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Mobile Game Based Learning:
Can It Enhance Learning Of Marginalized Peer Educators?

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ABSTRACT

This paper describes an investigatory project to pilot an SMS based game to enhance the training of peer educators of MSM (Males having Sex with Males) groups in India. The objective of this research was to increase the efficacy of the MSM peer educators by bridging the gap between the training needs and their real life experiences. An SMS based game was designed using participatory approaches as a learning support, upholding their real life experiences in game form. The game was designed on an existing platform which provides text role-play games accessed through SMS messages. This paper examines the learning benefits. The findings show that after the intervention the peer educators had better understanding of peer education and organizational support. They also learnt to think critically.

Keywords: HIV/AIDS, Males having Sex with Males (MSM), Marginalised Groups, M4D, Mobile Game Based Learning, ICT4D, Peer Educators

INTRODUCTION

The aim of this paper is to investigate the influence of a game for mobile phones on the learning activities of Males having Sex with Males (MSM) peer educators, by bridging the gap between their training needs and their real life experiences. An SMS based game on mobile phone was designed as a tool to support their learning. The MSM are marginalised and discriminated groups in India. The game was appropriated given their marginalised existence.

The game design used a participatory and iterative approach and was implemented and evaluated among a group of peer educators.

Peer Education

Peer education is described as a horizontal approach that provides an alternative to training by expert professionals, a communication channel to train and support members of the same group as well as change individuals' knowledge, attitude, beliefs and behaviours (Backett-Milburn,

1995; Shiner, 1999; Backett-Milburn & Wilson, 2000; Goren & Wright, 2006). Areas where peer education is used include young people and sexual health, drug and alcohol use, and smoking cessation. Peer education engages members of a target community such as sex workers, injecting drug users or young people and trains them in health-related information and communication skills, to promote healthy behaviour such as safer sex to their peers (Cornish & Campbell, 2009). Nevertheless, a clear definition of peer education has remained elusive which has often led to an unclear understanding of what it involves and the role of peer educators (Shiner, 1999; National Centre for Education and Training on Addiction, 2003). There is little knowledge about what works and what does not. This gap means there is little knowledge about what are the successful criteria for peer education.

Males Having Sex with Males

In India, this enigma is increased by the extreme marginalisation of the peer educators of the MSM population. MSM is a diverse group including males across all social strata and age (Parivartan, 2006; Naz Foundation International, 2007). The terms 'gay', 'homosexual', 'eunuch', transsexual' are often used as a means to identify one's sexual desire, preference and activity and not just an MSM identity, that is, the MSM identity might change according to the behaviour one practices. Nonetheless, these behaviours can often be clandestine affairs occurring sporadically, infrequently over a long period of time or even after being married to a woman. In response to the stigmatisation and discrimination of these MSM behaviours, peer education is part of the Indian government's efforts to prevent and control HIV/AIDS. MSM peer educators are the members of the same group and similarly experience multiple forms of social and legal discrimination (Chakrapani et al., 2002; Gupta, 2006; Thomas et al., 2011). Same sex behaviours are stigmatised in India, leading to this extreme marginalisation and discrimination. The MSM peer educators often

face similar discrimination while undertaking outreach work.

Theoretical Framework

Trainings are in place for the peer educators under the government's initiative to prevent and control HIV/AIDS but there is no accepted model for best practice and the techniques vary from project to project depending on the intended outcomes (e.g. passing information or behaviour change or skill building) and the target groups (e.g. groups such as MSM or youth or drug users). The rationale for peer education initiatives is also not always clear. There is little evidence of a specific theoretical framework for peer education and the methods applied to peer education vary considerably (Turner & Shepherd, 1999). There is no single theory of peer education but a number of theories such as Bandura's Social Learning Theory (1977), Friere's Theory of Participation (1970) and Roger's Diffusion of Innovation Theory (1995) which support claims about its advantages. Drawing from the theoretical influences on peer education and, given the Indian MSM context, an effective peer educator should:

- Be knowledgeable about the factors influencing health-affecting behaviours, in order to pass this knowledge and support their peers. For example, with the MSM the peer educators should be knowledgeable about the context in which MSM sexual encounters take place and the importance of using condoms.
- Be a role model: peer educators need to practice the desired behaviour and practice the opportunity for peers to observe and imitate the desired behaviour.
- Be empowered: individuals are more likely to practice or change their behaviour if they have confidence or self-efficacy in their ability to do so. Peer educators are required to adopt the desired behaviour but also perform their role as peer educators through talking and interacting with clients. Given the sensitivity of the MSM, this

can often pose a challenge. Thus the peer educators not only should practice health-enhancing behaviours but should also have the confidence to influence their clients.

