students were, on average, below 40 years of age. However, this trend changed from 2006 when registered students were mostly above 40 years of age (70%); they were educators (95%) and resided in the rural areas of the country with an Internet facility that has grown from 1% in 2007 and 14% in 2010 to 25% in 2012 (new enrolment only). It is evident from the demographics that, due to limited access to the Internet, online learning is not an option in the delivery of distance education programmes.

Because students have access to mobile telephones, this technology is used to motivate students and to support administrative processes. In the process, the Unit learnt how to use communication principles in developing SMS messages that are understood by its students as

was intended by the University of Pretoria. The Unit for Distance Education has experience in conveying the maximum amount of information within the 160 characters available. Experience has shown that if the message is not clear, the receiver becomes confused and the University is inundated with enquiries (Hendrikz, 2005).

In an environment where students have limited access to ICTs, except for cell phones, SMSs become the most cost-effective way to communicate with students. It is obvious that there are limitations to SMS communication but, for those messages that can be communicated via SMS, the advantages are numerous. An obvious constraint to using this type of technology for supporting learners is the cost factor. Unless ways of limiting costs to students and the provider are found, the use of this technology becomes unsustainable, especially in a developing context where even professionals like teachers find it hard to make ends meet.

To make the intervention more sustainable, the University negotiated a deal with a service provider for bulk SMSs. Through this arrangement, the cost of these SMSs is almost 50% lower than that of normal SMSs. The postage cost of a letter is almost 400% higher than that of an SMS.

Furthermore, the impact on human resources is very limited. Once a message has been constructed, one person can, from a desktop computer, extract all the numbers of the receivers from the mainframe within a minute or so, and send the message either directly to the students' mobile phones or to the service provider who will send it to the students. The software used to perform this function was made available free of charge by the service provider.

The SMS system was developed by internal programmers, who wrote a programme for the mainframe to personalise bulk SMSs. If outside programmers had been contracted to do this work, the cost would have been substantial.

The development of the technology infrastructure for the SMSs was a once-off, cost-intensive expenditure. Once this was in place, no additional costs were incurred to run the initiative. Thus, going into partnership with a private provider made the implementation of the SMS facility feasible and more sustainable for the University of Pretoria and its students.

The changing trend in the availability of personal or shared computers to students (from 9% in 2004 to 63% in 2010) has also caused the Unit for Distance Education to witness an increase in the submission of electronic assignments by students. For instance, in 2011, of the 3 988 enrolled students, 754 (19%) students submitted electronic assignments. Even though this is still a minute percentage of the student population, the experience has led the Unit for Distance Education to continuously organise training for markers to mark these assignments electronically. This emerging profile has also enabled the Unit for Distance Education to introduce CD-ROMs containing student learning material. This CD-ROM contains general administrative and academic information, as well as an e-library. The e-library contains additional readings that will further enrich students' learning experience. These are, however, not a prerequisite for successful study. The sections on administration and academic matters contain all the information students have already received in the paper-based learning material, but the material is presented in a more visual way. This has been done to ensure that no student is disadvantaged.

All the learning packages sent to students are also available on the Unit for Distance Education's webpage. However, a study conducted in 2010 showed that of the 3 848 students who participated in the survey, only 274 (7%) of the students have accessed the site. This is understandable given their technology profile. The technology profile of the distance education students at the University of Pretoria mirrors the broader technology profile in South Africa and Africa. There are those communities – especially in urban areas – that have comprehensive and adequate ICT connectivity, but the majority of the population living in rural areas have limited or no ICT connectivity.

The availability of mobile phones, students' familiarity with the technology and the need to bridge the distance through regular communication exchange were major motivating factors for using the SMS technology in supporting ODL students at the University of Pretoria. Appropriate use of technology for teaching and learning purposes should thus take the needs, resources and capabilities of the learners and the provider, as well as the purposes of the programme on offer, into account. It is the aim of the University of Pretoria to continue to monitor the technology profile of its distance education students and to introduce the appropriate use of technology to suit this profile.

*Table 3* shows how SMS usage has increased at the University of Pretoria over the years.

