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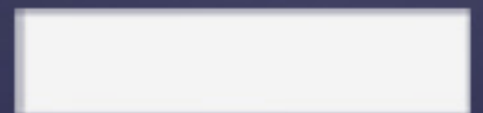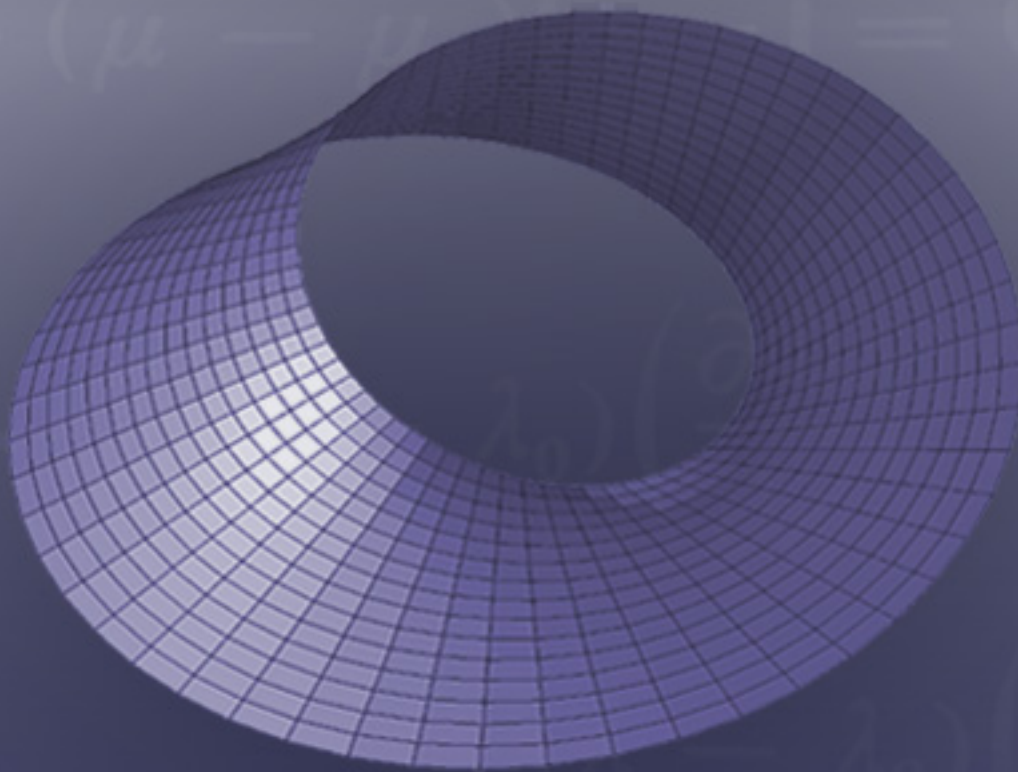
ASPECTS OF LOCATIVE MEDIA USE FROM A COMMUNICATION THEORY PERSPECTIVE

Charalampos RIZOPOULOS, New Technologies Laboratory in Education, Communication and the Mass Media, Department of Communication and Media Studies, National and Kapodistrian University of Athens, Greece, *c_rizopoulos@media.uoa.gr*

Dimitris CHARITOS, New Technologies Laboratory in Education, Communication and the Mass Media, Department of Communication and Media Studies, National and Kapodistrian University of Athens, Greece, *vedesign@otenet.gr*

Michalis MEIMARIS, New Technologies Laboratory in Education, Communication and the Mass Media, Department of Communication and Media Studies, National and Kapodistrian University of Athens, Greece, *mmeimaris@media.uoa.gr*

Abstract

This paper examines certain elements of 'mainstream' communication theories in the light of the emergence of locative media. In this context, LOCUNET, a project that aims to investigate the social and communicational aspects of locative media use, is described and a proposed communication model of locative media use is briefly presented. The issues highlighted in this paper are expected to pave the ground for a more holistic treatment of locative media use from the point of view of communication, which will follow in the near future

Keywords

Computer-mediated communication, locative media, communication theory.