- Be empowering: peer educators need to inspire or empower their clients to practice or change their behaviours.
- Be able to mobilise their community: the Theory of Participation (Freire, 1970) highlights the importance of collective understanding and action by the affected.
- Justify and promote their behaviour in discussion with other peers, and so have a degree of combined knowledge, confidence and self efficacy to participate in dialogues with their peers.
- Promote discussion and understanding among peers in relation to their risk situation and thereby allow empowerment and collective action.
- Maintain their status as peers especially in a respected and leadership role.

Reality of Being an MSM Peer Educator

India, with the world's third largest population living with HIV/AIDS (UNAIDS, 2008; Cornish & Campbell, 2009; World Health Organisation, 2010), relies heavily on peer education as a bottom-up approach to reach the 'hard to reach' marginalised communities at higher risk through Targeted Interventions (National AIDS Control Organisation, 2007a; National AIDS Control Organisation, 2008). Guidelines are in place within the Targeted Intervention projects to train the peer educators, however, there seems to be a great inconsistency in the training provided to the peer educators and in the roles they are expected to perform. Experiences of peer educators show that when peer educators go to the community for outreach work, they face scenarios which they are unable to cope with. Often they are unable to fully put their training into practice (Population Council, 2000). Reports reveal that some peer educators feel that the nature of training given to them is abstract and there is a need for psychological

and emotional support, as the peer educators are often exposed to stressful situations (Population Council, 2000). Within the targeted interventions the problems of peer education can range from maintaining the capacities of the peer educators to building partnership within the community. In addition, targeted interventions often have limited budgets and this makes it increasingly difficult to recruit as many peer educators as might be required to reach out to the vulnerable population (National AIDS Control Organisation, 2007b; SOMA, 2008). Moreover, peer education projects often have high rates of attrition amongst the peer educators and it is difficult to constantly keep recruiting new peer educators and train them. Project reports often show that experiences of peer educators are not documented. Usually they are just shared in meetings, giving little scope for lessons learnt to be passed on to other or future programmes. There is need in programmes for creating partnerships among the different peer educators' groups to share experiences. In conclusion, although peer education can reinforce the learning within the vulnerable groups through ongoing support, there is a lack of ongoing learning and support for the peer educators themselves (Population Council, 2000, SOMA, 2008).

Why Use an SMS Game to Improve Efficacy of the MSM Peer Educators?

This study selected a mobile learning approach as it has the potential benefit of being ubiquitous, timely and available in an unthreatening environment suitable for the MSM peer educators. Mobile phones are also personal and familiar devices and can enable access to individualised 'anytime and anywhere' learning. Data from 2013 show that India has over 893,862,000[1] mobile phone subscribers, out of which around 25,million are in Kolkata[2]. Mobile learning is also closely linked to the concept of mobility in terms of space, time and different aspects of the learners' life. Experiences of working with the MSM have shown that the peer educators

often travel distances and work at different locations to guard their MSM identities from families and local communities. Research show that mobile devices have the potential to widen access and supplement education even in the most remote and underserved areas and even the most marginalized communities such as the MSM (Sinha, 2005; Zurita & Nussbaum, 2004; Attewell, 2005; Kim et al., 2012). Therefore mobile learning potentially fits the profile of this group.

The game based approach follows the tradition of using computer games (Salen & Zimmerman, 2003) and computers (Griffiths, 2002; Burgos et al., 2007) in learning. Within mobile learning, mobile game based learning is a growing field. Areas that have already used games include those where learning is often experiential in nature such as for professional development, where virtual experience can save on real life costs (Shiratuddin and Zaibon, 2011; Sung & Hwang, 2013). Games and simulations from a range of different ICT sources such as, internet, email databases, SMS offer greater opportunities for scenario-based and exploratory learning (de Freitas, 2006).

