

# Mobile Technologies for Social Transformation

## A concept paper

### Overview

Every year US\$100s of millions is spent on projects in developing countries that have an ICT element. In addition, mobile networks are spending US\$10s of billions on improving their infrastructure and rolling out data coverage. Over 4.5 billion people now have a mobile phone and the highest growth rates are in developing countries<sup>1</sup>. Even in the poorest communities most people either own or have access to a mobile phone.

Both governments and development agencies have been slow to exploit the unprecedented opportunities presented by ICT. There have, however, been many small scale pilots that have given people access to information via ICT and in most studies this has seen an improvement in wealth within the pilot community. The most well known studies with fishermen saw average profits rise 8%.<sup>2</sup> Whilst ICT and more specifically mobile phones are beginning to be used both to provide access to information and for data collection, there is still much more that they could be utilised for.

Many development programmes provide immediate support and training programmes. Health programmes have provided vaccinations, and agricultural schemes have provided best practice training on crop rotation and the use of fertilizers etc. There is, however, a distinct lack of follow on support and continuing input. How do you provide ongoing coaching to farmers to ensure they have fully understood the training advice and are actively implementing the new ideas? How do you mentor individuals with health issues to ensure that they are taking the best care of themselves on a daily basis?

A new technology has crept onto the African scene that has enabled a step change in the way that the poor can access and share information. This concept paper outlines why we believe that Instant Messaging (IM) through services such as [Mxit](#) and [JamiX](#) can make a significant difference, not only to the provision and impact of information services, but more importantly to the ongoing coaching and mentoring of individuals and communities. This technology offers benefits in terms of lower cost and greater ease of use, whereby users can enter into a “conversation” with a service provider. It is this ability to establish a relationship through the multiple exchange of texts that distinguishes the system from SMS based information services, and it is relationships that hold the key to translating information into practice and thus lasting transformation.

### Background

Each year a mind boggling amount of money is invested in ICT for development projects around the world. The World Bank Group invest around US\$750 million a year in specific loans and guarantees for ICT use and development. In addition, a further US\$1.5 billion a year is spent on projects with ICT components in development<sup>3</sup> and USAID is suggested to spend something like a further US\$100 million. In the mobile phone sector, according to GSMA, around US\$10 billion per year is spent in Africa alone improving ICT infrastructure and networks.<sup>4</sup>

It still seems however, that society in general, and the NGO/development community in particular, have been slow to see the mass of possibilities in applying technologies to social transformation. Of course, there is practical deployment of ICT in development and more specifically some great innovative mobile phone technologies, such as [frontline SMS](#), [SMS Medic](#) and [Ushahidi](#). These 'open source' solutions are being used widely in pilot projects to gather data and to speed up the relay of information. However, technology can facilitate so much more and must be recognised as a catalyst for social change. This concept paper explores how **mobile technology can be a facilitator in lasting behavioural change**.

*Heather Cole-Lewis and Tracy Kershaw* produced a very interesting report entitled *"Text messaging as a tool for behavioural change in disease prevention and management"*. They looked across a wide section of research studies in western healthcare, where text messages had been used for patient reminders and, specifically with smokers, where patients were linked to a "quit buddy". This has improved adherence to the programme dramatically, in some studies achieving 100%.<sup>5</sup> Another study, which was presented at this year's World HIV AIDS conference in Vienna, looked at mobile phone delivered counselling for HIV behavioural interventions. The study found that **regular coaching and mentoring conversations significantly improved behaviours**. Enhanced condom use was reported over an 18 month period together with a reduction in the frequency of sex whilst drinking or using drugs, and a resultant reduction in new Chlamydia infections.<sup>6</sup>

Behavioural change studies have identified that just as peer pressure and social influence can draw the young and vulnerable people into a downward spiral of negative behaviour and a sense of hopelessness, so too can peer mentoring and positive social influence help people to turn their lives around. Nowhere has this been better demonstrated than through the [Rlabs](#) project in Cape Town, South Africa.

The most important case study in this field, **which brings together peer mentoring and mobile technologies for behavioural change**, has been conducted by Marlon Parker of Rlabs in Capetown, South Africa. Rlabs established the world's first mobile counselling service in July 2008, which has received worldwide accolades for its achievements.<sup>7</sup>

We now consider this case study in detail and the transferrable learning for wider social and development contexts.

