# JOURNAL OF MEDIA AND INFORMATION WARFARE

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# The Impact Of Mobile Digital Technology On Influencing Behaviour

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## ABSTRACT

*This speculative paper examines both the present and future uses of ubiquitous, mobile digital technologies to propagandise, deceive, behaviour modification and influence. These individualised technologies have the potential for both generic and individual targeting of those to be influenced. The techniques used and success will depend on both the time span available which would determine whether the objective is to coerce, manipulate or convert the target(s) and what stage the persuasive process has reached. Speculation on the impact of developing peripherals that expand the human sensory experience and produce an overall real time virtual environment is carried out. The issues of the impact on ubiquitous personalised communications on social impact, privacy, security, and behaviour modification are examined.*

## 1. Introduction

Over the last decade not only has the use of mobile technologies expanded by massifying its accessibility, the amount of processing power and number of applications has increased exponentially. This has reached a point where the use of mobile digital technology is ubiquitousness for both organisations and individuals. This has changed the form of interpersonal communications. It has personalised interactions but at the same time developed networks of people and organisations that form virtual groups that are dynamic and ever changing.

This has come about, in part, because the spread of the mobile technologies and the increasing diversity of both end user devices and methods of connectivity have provided enormously expanded potential bandwidth and flexibility. Another factor has been significant

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competition between service providers that has resulted in much lower costs to the end users. In the past, it was necessary to have access to bulky and expensive equipment and services, whereas in the contemporary world, there are a significantly increased range of services available on most devices. An example of this is that the typical mobile phone will now be capable of providing not only voice and SMS services, but also web browsing, email, access to television and music on demand and the ability to take still photographs and movies.

Mobile digital technology, unlike almost any of its predecessors, has allowed countries that have historically lacked the investment and the developed infrastructure to effectively leapfrog a whole generation of development and move straight into the current generation of technology. By the virtue of the very fact that the new technology is mobile and does not require the copper or fibre based infrastructure it can be deployed easily and can be effective in serving mobile or isolated communities that it was not cost effect to support in the past. Some of the benefits that have been gained from the mobile technologies are those of flexibility, scale and cost. This has allowed these nations to skip the normal evolutionary stages of the developing network societies (see Arquilla and Ronfeldt, 1996) to become 'Network Organisations' at one level, without going through the conventional economic and industrial stages of the past.

In a very short period of time the mobile device has transitioned from an expensive, bulky, temperamental device with poor performance and limited functionality to a small, cheap, reliable multi-purpose device that is capable of replacing a number of functions that were wither carried out on separate (also fairly bulky) devices or paper based systems (Fildes, 2006). The devices had moved from analogue to digital communications and the network coverage and bandwidth have increased enormously to the point where current devices have a range of means for connecting to the network including GPRS, Wi-Fi, Bluetooth and Infra-Red and now have sufficient bandwidth available to make it possible to receive streaming video. The functionality of the devices is now at a point where almost any type of service that the user is likely to require will be available.

The development of peripherals and sophisticated software to drive them has enabled these machines to emulated senses and in fact add to the natural human sensory system by enabling potential not possible

in the 'natural' world. In addition to this, with the existing sound and vision (microphone and camera) capability that is already integrated into the majority of devices and the potential for these to be activated remotely, it is increasingly possible to create a network of sensors within a specific environment or group.

## 2.   History Of Influence On Digital Media

In the past, the media was centrally controlled by governments and the content that was available was moderated and controlled by licensed broadcasting corporations. The available paths by which information could be made available to the wider population were limited and, with the exception of the occasional pirate radio station that was based in international waters, was controlled by Government agencies. In 1982, this was exemplified during the Falklands' war when all information from journalists at the battlefront was transmitted back to the UK and the international community through the military communication systems. By the first Gulf war in 1990, the situation had radically changed and there were now independent journalists with independent satellite communication systems observing both sides of the conflict and reporting without the previous potential censorship. Other mechanisms were used such as 'pooling' and restricting journalist access to the battlefront to enforce censorship. Carpenter (1995) explains how the Western military and corporate worlds managed information during the First Gulf War in a way that was unprecedented by its scale.

Since then the Internet and ubiquitous and largely uncontrolled low cost communications have resulted in every citizen being a potential witness and reporter of events and has provided the means for every individual to have a global voice. This resulted in a huge increase in the dissemination of propaganda and information that may have little or no basis in fact. The result of this was evidenced in the reporting of the events in the Chiapas region of Mexico, where the local insurgents used the Internet to great effect to gain international support and to affect the response of the Mexican military (Ronfeldt et al, 1998).