Nonetheless, mobile game based learning in resource poor setting has its challenges. Kaplan (2006) identifies the lack of literature for mobile phone based intervention in developing countries and that in practice there is a need for understanding the local context, for example, mobile phones often have shared use. Kaplan also identified a need for reform in telecommunication services in the developing countries (Tongia & Subrahmanian, 2006; Tongia, 2007).

THE STUDY

The previous section showed lack of training and support that reflects the practical realities of being a peer educator including accounts of the problems/challenges faced during practice by the MSM peer educators. An SMS game was used to supplement the peer educators' training.

The SMS game, Day of the Figurines, used for the project was an existing SMS game. It is a multiplayer pervasive game played using text messages on mobile phones. The game is set in a fictional town and the story and gameplay unfolds over a period in the life of the players in the town. At the start of the game each player registers to the game engine and chooses a figurine, in this instance a plastic model assuming to represent themselves, which they name and characterise anonymously. The figurine chosen by each player has no physical role and moves virtually around the town via SMS instructions (keywords) sent by the player. The players control their virtual figurine via SMS directing their movements through different destinations in the town and actions such as interacting with other figurines, encountering events, finding and using objects to resolve dilemmas and undertake missions (Adams, 2008).

The game was modified for the purpose of this project from the original. Figure 1 shows how the game system operated. The game engine is where the storyline was authored of the fictional town with destinations, events, dilemmas and missions. The game engine is the computer software hosted at the University of Nottingham in UK upon which the storyline was authored. The players participated in the game through their own mobile phone which sent and received SMS messages via the game server. SMS were relayed via a Gateway (Esendex) which linked the Indian mobile phone network to the game. Even when players were chatting between each other, messages were sent via the game application. This ensured that the players could communicate with each other without knowing or revealing each other's phone numbers thus maintaining anonymity.

The story that unfolded in the game played by the MSM peer educators depicted their life experiences through events, missions and dilemmas and real life field/work areas as destinations. There were 4 destinations such as the park, public toilet, railway station and drop in centre where the players could roam virtually save the metro rail station where the game started. After registering for the game online the players could assume their anonymous characters and play from anywhere during

Figure 1. Diagram of Game System
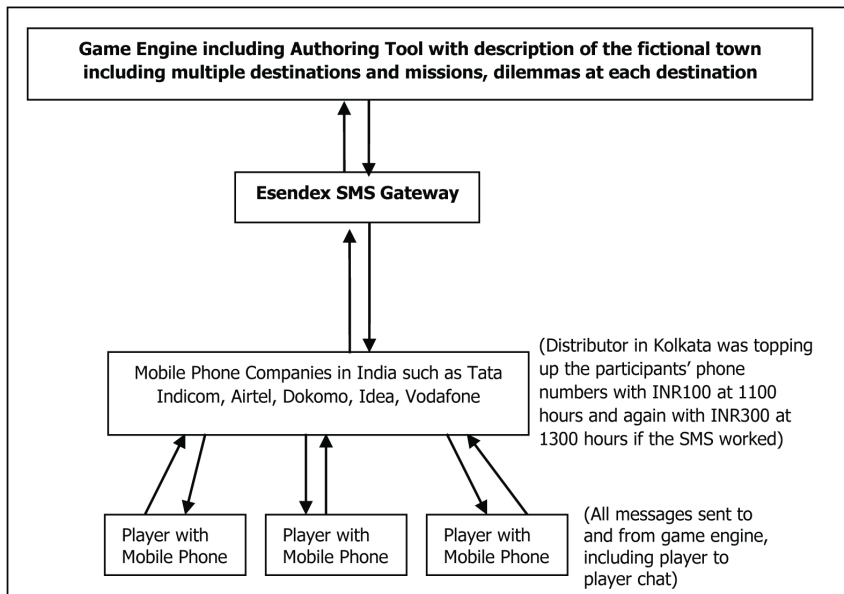
the hours of the gameplay. The story unfolded through description of the local city and events, missions, dilemmas happening in this city as representative of their real life. Figure 2 is an example of a dilemma.