### ICT for Development

Whilst it is reported that there are over 4.5 billion mobile phone subscriptions, many more people in the developing nations have access to mobile phone calls through schemes such as Grameen Village Phone Program. It is estimated that across Asia and Africa there are now over 280,000 “Village Phone Ladies” each providing access to many dozens of people in their communities. The growth of mobile phones in developing countries is being driven partly by a belief that access to communication creates opportunity and partly by pure economics. A typical scenario is that a phone call to a relative or commercial contact in the city can save a two day round trip. The cost of a trip to the city ranges from 2 to 8 times the cost of a single phone call, meaning real savings for poor rural people of between \$2.70 to \$10 USD for individual calls<sup>8</sup>. Furthermore, Vodafone (2005) reported that, in a typical developing country, an increase of 10 mobile phones per 100 people boosts GDP growth by 0.6% (based on research in Africa in 2004). Deloitte in its report ‘Global Mobile Tax Review 2006-2007’ estimates that with every 10% increase in mobile penetration, the GDP growth increases by 1.2%<sup>9</sup>.

NGOs use of mobiles for their day-to-day job has also grown dramatically in recent years, as shown by a survey by *Greenberg Quinlan Rosner Research*.

	<b>Total (%)</b>
It has completely revolutionized the way my organization or project does its work	25
It would have been very difficult to do the work without it	31
It is/was very helpful for my organization or project	36
It is/was only somewhat helpful	8
Ultimately, it is/was more of a burden than a help	0
It was a waste of time and money	0

The survey reveals the key benefits of mobile technology for all NGOs include time savings (95%); the ability to quickly mobilise or organise individuals (91%); reaching audiences that were previously difficult or impossible to reach (74%); the ability to transmit data more quickly and accurately (67%) and the ability to gather data more quickly and accurately (59%). A breakdown of types of usage shows voice and text messaging are still the most common applications of mobile technology among NGO workers, whilst other types of usage are much lower such as data collection or transfer (28%), data analysis (8%), inventory management (8%), and mapping (10%).<sup>10</sup>

These positive findings should be an encouragement to the NGO community, and along with the exponential growth in mobile phone usage amongst the rural poor, should spur it on to take full advantage of the opportunities presented by mobile technologies. MobileActive, a community of close to 20,000 practitioners, researchers, technologists, donors, and private sector leaders, is leading the way in pioneering and supporting Mobile for Development projects. It categorises projects into the following areas:

- Advocacy
- Citizen Media
- Democratic Participation
- Disaster & Humanitarian Relief
- Education
- Environment
- Health
- Livelihoods & Economic Development

180 Research papers, 82 Mobile tools and 26 Case studies<sup>11</sup> can now be accessed through its website [MobileActive.org](http://MobileActive.org).

Most of the mobile solutions in the field of International Development are based around SMS technology. [RapidSMS](#) is UNICEF's open source platform for data collection, logistics coordination and communication allowing any mobile phone to interact with the web. Each RapidSMS product is an SMS-based tool that enables mass-scale mobile data collection and messaging. Users can collect both quantitative and qualitative data through customisable SMS forms adapted to the demands of each situation or project. Quantitative data from the forms can be edited through a RapidSMS web interface, exported to Excel, and displayed with a built-in graphing tool. Qualitative data can be collected in open-ended questions known as 'general queries.' General queries can be used to poll a base of users or community on a certain question or topic, and all responses are stored in an SMS inbox for easy review. The most widely used SMS solution, however, is FrontlineSMS. [FrontlineSMS](#) is award-winning, free, open source software that turns a laptop and a mobile phone into a central communications hub. Once installed, the programme enables users to send and receive text messages with groups of people through mobile phones. It is now being used in nearly one hundred development and disaster projects around the world. It also has several derivatives including, [Bullyproof](#) a tool to help reduce bullying and violence in schools, [FrontlineSMS:Credit](#) aims to make every formal financial service available to the

entrepreneurial poor in 160 characters or less, and [SMSMedic](#) which aims to enable better patient management, by use of electronic medical records via the cell phone, cheap mobile diagnostics and mapping of health services. The most widely used resource is the [Ushahidi](#) Platform which allows anyone to gather distributed data via SMS, email or web and visualise it on a map or timeline. Its goal is to create the simplest way of aggregating information from the public for use in crisis response.

Whilst SMS has been the technology that has enabled the wide scale uptake of mobile solutions to support development and relief work, the billions of dollars now being spent in developing countries to rollout data networks, is creating new opportunities. Data based applications can provide more functionality and, if they are developed to minimise bandwidth, they can be cheaper to access than SMS.

## Development, Social and Community Informatics

It is vital with an ICT deployment to ensure that it is fit for purpose and meets the needs of the intended users. This is even more important in the development context where solutions must be culturally sensitive, as well as user friendly. **Development informatics** is a field of both research and practice focusing on the application of information systems in socio-economic development. It takes a broad and systemic view that encompasses four inter-linked levels:

- Data, information and knowledge
- Information and communication technologies
- Processes of learning, decision-making and communication
- Wider human, organisational and national context<sup>12</sup>

The terminology is therefore intended to indicate a broader approach than that taken by the more techno-centric definitions of either, Information and Communication Technologies for Development (ICT4D), which focuses on use of ICTs for delivery of specific development goals, or Information and Communication Technologies and Development (ICTD), which looks at use of ICTs in developing countries.