**Table 3: Increasing usage of SMS over time**

| Year | Number of SMSs sent | Number of students enrolled | Number of SMSs received per student |
|------|---------------------|------------------------------|--------------------------------------|
| **2002** | 1 412 | 1 725 | 0.9 |
| **2003** | 45 923 | 5 322 | 9 |
| **2004** | 137 594 | 8 555 | 17 |
| **2005** | 155 596 | 10 894 | 15 |
| **2006** | 297 442 | 13 799 | 22 |
| **2007** | 442 473 | 16 315 | 28 |
| **2008** | 1 037 855 | 21 085 | 50 |
| **2009** | 1 125 704 | 21 533 | 53 |
| **2010** | 1 223 424 | 20 814 | 59 |
| **2011** | 903 467 | 18 432 | 49 |

The table shows that, in the first two years, students received a limited number of SMSs. These were mainly to remind them about due dates.

Reminding students of important due dates goes a long way in improving adherence to due dates. Generally, receiving such SMSs has a very positive effect on distance education students; they feel they are supported and cared for by the University and the sense of loneliness, which is often associated with distance learning, is dispelled. For instance, a study involving 3 121 students conducted by the Unit for Distance Education concluded that students liked receiving SMSs from the University (Hendrikz, Viljoen and Adams, 2006). They reported that the SMSs made them feel closer to the University, supported them in structuring their studies and increased their level of motivation. Similarly, as a follow-up to the study done in 2005, in 2011, the University surveyed the opinions of students on the SMS facility. *Table 4* shows some of the students' diverse reasons (depicted by diverse percentages) for wanting this communication intervention in their studies:

**Table 4: Some of the reasons given by students for wanting to receive SMS from the University of Pretoria**

|   | Reasons | Frequency | Percentage |
|---|---------|-----------|------------|
| a. | Makes students feel closer to UP | 2 703 | 54% |
| b. | Help students meet deadlines | 2 451 | 49% |
| c. | Makes students more motivated to study | 3 096 | 62% |
| n = 5 020 | | | |

The expansion of SMS use for administrative support prompted the University to think of innovative ways of extending the same facility to include academic support. The University piloted this expanded function for a while. The purpose of this was to try and mimic what a lecturer does in a conventional face-to-face learning encounter and to translate that into an SMS to support distance students academically.

**Possible use of SMSs for academic purposes**

In 2005, the Unit for Distance Education conducted the first study into the possibility of using SMS technology for academic purposes. Findings from the study showed that it is possible to use SMS technology to support students academically in a limited way, bearing in mind some variables that include the commitment of the students, family support, their attendance of contact sessions and their personal circumstances (Viljoen, Du Preez & Cook, 2005). The study also suggested that those students who received the SMS messages (the experimental group) were academically more active than those in the control group. A higher percentage of students in the experimental group submitted assignments than those in the control group, and, within the experimental group, those who responded to the SMSs outperformed those who did not respond.

Although the University was aware that the SMS tool could not be used for any substantive academic support, it was convinced that if it could do the following, then it was a mechanism to support teaching and learning and its possibilities had to at least be explored:

- Direct students to important pages in the study guide.
- Create the perception that the University supports them with their learning.
- Create a perception that the lecturer is "closer" than the physical distance between learner and lecturer indicates.
- Give the student the opportunity to ask academic questions via SMS and to get a response.
- Listen to the lecturer giving a "mini-lecture" on a difficult concept.
- Motivate the student to work diligently.
- Help students to structure their studies.
- Make them feel they are not alone in their studies.

One of the key challenges wherever SMSs are used for academic support is the Unit for Distance Education's design of these messages, given the limited number of characters in the messages. In the initial discussions, possible SMS options were identified. These included SMSs that could direct students to parts of their study guide to support them in the completion of assignments and that could send them a type of SMS quiz and introduce the use of interactive voice response (IVR). Five types of learning support SMSs were developed and examples of each SMS design are given below:

**Type 1: Academic instruction**

*LPO 402 student[1], work through Assets on p43–44 in Tutorial Letter 1's booklet before answering 1.4 of Assign[2] 1. This is also important for Assign 2 & Project. UP[3]*

**Type 2: Academic quiz**

*LPO 402 student, SMS your student number via reply. SMS to start taking part in a quiz on the asset-based approach. Quiz is 2 questions long. UP*

**Type 3: Academic question and answer**

*LPO 402 student, see section C, no 2, page 20 in your Assignment Workbook. SMS any questions you have about these guidelines for educators via reply SMS. UP*

**Type 4: Mini lecture via IVR**

*LPO 402 student, phone 012 420 3111 to hear more about most important concepts in the asset-based approach. Have your student number at hand when you phone. UP*

**Type 5: Academic support**

*LPO 402 student, answer the question on p20 in your assignment workbook by using the learner's assets to guide educators in uplifting the learner's barriers.*

It is clear from the SMS examples given above that the design was guided by the specific purpose of the SMS, which directed students to specific aspects of their learning. This helps to make the message short enough, while at the same time providing meaningful guidance to the student on what to do. The SMS prompts the student into action and reinforces the feeling of the "presence of the teacher".