## 3.   Personalised Technology

With the low entry cost, the increased battery life and capability of the devices and the almost universal network coverage, the modern

mobile telephone has a vast range of capabilities and potential for information storage. The result of this has been that the device has become indispensable to the majority of users. The personal handheld device now provides the individual with an affordable and functional connection to their preferred environment wherever they are and whenever they require it. It is now not uncommon for individuals to be addicted to the technology to the point where a failure of the device or the service will have a significant psychological effect. There is 24/7 personal attachment to technology. The device becomes a part of their life style rather than just tool. It contains their 'life' with names and contact data for significant people, the source of information that is relevant to the individual and a means for the individual to communicate to the external world. The technology: becomes a part of the individual and importantly any communications through it are given preferential treatment in terms of response. Communications in virtual world rather than physical tend to dominate.

The beginnings of networked groups such as chat rooms started the concept of virtual groups of people who might never meet each other physically and , in fact, might not exist in reality. People could be whoever they wanted to be or more accurately who they could fool others into believing who they were.

Virtual and dynamic networks form 'families' of users that are dynamic and only may exist for a short period of time. People belong to virtual communities that will communicate whenever and wherever. Addiction to this form of communication is created. The potential for persuasion and control at the individual level become self evident

## 4.   Top Down Influence

A top down approach on the Internet, for example propaganda video, and 'youtube' has been practiced since the early 1990s These centralised but dynamic modes of influence have changed the way humans view and are informed of the world (for instance, the Saddam Hussein's execution in 2006). However, the Internet in this form is still controlled by an external entity rather than the individual and in network terms is a 'star' configuration rather than a true network.

With the increasing ubiquity of affordably devices that provide the capability for individuals to gain access to the services that they require

while they are mobile has come the desire by service providers to target the user with 'sticky services'. These are defined as services that are based on the geographic location and the profile of the user. In order to provide this advanced type of targeted service, it is necessary for the service provider to know not only the identity of the user (rather than the bill payer), but also to have profiled their preferences and to have a concept of their location. If this is achievable for the service providers, then it will also be achievable for governments and pressure groups. In commercial terms this will allow companies to market to people who are in their geographical area who they believe, from the information that is available about them, are likely to be interested in their products or services. When an individual can be uniquely identified to the device that they are using and there is a profile of that individual and they can also be located to a geographical region, they will be become a high interest target for people and groups that wish to influence their perception or to mobilise them in support of a specific cause. Technology allows communications to be sent to devices within specific subgroups in real time and with the ability to respond and interact. This gives the potential for organizations to target individuals by any criterion that the sender has access to. In a world of mass, integrated databases the number of selection criteria is enormous hence, so is the potential for targeted influence and persuasion.

In the modern developed world, people's perceptions of what happens in such a significant event as this major war is largely an illusion created by the manipulation of the information being broadcasted by the mass media. This development of the art of 'perception management' has been promoted by other observers such as Louw (2005), Street (2001), and MacArthur (1992). The world had become virtual (or, at least, partially virtual). This process has developed since the 1990s, where computer usage and the ownership of digital devices such as mobile telephones and integrated devices such as *Blackberries* has increased so much that these devices carry a high proportion of the communicated data in this virtual world. Personalised communications such as email or SMS (text) have meant that not only are cheap, global communications available almost universally but that these facilities has increased the virtual component of the determination of reality by individuals. Both politicians and the corporate world realise that the trend from physical information collection to second hand collection

has been reinforced by an ability to change the format of the information delivered. For example, images and text were used successfully in the First World War to create hatred by using outright lies and exaggerated claims (Ponsonby, 1928). However, this information was based on knowledge of a physical reality regardless of whether this information was incorrect. In the contemporary world, information, except for the very local, is predominantly virtual in nature, and so, consequently, are the means of communicating this information. Thus, the context for determining reality has sources that are almost entirely derived via digital mechanisms. As one the major advantages of digital technology is its flexibility in the manipulation of data, it becomes very easy to amend data without any way of determining if it is false or not. In this way, messages about the 'real' world can be created either to deceive or influence decisions made about that world. The new mobile, digital, and personal devices has provided the vehicle to make the techniques of persuasion intimate and geared toward the profile of each individual actor.

## 5.  Bottom Up Influence

Whilst the traditional 'top down' manipulation of the masses and now individuals by the powerful is possible. This new technology, because of its 'one to many' nature, has provided 'weak' individuals (or small groups of individuals) the ability to become players on a local, regional and global scale.

In the technique known as viral marketing, messages are initiated by a single node with the intent to allow the message to be promulgated around a network. The network appears to be chaotic and unpredictable but is really not too problematic. It is the message and 'community' nature of the users that determines the network of receivers rather than a predetermined central database. An example of an 'accidental' web based viral event was distribution of the unofficial photographs of Saddam Hussein's execution in 2006 taken by a mobile telephone (Jackson and Macleod, 2007). These images totally contradicted the imagery desired by the authorities as espoused in the top down and officially distributed information.

This gives individuals the same potential capability as the

'traditional' creators of influence. Although the advent of sophisticated media outputs are making the ability to influence greater, so can primitive messaging types (SMS) have the ability to spread changes in behaviour (for example, panic buying) and perception (for example, maligning a person or group of people by spreading rumours) or both.