The discipline of **Social Informatics** more specifically examines the social aspects of utilisation. It aims to ensure that technical research agendas and system design are relevant to people's lives. Social Informatics examines:

1. The role of ICT in social and organisational change
2. The use of ICT and social context

3. The ways that the social organisation of information technology is influenced by social forces and social practices<sup>13</sup>

*Lamb and Sawyer (2005)* summarise the main findings from Social Informatics research into the main sections:

1. The context of ICT use directly affects their meanings and roles
2. ICT's are not value neutral: their use creates winners and losers
3. ICT use leads to multiple, and often paradoxical, effects
4. ICT use has moral and ethical aspects and these have social consequences
5. ICTs are configurable – they are actually collections of distinct components
6. ICTs follow trajectories and these trajectories favour the status quo
7. ICTs co-evolve during design/development/use (before and after implementation)<sup>14</sup>

Lastly, we can look at Community Informatics. This is an emerging discipline, which aims to use and study ICT in group settings especially for groups who are excluded from mainstream communication systems. Over the last decade, the main research for Community Informatics has been via “Living Labs”. First adopted by the European Union at the Lisbon conference in 2000, Living Labs are seen as a way to; encourage local regional growth, connect localities into modern technology, encourage innovation and new ways of using that technology.<sup>15</sup>

Living Labs are where new technology, communities in need and business/research meet. The key ideas are that the project is led by the community and facilitated by the other actors. Sociologically it follows the agency theory model, where the technology is considered an equal agent of change to the person. It is a qualitative research method as it is in the real world. Data is changing at all levels at all times<sup>16</sup>.

The [JamiIX](#) software considered later in this case study was developed in such a project. The Reconstructed Living Lab (Rlabs) grew out of a collaboration between Cape Peninsula University of Technology, Impact Direct Ministries and the Bridgetown Civic Organisation.

## **The Rlabs Case study<sup>17</sup>**

There is a recognised problem with drug taking in South Africa. In socially deprived areas, immediate help for drug users and their families is a problem. In July 2008 as part of their work in a community in tension, Impact Direct Ministries (IDM) and RLabs in Cape Town established a drug advisory service using mobile phone technology that can support multiple conversations. This software is now known as [Jamiix](#). The Jamiix support is staffed by trained volunteers and is available to drug users and their families.

### The importance of family and community care in the case of drug users

The Community Intervention Centre in Cape Town, South Africa, has called drug addiction the family illness.<sup>18</sup> In fact, it has been noted that “relatives suffer bio-psycho-social stresses as a result of living in a drug user’s environment which may impact on physical and mental well-being and lead to the development of problems both for themselves and other family members”.<sup>19</sup>

In 2003, the World Health Organisation supported an investigation into substance use by adolescents in high schools in Cape Town. The problem group identified was youth, in a semi-urban setting, often absent from school and from a single-parent household.<sup>20</sup> *Barrett and Turner* found that poverty and single parenting alone were not the strongest factors involved in adolescent negative behaviours.<sup>21</sup> The determining factor leading to a drug problem was “differential exposure to stress and association with deviant peers”. Thus, individual therapy by itself is not sufficient to change behaviour; a community of contacts, which includes family members, needs to be formed. *Velleman and Templeton* refer to this method as cooperative counselling.<sup>19</sup>

Co-operative counselling was used in a longitudinal study during 2009 in the United States of America. *Dumaret* investigated 22 families with social problems, offering one- to-one support to all family members at crisis times over a period of seven years.<sup>22</sup> This time-consuming method demonstrated positive results; however, it was noted that accessible structures are needed to ensure continuity. *Garrett*<sup>23</sup> used *Velleman’s* model in the ARISE family intervention programme with good results. The researcher’s conclusion was that “[t]here is a growing evidence base for behavioural, community reinforcement, family and social network approaches to involving relatives as adjuncts to substance misuse interventions; and for the effectiveness of interventions for relatives in their own right”<sup>19</sup>

The high labour costs of co-operative counselling mean that it has rarely been available to many families in countries where healthcare is expensive.

### Access to substance abuse counselling services

*Dumaret* observed that services families can access in times of crisis and with ease are a feature of life-changing behaviour. Access to counselling via mainstream services may historically be available in two ways:

- Firstly, by booking an appointment with a counsellor means that help is available on an individual basis.