Although the pilot showed the potential of using the SMS technology for academic support, its implementation was interrupted by a number of factors, including staff turnover.

Nevertheless, between 2010 and 2011, the Unit for Distance Education carried out a second pilot study on the use of SMS technology for academic support. For the tutorial session, module coordinators were requested to divide their learning material into four chunks, which they built into worksheets used by tutors for facilitation. This, in turn, guided the units to be referred to in SMSs sent to students. Thus, in preparation of their attendance at the tutorial session, students could receive SMSs on what units in their learning material they should read ahead of the session. Examples of these messages include the following:

*Student, Tutorial 3 is on Sat 5 Feb. 08:30 till 13:00. Read Units 5 & 6 for EDM 401. For EDS 401, read Units 3 & 4. Bring all learning materials. UP.*

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[1] We have found that it is best to address students specifically, especially since some of our students share phones with other family members. It has also come to our attention that it is important to distinguish between administrative SMSs and academic SMSs, because of the relatively large number of administrative replies received from students when academic SMSs were sent.

[2] The training letter includes lists of acceptable abbreviations used in SMSs. "Assign" is listed and is the abbreviation for Assignment.

[3] Our experience with administrative SMSs has taught us that it is important to indicate clearly who is sending the message, in order to minimise the possibility of accidently deleting the message. Furthermore, signing off in this way, clearly and consistently indicates the end point of a response sequence. This is important so that students know when to stop interacting.

> *Student, Tutorial 4 is on Sat 3 Sept. 08:30 till 13:00. Read Units 7 & 8 for EDM 401. For EDS 401, read Units 5 & 6. Bring all learning materials. UP.*

The tutors also received SMSs to assist them in their preparation for the session. An example of such a message is illustrated below:

> *Tutor, Tutorial 1 is on Sat 5 Nov. 08:30 till 13:00. For LVO 721 & NMQ 731, prepare Units 1 & 2 in both learning guides. UP.*

In 2012, the Unit for Distance Education identified a module, in conjunction with a module coordinator, in which the project on the use of SMS for academic support has been revisited. The Unit for Distance Education is busy with research into this. The project is limited to one module because it appears that not all academics have shown interest, which might partly have been due to some academics, not fully understanding how technology can support them in this context. The Unit for Distance Education hopes that the value of SMS technology for academic support that would emanate from the study will encourage other academics to follow the same approach.

**Inclusive SMS communication strategy: The blurring of boundaries**

Experiences at the University of Pretoria have, so far, shown that the interactive nature of both administrative and academic SMS messages leads to the blurring of boundaries between the impact of the two messages on students. It has been found that, for example, an administrative message wishing students well in the forthcoming exams will have a similar impact as when an academic is standing in front of a class wishing the students all the best for the exams. Similarly, an "academic" SMS informing students about an assignment has a positive impact in that it prompts students to submit their assignments on time.

Although there will always be messages that are very specifically related to academic matters and others to administrative matters, the collective impact of the messages will support students to study more successfully.

**Lessons learnt from the University of Pretoria's experience**

Some important lessons have become apparent from the use of SMS at the University of Pretoria.

Firstly, the provider should have mechanisms in place for ensuring that the choice of technology is relevant to students enrolled in a programme. Students should have the necessary access to the technology and should be able to use it.

Because of the nature of this type of communication, the University of Pretoria advises that one needs to make sure that the general bulk SMSs are only a confirmation of what has already been communicated to students by other means. Relying entirely on the SMS for communicating vital information to students is risky as people change their cellphone numbers, lose their handsets through theft, or just fail to get the messages for some other reason.

It is also important to apply the basic communication principles in the construction of SMSs, for example identify the target group, analyse the essence of the message, be clear and use the right words.

It is obvious that SMS messages can never replace letters or personal telephone calls. There are, however, instances where SMSs are the best form of communication. There is no more cost-effective way (excluding email) to communicate with students. Using print and the postal service to distribute the same information to learners would have been 20 times more expensive than bulk SMSs.