The scenarios are real life experiences captured through a baseline study that identified specific learning needs of the peer educators. The baseline study used 12 semi-structured interviews with MSM peer educators of MANAS Bangla, a network of MSM Non-Governmental Organisations and Community-Based Organisations in Kolkata. The aim of the baseline was to explore, identify and describe the roles, challenges and practices of MSM peer educators as well as to identify the key learning needs. These data were to develop the game narrative. The game design was a participatory and iterative process using focus groups and game design workshops held in Kolkata with peer educators, and trials being held in Kolkata and Nottingham. The final trial was played in Kolkata with 16 participants. The evaluation of the game encompassed focus group discussions conducted on the day following the final

game trial and the individual follow up interviews taken three months after the final game trial. This was conducted over Skype internet telephony making calls to the players' mobile phones. The evaluation used thematic analysis with framework as a data management tool, allowing predetermined themes to be interpreted alongside emerging themes.

RESULTS

The final trial was played by 16 participants, 8 of whom where involved in the design as well. The participants were not just peer educators but supervisors of peer educators and other staff members with experience in peer education. The participants' average age was 24.19, years the youngest being 17 and the oldest being 47 years old as reported. The game was played over a period of 8 hours. The trial did not work as planned due to several technical failures over this period. This lead to decreasing playtime, interruption with the fluidity of the game, delays in sending and receiving messages between participants and some narrative messages be-

Figure 2. An example of a dilemma 'depressed client at the park'

It is 9 O'clock already. You are rushing to finish off work. Suddenly a client pops up and says he/she will put him/herself in front of a train. You: (a) Pacify her, (b) taunt by saying what's the point in Koti's staying alive?	Choosing (a) the message response was: 'The Koti was distraught, wouldn't listen to anything. You say, "Your whole family relies on you. Who is going to take care of them if you die?". Listening to you he calmed down'. Upon choosing option (b) the message response was: 'Talking nastily at the fag end of the day made you feel horrible. Hearing you the Koti just disappeared. Now you feel troubled worrying what if something happens to him/her. You are trying to call him/her'.

ing not delivered by the game engine. Thus it can be said that this study is not a foolproof understanding of impact of an SMS game on the efficacy of the MSM peer educators but the study reports on the feedback from the participants about their experiences with this limitation in mind. The overall analysis indicated improved communication and interpersonal skills, improved organisational skills, critical thinking skills and knowledge about peer education. The peer educators also increased their feeling of community bonding and confidence. Details of these findings are given below.

Skill Building

The participants had to use SMS to interact with the game. The learning and adoption of SMS as a communication method was a distinct success in the trial, and also had wider implications such as using SMS for 'crisis management', for 'communicating in short', 'faster', coordination of outreach work and logistics, information delivery and for informal communication for building friendship. For example participant P9 informed that prior to playing the game, they would call for help during crisis via mobile phones. Often in a MSM situation that would increase the harassment in the field, that is, abusers seeing they are seeking help would

abuse more. Learning to use SMS instead, after playing the game, provided a secretive and safe space to ask for help. Moreover, the participants appreciated the use of mobile phones to play the game and the networking communication advantages they bring, even without the game the use of phone and SMS improved the participants' communication skills, giving them insight into a new communications medium.

Learning to use SMS helped the peer educators to coordinate their work. For example, previously the peer educators went to their Drop-In-Centres (DICs) to pick up condoms for distribution or they would have just left their fields of work (which are usually MSM cruising areas) if they did not have any condoms with them. After playing the game some peer educators used SMS to coordinate their fieldwork, as reported by the participants. Most participants used SMS 'to coordinate work', 'wish for occasions such as *Durga Puja* (main festival in Kolkata) or new year'. Participants would also use SMS to keep in touch with other peer educators/clients unlike before playing the game.