Given that face-to-face counselling takes place with both parties being at a certain geographic location, the cost can include transport, time taken for travelling and the cost of the counselling session itself. According to Cape Town Drug Counselling Centre (CTDCC),<sup>24</sup> the cost of counselling starts at R185 per session, with some providers stipulating a minimum of six sessions. As drug abuse is a problem in many lower-income groups in South Africa,<sup>25</sup> the cost may mean such services may be prohibitive.

- Secondly, by using a Helpline, which is available for discussion with one person on a 24-hourly basis. The advantages of Helplines are that they are confidential, do not require any appointments and are easier to access. However, in very poor communities, even the cost of a call to a helpline may also be prohibitive. Also, following the research that co-operative counselling is a more effective model for drug abuse; a single call is unlikely to lead to long-term change. With face-to-face counselling, clients have to wait for an appointment, with Helplines the caller has to wait in a queue to be connected to limited available lines. Queuing systems limit the number of people who can be attended to, as treatment and counselling facilities are already under pressure, and not adequately resourced to cope with the number of people that need to be helped.<sup>26</sup>

### Drug Advice Support Technology (JamiiX)

More than 42 million people in South Africa have access to a mobile phone, which translates to almost 92% of the population. More people are connected by mobile phones than landline telephones. The technology that RLabs piloted, now known as JamiiX, offers a support and advice service via mobile instant messaging (MIM). Most people will access JamiiX using a mobile instant message application called Mxit. The MIM application allows instant online text and data exchange between Mxit users, as well as with Windows Live Messenger, Jabber, AIM, and Google Talk on their mobile devices. The application uses Java software and can be installed and run on most GPRS/3G enabled mobile phones at no cost. However, any data sent is billed by the local service provider. The cost of data is 1 cent per message in comparison with SMS rates between 35 and 80 cents, and this inexpensive method of communication has attracted 20 million users in South Africa, mainly between the ages of 12 and 25 ([Mxit on Wikipedia](#))

JamiiX offers a wider portal of entrance at the point of need, by the creation of innovative, distributed technology that facilitates communal messaging support. It gives one counsellor access to multiple conversations that are managed by the system. The JamiiX system can therefore be classified as a multiple counselling platform, as the client and family can access the advice and help, independent of location.

The uniqueness of the JamiiX system is that it was developed by a local community-based organisation, IDM, in collaboration with community members and RLabs. Using the Living Labs methodology to develop and implement the system, it allowed for a more community-driven methodology that offered systems support during the JamiiX pilot project. The pilot project, managed and funded by IDM, took place between July 2008 and June 2009.



## Evaluation of the DAS pilot project

- The evaluation of the pilot project showed that DAS had 9193 subscribers.
- Of these, 1211 were relatives of drug users. The sisters of drug users were the most frequent active subscribers, followed by other members of the nuclear family. As the service is primarily aimed at drug users, the involvement of the family has added another dimension to the service.
- 403 subscribers sought offline support or counselling after using the service during the pilot project. These were drug users that would probably not have sought out help had they not first been able to build a rapport with a counsellor.
- IDM face-2-face counselling has a success rate of ex-users remaining clean over 70%, compared to government run schemes that achieve results in the 20%-30% range. This success is partly attributable to the initial relationships that were built during the period of mobile counselling, ensuring that firm foundations of trust were established even before face-2-face sessions commenced<sup>28</sup>.

The pilot project indicated the following advantages of the DAS system compared to other access points: In practical terms, the advisors have the capacity to help more people (n = 27) in a two-hour session than advisors at Helplines (n = 4).<sup>27</sup> The DAS system aggregates the conversations for the advisors, allowing them to respond to the requests more easily and quickly.

- The DAS system enables multiple advisors to assist during a given session.
- When an advisor does not have the necessary experience or skills to deal with a case, it can easily be transferred to someone with the necessary skills.
- The advisor receiving the reassigned conversation can view previous conversations with the client, so questions need not be duplicated.
- The advisor can refer a person in need to any other organisation, and maintain a help directory of available services.
- The service proved to be particularly useful for families of drug users, and they were offered family sessions and help if required.
- DAS also proved to be a cheaper service, as there was no need for purpose-built or rented premises, there was a decrease in communication costs to the individual and the organisation, and there was a reduction in staff costs as clients passed through the system at a faster rate.