While the SMSs provide immediate and just-in-time information, the posted information would have taken between three and 18 days (depending on the remoteness of the learner) to reach all the learners.

It appears that students have been found to regard SMSs sent by the University as personal messages to them. These messages seem to carry an image of authority and importance, and the students tend to take them seriously. If, for instance, requested to do something, the experience is that students react almost immediately.

Good teaching should always be informed by research to ensure the best approaches to teaching and learning. Research is an integral aspect of the implementation of the SMS facility at the Unit for Distance Education. The Unit continually monitors the technology profile of its enrolled students. This has led to the development of relevant support for students over the years. For instance, the Unit for Distance Education evaluates the service delivery to students four times a year. The number of responses that are received from students ranges between 3 000 and 7 000. It is clear from student feedback and the responses received after sending SMSs that students perceive this type of support as valuable and helpful and that they expect the University to use it. It is also clear that the University's planning processes regarding the use of mobile phone technology are constantly guided by students' feedback. Thus, the most significant effect of using SMS seems to lie in the ability of the facility to bridge what Moore (1997) refers to as "transactional distance", one of the major constraints that ODL learners face.

In addition, it has been discovered that the division between administrative and academic support is usually very blurred. This is because keeping in touch with students via SMS technology for academic and administrative reasons also motivates and supports students in their studies.

Another lesson that has been learnt is that an interactive SMS strategy (push and pull approach) between the University of Pretoria and its students is a prerequisite for effective communication via this medium.

SMS communication should be in integral part of the communication plan of the institution. It is important to plan how many messages will be sent, for what purpose, and to whom. This will also allow the institution to properly budget for this expenditure. This, however, does not imply that one cannot send ad hoc SMSs when the need arises.

It has also been discovered that it is not possible to optimally use SMS technology in the academic environment if the academics themselves are not focused on using this technology.

Finally, the use of SMS for both administrative and academic support has been found to be valuable, but it has the following limitations:

- If the phone is switched off the service provider will remove the message from the system after a certain time.
- The student could have lost his or her phone.
- The student could have changed his or her number.
- The message could be opened by a family member or friend and might not be conveyed to the owner.
- The student might not read the message.
- The message might get lost in cyber space for some reason.
- The message could be misunderstood by the student.
- The impact of a wrong message to the wrong target group is immediate with dire consequences.

**Possible new criterion: Technology used for teaching and learning purposes must be evaluated regularly in terms of its impact**

With changing trends in knowledge and as institutions embrace more and more technology, there is the need for further refining of the quality criteria of NADEOSA. While the current criteria emphasise careful selection and integration of relevant and available technology, there is a need to create awareness of the importance of continuously evaluating the impact of the technology used for teaching and learning purposes. This study suggests an extension of existing quality criteria to serve this purpose.

Where any form of technology is used to support learning, there is a need to conduct regular studies in order to establish the impact of the technology on students' performance in their studies. This is mainly because of the changing nature of technology, which may easily render some forms of technology obsolete or less convenient over a short period of time. The provider should have mechanisms for ensuring that the technology used is still popular with students and that they derive maximum benefit from it.

**Conclusion**

The University of Pretoria's experience with mobile phones is mainly based on students' accessibility of the technology. The case study shows how SMS technology has been used and is still being used to meet the need of distance education students to get regular communications from the University. Every provider needs to demonstrate the ability to maximise the use of technologies that the majority of students have access to and can use. In this regard, the case study illustrates the importance for providers to base decisions about which technology to use on appropriate contextual analysis.

However, there is no perfect student support instrument. Any form of technology chosen by the institution, be it the Internet, interactive television or radio, has its pros and cons. These should be continually monitored.

More research is needed in order to further exploit the potential of mobile phones in enhancing learner support in distance learning. Mobile phones will not replace the computer, but they do have further possibilities that need to be explored, especially as more and more sophisticated phones become readily accessible to more people in the developing world. The

boundaries between a mobile phone and a tablet are also blurring. The impact of social media like Twitter and Facebook are already visible in the learning environment. The role of mobile phones will become more integrated into the lives of users because of these developments. The potential to use the mobile phone in distance education is growing by the day. The challenge for the University of Pretoria is to continue to optimise these developments to the benefit of its students.

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