The participants also mentioned appropriating elements of the game into their work practices in addition to the skills and experience developed by the game play itself. Gathering information about who was at a location through

SMS was mentioned. This was analogous to the keywords of the game such as GO/FIND whereby peer educators use these keywords to find someone at a location. The game used a quick reference card to remind players of the game command or keywords and destinations. This concept was later used by some of the players to motivate mostly their illiterate clients by drawing pictures of the health messages they wanted to deliver on a small card which the clients could carry in their pocket, given their hidden identities as MSM. Missions and dilemmas of the game were also integrated into the existing training programme as well as narrative style description of the roads which were adopted by the peer educators to describe places to their clients. Finally, participants also mentioned exploiting anonymity over SMS to engage with clients and build up rapport.

Critical Thinking Power

The aim of the project was to develop critical thinking among peer educators through dialogic learning but despite the desire to develop critical thinking power while playing the game, the game failed to support that as much due to the technical faults. Nonetheless participants reported that after playing the game they learnt that there are different ways to approach a problem and not just the way they do it. For example a participant reported that previously he would chastise clients found to be having unsafe sex in public toilets. After playing the game he would wait for his clients to finish their affairs and then get into a dialogue with them about the risk of unsafe sex. Similarly, during the design process participants would often silence other participants mentioning ways of doing peer education out of the norm such as initially approaching other MSM as if they wanted sex before acting as peer educators. But dialogues between participants in these workshops enabled wider understanding, acceptance and learning of such methods of peer education. Contrary to this it was observed that some participants during the game design workshops confused paper prototypes as a recall

exercise from prior examples and they repeated examples given to them by the researcher rather than suggesting new ideas.

Increased Confidence

Participants gained confidence by playing the game during the short span that it could be deployed for in spite of the technical faults. Given their challenging monthly/work targets within the targeted intervention projects, this experience gave them confidence in their abilities to quickly achieve goals.

Anonymity is another factor that influenced confidence. It did not work as originally anticipated, that is, they would not be comfortable disclosing their identity to other players and thus would continue to use their game pseudonyms. Contrarily, the peer educators enjoyed revealing their identities the day after playing the game and saw anonymity in the game more as a fun factor than hiding their identities. Nonetheless, anonymity gave some of the peer educators confidence to do peer education. Participants exploited anonymity through SMS to contact MSM clients. It is common practice to pass on telephone numbers between MSM to contact potential partners. This practice was used to anonymously allure partners and then to do peer education with them. A participant reported that he did not have the courage to contact potential partners even if they had their telephone numbers.

Increased Knowledge about Peer Education

The game was an aid especially to the new peer educators, such as P8, to get acquainted with more experienced peer educators who help them to get familiarised with the job. Baseline interviews showed that the peer educators are often selected on the basis of their rapport in the field and are sent to work without prior training, rather information leaflets are given to them to self-acquaint themselves with the work. Training sessions are available ad hoc if there is funding available in the organisations.

In addition, it is difficult to ask questions in training sessions for fear of being laughed at by other peers or lack of time. On the other hand the game scenarios or participating in the design refreshed skills like rapport building for experienced peer educators. One participant added that being an experienced person in the field he had forgotten the little things that happen in the field and ways of doing them. Playing the game helped him refresh his memories.

Sense of Community Bonding

The participants built a community between themselves during the game design process and the game play, both socially by talking about everyday events, and through the game play which provided a catalyst for a more colligate and collaborative interaction in talking about the game, how to play and in solving each others' problems. The game and its processes helped create a sense of belonging for the extremely marginalised peer educators as they identified that they shared similar problems and had shared experiences. This extended to participants creating relations between themselves as mother-daughter as is customary within the MSM groups.

DISCUSSION

It is important to note here that the findings of this study may not be generalisable as this was primarily a qualitative research where findings relate to the context in which research takes place. This is also often a critique of qualitative research that it lacks reproducibility and a different researcher may come to different conclusions(Mays & Pope, 1995; Payne & Williams, 2005).

Recommendations from the literature (Roy, 2013) show that the peer educators need a wider knowledge base that uses a dialogic approach to imparting knowledge, and should focus on risk behaviour rather than just imparting HIV/AIDS information. In addition, peer educators need to develop confidence and communication skills, be able to share experiences, enhance

self respect and critical thinking power. These factors provide the basis on which we consider if the SMS game increased the efficacy of the peer educators. The results showed that the peer educators improved their communication, organisational, interpersonal and critical thinking skills, increased confidence and improved knowledge about peer education as well as community bonding. Thus it shows that the efficacy of the peer educators were improved, but whether the SMS game was the main contributing factor remains a question especially because the game could not be played as long as intended. In addition, participants in the feedback responses often indistinguishably commented on both the final trial and the design process.