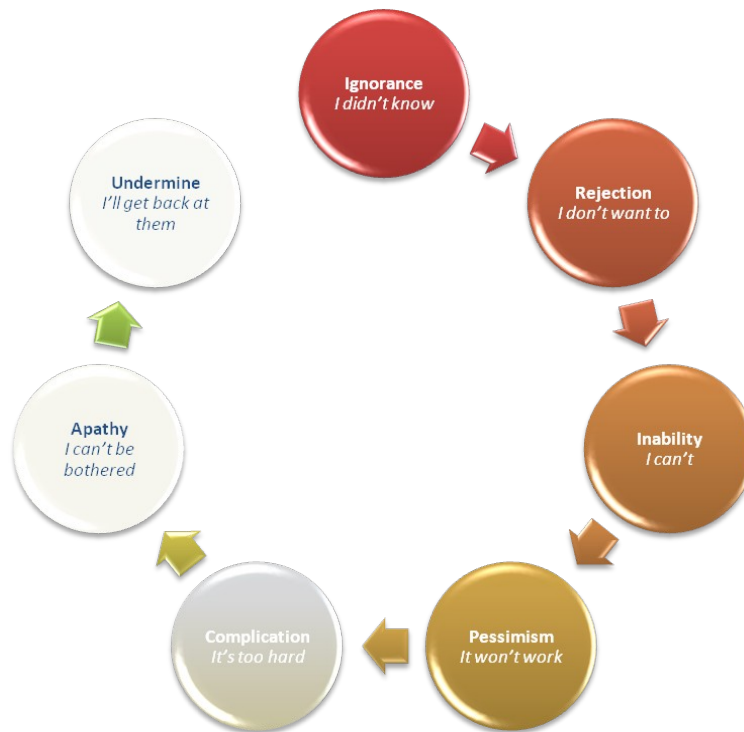
## Behavioural change

Behavioural change theories and models are attempts to explain the reasons behind alterations in individuals' behavioural patterns. These theories cite environmental, personal, and behavioural

characteristics as the major factors in behavioural determination. In recent years, there has been increased interest in the application of these theories in the areas of health and education, with the hope that understanding behavioural change will improve the services offered in these areas<sup>29</sup>.

Self-efficacy is an individual's impression of their own ability to perform a task. This impression is based upon factors such as the individual's prior success in the task or in related tasks, their physiological state and outside sources of persuasion<sup>30</sup>. Self-efficacy is thought to be predictive of the amount of effort an individual will expend in initiating and maintaining a behavioural change, so although self-efficacy is not a behavioural change theory per se, it is an important element of many of the theories.

The Rlabs case study demonstrated that the greatest factors determining behaviour are social influence, primarily within the family group and the association with deviant peers. The latter can drag them into a downwards spiral of hopelessness which becomes self-reinforcing. (See Figure 3 below)<sup>31</sup>



### Learning Theories/Behaviour Analytic Theories of Change

From behaviourists like *Burrhus Frederic Skinner* come the Learning Theories, which state that complex behaviour is learned gradually through the modification of simpler behaviours (USDHHS 1996). Imitation and reinforcement play important roles in these theories, which state that individuals learn by duplicating behaviours they observe in others<sup>32</sup>. This stresses the need for positive role models or peer-mentors through which new behaviours can be learned. The role of coaching and mentoring therefore is regarded as important in this model of change.

## Social Learning/Social Cognitive Theory

According to the Social Learning Theory (also known as the Social Cognitive Theory) behavioural change is determined by environmental, personal, and behavioural elements. Each factor affects each of the others. For example, in congruence with the principles of self-efficacy, an individual's thoughts affect their behaviour. Likewise, an individual's environment affects the development of personal characteristics as well as the person's behaviour<sup>33</sup>. This helps us understand what was seen in the Rlabs research that an individual's thoughts shaped their behaviour. Most drug addicts lived in an environment where they believed they had no choice; gangsterism and drug use was a way of life for them and their community. *Icek Ajzen*, likewise, believed that personal attitude and social pressure shape intention, which is essential to performance of a behaviour and consequently behavioural change<sup>34</sup>.

## Transtheoretical/Stages of Change Model

According to the Transtheoretical Model, or Stages of Change Model, behavioural change is a five-step process. The five stages, between which individuals may oscillate before achieving complete change, are; pre-contemplation, contemplation, preparation, action, and maintenance<sup>35</sup>. At the pre-contemplation stage, an individual may or may not be aware of a problem but has no thought of changing their behaviour. From pre-contemplation to contemplation, the individual develops a desire to change a behaviour. During preparation, the individual intends to change the behaviour within the next month, and during the action stage, the individual begins to exhibit new behaviour consistently. An individual finally enters the maintenance stage once they exhibit the new behaviour consistently for over six months<sup>36</sup>.