At the moment, advances in media and output devices have enable people to enter virtual worlds at certain times. With the development of mobile media this could be almost all the time so input data to people, could be governed permanently. With the advent of peripherals that sense such things as various frequencies in the electromagnetic spectrum, aromatic compounds, place and many others, the ability for the individual to have 'super-senses' has increased. However, so has the ability of other to manipulate digital input and hence create a virtual world of persuasion and control that can subtly alter worldviews on a day to day, consistent and personalised way. However, the same techniques of propaganda and persuasion can be use in this new technological environment. Propaganda is based on sociological principles reinforcing cultural and social values and tends to be targeted at populations and thus tends to be suited to mass media. Persuasion is based on psychological principles and argument, and thus tends to be geared for individuals or small groups (Johnson-Cartee and Copeland, 2004). Thus, the new digital, mobile devices give the ability to both propagandise and persuade.

## 6.   Control And Surveillance

Surveillance technology is known to influence behaviours, for example, surveillance cameras are thought to affect how people behave and in fact much security theory is based around that (Crowe, 2000). Mobile technology makes surveillance possible all the time. This technology is not necessarily sophisticated or expensive.

The potential future use of personalised devices is only limited by the functionality that is available at the time and the imagination of the users. There are already tests underway in several countries for the use of the personalised device in mobile banking and as a mobile wallet. It is also being considered as a source of identity validation. The concept of identity validation has always been based on three aspects

– something that you are, something that you know and something that you own. Historically, electronic identities have been based on the use of passwords – something that individuals know, because this was what the technology at the time best supported and that was most socially acceptable. Unfortunately, it has also proved to be a poor method and one that people do not trust to any extent. This has inhibited the use of mobile devices for financial transactions but with the development of a range of biometric identification methods and devices such as voice authentication and fingerprint readers, the trustworthiness of remote forms of identification has been significantly enhanced. These developments will create the potential for a wide range of additional uses and services that the devices will be able to provide.

The personal nature of mobile devices and the ability to dynamically track both position and communications has provided an efficient and insidious means to track and record all activity in real time. This is a powerful tool in the hands of law enforcement and also, one that has enormous implications for privacy and government (and even private industry) to alter behaviour just by its presence.

With the huge increase in the number of children that carry mobile devices, one of the potential uses for the current generation of mobile devices is that of parental tracking, to allow parents to determine the location of their child's mobile device and ensure that they are where they are expected to be. One potential shortcoming with this concept is that it only gives the location of the device, not necessarily the user. However, this ability for constant surveillance will alter behaviour and the relationship between the tracker (in this case the parent), and the tracked (the child). The implications of this oppressive environment at the social and individual level has not been fully explored as of yet (Wolcott, 2004). Of course, this monitoring function could be applied to all citizens and all that implies about the power relationships between entities in society.

Mobile devices are also effective for dynamic, networked based command and control. These have been used effectively to 'swarm' individuals (Arquilla, 2000) at demonstrations such as anti-Globalization rallies. This ability to coordinate activities has been taken up by many groups all acting as semi-autonomous entities such as organized criminal gangs and terrorist groups (Weimann, 2006).

# 7. Discussion

This paper has outlined the potential of affect the behaviour of humans and, probably more significantly, alter the balance of power in societies. On the one hand, it gives entrenched power structures an enormous potential to control the content, nature, and bias of virtual information supplied to individuals and groups, as well as providing a tool for control in the ability to track and monitor individuals and groups in real time. It is rare for any organisation, governmental or otherwise to resists using a technology if it is available. It is the task in society for the implications of these technologies to be controlled in a way conducive to the interests of that society rather than let systems and behaviours develop that might be detrimental to social health. Whilst it might be a cliché, the nightmare world of Orwell's (1949) *Brave New World* has the potential to develop as the technology is now available: only the most ardent functionalist bureaucrat would want that.

Paradoxically, the same mobile technologies empower individuals to send their message to a (potentially) worldwide audience. This message can be sophisticated (audio-visual) or simple (SMS/text). The use of SMS for influence and control with its simplistic and basic style is another area ripe for research.

The transfer of data and information and their relationships with individuals has been radically changed by the advent of mobile technologies. This change has evolved in an almost seamless way as the technologies have been embraced by those in all cultures. As such, it is inevitable that this phenomenon will have a profound effect on how the practice of influence is carried out. The rapid development and adoption of mobile and personalised technologies has deeply affected the ability to influence individuals and groups. In the past, influence was largely controlled by governments and significant organisations who invested effort in trying to gain an understanding of the effect that actions would take and to tailor suitable messages and methods of delivery to maximise the beneficial impact of their effort. The new technologies have empowered individuals and small groups to exert influence, but it is unlikely that they will have invested significant thought or resource into understanding the wider effects of their actions and as a result, it is likely that efforts to exert influence and manage perception will have unintended consequences.

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