It is evident that it is not just the game but rather the whole process of developing, deploying and evaluating that contributed to improving the efficacy of the peer educators. This brings one to ponder if an SMS game was at all essential. Could the issues be addressed by workshops? The answer lies in the acute marginalisation of the MSM not just within wider society but within their own groups as seen through this project where a substantial degree of power dynamics exist between peer to peer especially due to the diversity of the MSM identities as mentioned earlier. Nevertheless, lack of an unthreatening space essentialises the SMS game along with the motivating factor in learning added by the game element. If there were workshops which allowed peer educators to talk and communicate and ask freely they would not have required a mobile personalised space as much to improve their efficacy.

Learning from a game seemed more effective as the peer educators commented that they enjoyed playing the game as it was about them, their stories and language (MSM language not just Bangla or Bengali) and gave them recognition as who they are as MSM in an otherwise marginalised existence. The researcher's experience showed that the peer educators often were compulsorily made to attend workshops or training programmes where they were not always actively involved in these workshops,

for example, they were often sleeping or busy chatting with each other. Though this was not a measureable factor in this project it remains a notable point to consider as a lot of learning happened through the 'informal chats' that happened around the game design activities where the peer educators built relations between each other and shared experiences whereas they were previously often prejudiced against each other.

Contrary to learning from the game element, participants expressed their frustration while playing the game as it broke a number of times due to technical failure and affected the fluidity of the narrative. Messages were often delayed, not delivered or received. This was challenging research as not only were there different elements in the game such as the board and SMS but also technical issues such as the game server being located in the UK while players were marginalised groups in India who did not have affordable access to international SMS communications. This was one of the factors not accounted for in the project as Day of Figurines is an entertainment game, though deployed internationally, and assumes ready access by players. But in a marginalised resource setting, assumptions such as this need to be questioned as it is not just about reimbursing participants the cost but also overcoming their barriers to access. These barriers are not always simply financial but can also include administrative or social ones such as that 'pay as you go' SIM owners did not have international SMS access and the researcher had to call and explain to the mobile provider the need for the access while the final trial was ongoing as the participants often were unable to do so. Other speculative examples are if vouchers were given to credit the phones, they could have easily be refused by the shop keeper or other stakeholders as they are MSM and often dressed as effeminate males in a prejudiced environment. Thus technology being transferred to such an environment can be counterproductive as it can involve substantially more challenges than assumed.

Playing an international game, unable to understand the game rules or not having international SMS access also led to some participants losing self confidence either in terms of thinking they are not good enough or that the researcher is partial to some over the other. This was also observed in the design workshops when the dominant speakers overruled the opinions of the passive ones or participants were not selected for the next sessions. Thus technology for development can be disabling as well.

Critical thinking or dialogic learning is often seen as a more persuasive method to increase efficacy of health workers (Ramachandran, 2010). Nonetheless, this research showed that some of the peer educators were more inclined to taking instructions than engaging in dialogues or needed constant reassurance to what they were doing while playing the game. In addition, participatory design seemed an imported concept to the Indian marginalised context. Participants often confused paper prototypes as a recall exercise from prior examples or were not enthusiastic about thinking through the issues themselves and saw their roles as simply doing their jobs.

Moreover, the dilemma options in the game gave limited choice. This can be detrimental to critical thinking as new peer educators who are getting used to peer education through the game might see these as the only option to doing peer education or might not look beyond the provided choices in real life situations where required. This can limit the scope for participants to devise or consider their own solutions/practice.

CONCLUSION

Efficacy of marginalised MSM peer educators was improved but whether this was due to the game remains a question. Technology is not the solution to a developmental problem here but a catalyst to discuss those problems which otherwise remains inhibited. Power dynamics or relations between peers or within organisations is not specific to MSM peer education. However in the messy reality of being a marginalised peer educator these factors enables or disables a peer educator who otherwise have no recourse

to seeking help especially in a society where same sex behaviour is stigmatised.

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ENDNOTES

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