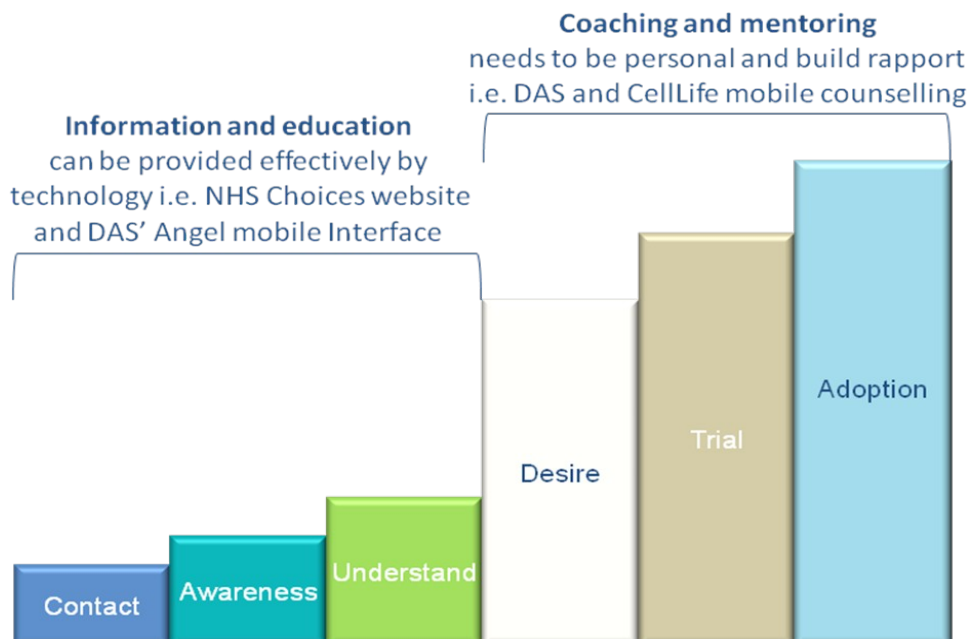
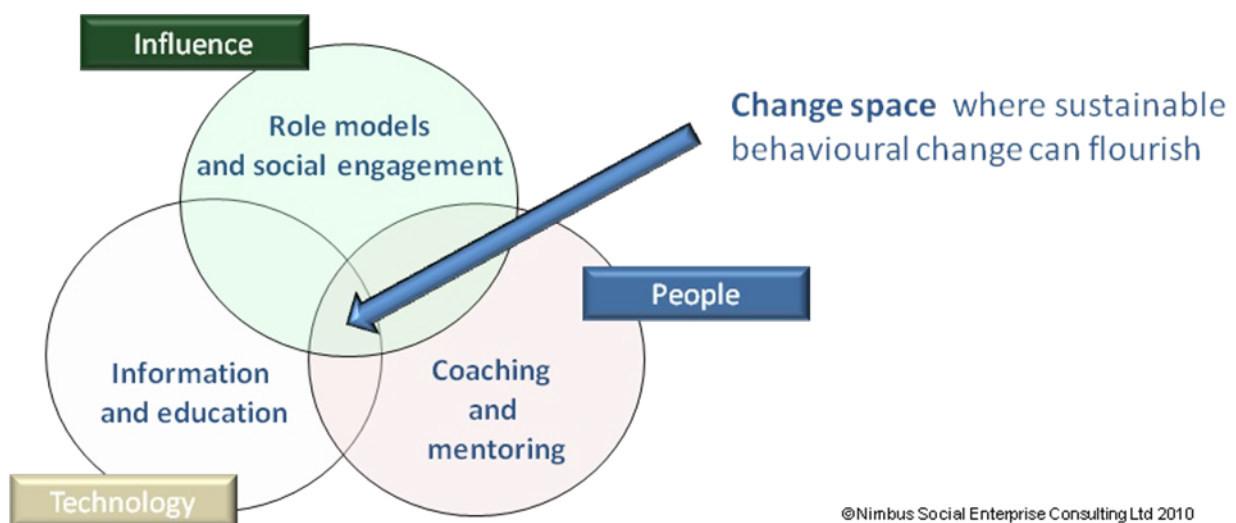


Figure 4 above shows an adapted version of the *Prosci ADKAR* change model<sup>37</sup>. This indicates the stage at which the role of information and education is important, and when it is coaching or mentoring that takes pre-eminence. Here the emphasis is on the understanding that change is possible and the desire to implement that change. The biggest step change that an individual has to make along their journey of change is in generating and holding on to a strong desire for change. Peer mentors, such as those that work at Rlabs, who are reformed addicts, are vital to sustaining this desire as they are the living examples that change is possible.

### The Creating “Change Space” Model

Through our work with Rlabs and our understanding of the models and theories for Behavioural Change, we have come to recognise the vital role played by families and the community. Just as family pressures and social influence can lock people into a place of hopelessness, positive family support and peer mentoring can help create a positive environment where people can achieve the change they desire. The information and support provided by the DAS service is just as valuable to family members as it is to users themselves. Better informed and supported family members, can in turn, better encourage those in need. To describe this interaction of Information, mentoring and social influence, [Nimbus Social Enterprise Consulting](#) has developed the “Change Space” Model. This helps us understand how a lack of education, negative social pressure and poor role models, can create disruptive behaviours; the provision of information, positive peer-mentors and social influence, can create a “Change Space” where sustainable behavioural change can flourish. (See figure 5)

Figure 5



Another key element of the Rlabs project is to engage with the community. Rlabs runs IT classes called “Mom 2.0” for parents, runs IT sessions after school for younger children, and even pamper sessions for the elderly. This gives them the opportunity to involve the wider community in the process of social transformation.

## The Role of Mobile Phones in Behavioural Change

So what other evidence is there, besides the Rlabs research, that mobile phones can be useful in behavioural change programmes? There have been two main studies; the first by *Heather Cole-Lewis and Trace Kershaw* on “SMS as a tool for Behaviour change” was published in March 2010<sup>5</sup>, and the second “Cellphone delivered counselling” by *Ralph Diclemente* was presented in July 2010 at the World HIV/AIDS conference in Vienna<sup>6</sup>.

### Text Messaging as a Tool for Behaviour Change in Disease Prevention and Management

*Cole-Lewis and Kershaw* found that text messaging is suitable for behaviour change interventions because it allows for in-the-moment, personally tailored, health communication and reinforcement. Furthermore, text messaging can be used as a way to deliver prevention components based on theoretical models, such as the theory of planned behaviour and the health belief model and can be viewed as an alternative approach to programme delivery instead of personal- or group-delivered programmes<sup>38</sup>. Their studies found that periodic prompts and reminders are an effective method to encourage and reinforce healthy behaviours.

Their research covered 12 randomised controlled trials published between 2005 and June 2009 of interventions for disease prevention and management using text messaging. This covered 9 countries, although only one of which is a developing country. The trials included, targeted preventive medication adherence, weight loss, physical activity, targeted behaviours for diabetes, and smoking cessation.

Their conclusions included:

1. Increased communication, accountability, and reinforcement created by text messaging may increase the likelihood of remembering the changes that one should be making.
2. 8 of the 9 sufficiently powered studies found evidence to support the effectiveness of text messaging as a tool for behaviour change in disease prevention and management.
3. Significant behaviour change outcomes observed included greater prevalence of current non-smoking by smokers at 6 and 12 weeks.

4. Increase in frequency of blood glucose monitoring and reporting via text message compared with e-mail among diabetic adolescents and young adults.
5. Significant clinical outcomes observed included greater weight loss in obese adults at 4 and 12 months.

In summary they concluded that mobile phones are a useful tool for interventions seeking improvement in health outcomes. Specifically, what they evidenced supported other recent findings that text messaging is a useful tool for behaviour change interventions<sup>39</sup>. Finally, text messaging should not be considered a stand-alone model for behaviour change but rather as a tool by which behaviour change methods can be administered.

### Cellphone delivered counselling as a strategy to enhance the maintenance of HIV behavioural interventions

This research study involved 701 African–American females between the ages of 14 – 20, enrolled for three reproductive health clinics in Atlanta, USA. It ran from July 2005 to June 2007. Participants had an initial five hour face-to-face session, followed up by 9 x 15 min telephone calls which provided tailored HIV prevention counselling. The brief telephone sessions were held on a monthly basis over an 18 month period. Topics covered during the cell phone calls included:

- The joys and challenges of being a young African-American woman
- Knowledge of HIV/STD transmission dynamics
- Correct and consistent condom use
- Avoiding risky situations young women may encounter
- Negotiating condom use, refusing sex without a condom
- Barriers to condom use and strategies to overcome barriers

As part of this programme the telephone counsellor and patient developed a personalised action plan to identify specific steps to reduce the risk for HIV/STV acquisition. Results achieved at the end of 18 months included, a 14% increase in condom use, a 50% reduction in the frequency of having sex whilst drunk or using drugs, and a 53% reduction in new Chlamydial infections. These results demonstrate the impact of regular remote coaching sessions via mobile phones, over a period of time.

The conclusions summarised that cellphone-delivered HIV prevention counselling is an effective strategy sustaining the effects of intervention. This strategy may be particularly efficient and cost-effective in developing countries where cellphones predominate and where conducting group-based booster sessions or face-to-face counselling is time and cost-prohibitive<sup>40</sup>.

## Conclusions

Billions of dollars are invested in ICT projects in developing nations. NGOs and development organisations are starting to take up mobile technologies that will assist them in serving people in need. There are now a number of ongoing programmes using SMS based technologies for the collection and transfer of data, and for healthcare assessments. Thus far, there has been very little use of data application, however, this is due to change as data coverage and pricing rapidly improves.

We have seen that research in Development, Social and Community Informatics has shown us ICT projects must be implemented with sensitivity, as they are not value neutral, their use creates winners and losers. ICT use also has moral and ethical aspects and these have social consequences. The Rlabs research which grew out of the field of Community Informatics showed how just as the community can be the cause of conflict, so too, can it be part of the healing process. There are three key elements that interact to create a “Change Space” where individuals can achieve the transformation they desire. Drug users needed to gain information and understanding that alternatives were available, they need a desire to change which was supported and facilitated by mobile phone counsellors (peer-mentors), and finally the family and community played a vital role in sustaining change. Technology played an important role for Rlabs and was active in each element as shown in the slide below (Figure 6)

Figure 6

## How Rlabs created change space and changed behaviours

### Understanding

1. Developed an information portal using a media that was familiar to target audience i.e. Mxit
2. Mobile Instant Message option to ask questions relevant to users specific drug issues
3. Information available to family members

### Support

4. Initial MIM contact with Counsellor develops rapport and builds desire to change behaviour
5. Peer-Mentoring develops and participant starts to try out positive behaviours
6. On going face-2-face support through drop in centre enables positive behaviours to be maintained

### Influence

7. Successful ex-users become mentors and role models within the community
8. Awareness of DAS information service and success of participants generated through press, radio interviews and social media
9. Role models working in local schools giving free IT training and with mums in a program called Mom 2.0

Rlabs used MIM technology which proved to be far cheaper and more accessible to the target community. In developing countries, the vast majority of mobile phone users don't have monthly plans with inclusive minutes and texts; they purchase airtime on a pay-as-you-go basis. As mobile phone networks improve their data coverage and competition drives down pricing, MIM technology will quickly become viable for poor communities, and therefore, for many other development contexts.

There are several models of behavioural change that help us understand the work of Rlabs and support the approach it has taken.

Finally, we have looked at other research that has identified the benefits of using mobiles and coaching techniques as an integral part of behavioural intervention programmes.

In conclusion, mobile phones can play an important role in the provision and transfer of information however, where ongoing support is needed to ensure that intended actions are being taken, its role in the provision of mobile counselling is even more powerful. As NGOs and development agencies become more accountable to demonstrate successful outcomes, this integrated approach, using mobile technologies, will become indispensable.

### Potential uses in International Development



Just a final note on how the JamiiX technology and coaching can be used in other International Development situations. Many Development programmes have provided training to rural farmers on best practice techniques. Where there is no follow-up action, farmers quickly forget learnings and return to former practice. However, in Uganda, [AppLab](#) is establishing a network of Community Knowledge Workers, trusted village residents who are equipped with and trained on the use of mobile phones to share agricultural information with fellow rural, mostly poor farmers<sup>41</sup>. AppLab has developed a number of information services currently made available to consumers via the mobile phone:

- Google trader - helps buyers and sellers to find each other
- Farmer's Friend - searches for agricultural tips through a SMS-based database
- Local weather forecasts - three day as well as seasonal forecast for farming and general information purposes.
- Clinic Finder and Health Tips - information on sexual and reproductive health as well as information on clinic locations.

The price of accessing these services via the mobile phone has been an issue, resulting in disappointing take up. Integrating training programs and information applications with local knowledge workers seems a very sensible approach. However, given the costs of sustaining a large support network, coupled with the need to ensure consistency in approach and the importance of information accuracy, the service would be further enhanced by the inclusion of MIM technology and the ongoing coaching of knowledge workers.

Self help groups have grown exponentially over the last few years. [Self Help Africa](#) (SHA) is a good example of the wider ranging support available to develop agricultural co-operatives, and to develop savings and credit structures. In 2009 SHA supported over 6000 small businesses, directly improving 821,485 lives<sup>42</sup>. The challenge with so many widely dispersed groups is how do you share information and support group co-ordinators. The JamiiX solutions could be a very cost effective means of not only sharing best practice and success stories, but also in providing regular coaching support to new business leaders and co-ordinators.

Lastly, there are a plethora of opportunities in the Health sector, both locally and internationally, to use these learning's to support people that are trying to transform their lives. It could be providing interventions to support people trying to quit smoking or mentoring people with obesity as they try to implement new exercise and diet regimes. In developing countries it could be used supporting people through the emotional stress, as they inform their Partner of HIV+ status, and manage the reactions or ensuring adherence to drug regimes with regular reminders and mentoring to maintain commitment. It could even provide a vital link between city based doctors and rural health workers where rural health workers could send information to a doctor and receive timely feedback and advice on treatment.

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