1. Introduction

Locative media are the result of the convergence of information and communication technologies (ICTs) and geographical positioning systems (GPS). This phenomenon allowed for the development of *locative media*, or systems that are constantly and dynamically updated according to the users' location (Tuters, 2004). Locative media can be seen as systems of technologically mediated interpersonal communication that augment

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physical space with features accessible through the use of location-aware devices. Thus, actual geographical location becomes an important parameter in human-computer interaction with (or within) computer generated or computer-enhanced environments. In the case of mobile locative media, an "information layer", within which mediated communication typically occurs, is superimposed over the physical environment inhabited by communicating individuals. This combination results in a hybrid environmental experience that may incorporate face-to-face interaction. In so doing, locative media bring back the "compulsion of proximity" (Boden & Molotch, 2004) into computer-mediated communication.

Locative media may be seen as one category of situated, context-aware communication systems. In the case of the Internet, the actual physical location of the users or the information that is transmitted is not as important as connection speed. In contrast, locative media can relate part of this content to physical locations, resulting in some sort of spatialisation of the Internet. As a result, novel forms of mediated activities based on the user's location, as well as hitherto unforeseen possibilities for interaction, may emerge in which actual physical location is viewed as an important aspect.

Locative media may utilise the aforementioned technologies for the purpose of supporting communication and social interaction (Diamantaki et al., 2007). However, a review of current literature reveals that, from the point of view of communication and media studies, the study of multi-user locative media systems has not been given adequate attention. Consequently, the objective of this paper is to highlight the relevance of communication theory to the investigation of locative media use.

2. Aims and objectives of the LOCUNET project

LOCUNET (LOCation-based Urban NETwork) is a research project that aims to investigate the social dimension of locative media use in a modern urban setting. It focuses not on the technological developments that enable the use of such media, but on the user's interaction with other users or groups of users (computer-mediated communication) and the system itself (human-computer interaction). The ultimate goal of this project is the formulation of a comprehensive theoretical framework which will inform the design, development, and evaluation of locative media aimed at supporting communication and social interaction.

To this end, a locative media system has been design implemented, and will be used for the purpose of evaluating and u this framework. The system supports communication among mobil enabled devices and desktop computers. Both mobile and desktop us participate in a structured game-like activity which will take place historical centre of Athens, Greece. This activity will involve two con teams consisting of both mobile and desktop users. Each team's ot will be to capture a number of digital "objects" scattered throughout t area and accessible only via the mobile devices. The team that captur of the objects will win the game.

3. Communication and locative media

In this section, extant communication theories and mode explored and discussed in order to propose a theoretical basis of a which explains the activity of communication via locative media.

3.1 Types of media theory

The field of media theory is characterised by divergent perspe According to McQuail (2005, pp. 12-14), two types of variation ar commonly encountered. The first is the separation between media-t and society-centric (or socio-centric) approaches. The former conce media as largely autonomous entities which may initiate social chang result of the constant advances of communication technologies. The on the other hand, posit that media reflect political and economic i Therefore, media theories are considered special subtypes of much bi social theories.

Another type of variation in media theory is between cultura materialist approaches, which favour cultural or material aspects of respectively.

The interrelation of these two types of variation produ taxonomy of media theories that consists of the following four categori
1. *Media-culturalist* perspective, where emphasis is placed on i content and form and the subjective reception of messages as influ by the receiver's personal physical and social environment.
2. *Media-materialist* perspective, which emphasises the technolo organisational, and financial aspects of media.

...cio-culturalist perspective, which emphasises social factors and their ...fluence on media production and reception and the role and function ...the media in social life.

...cio-materialist perspective, which construes media and their effects ...ainly as a reflection of political, economic, and material forces and ...nditions.

There are aspects of locative media use that fall in one or more of ...forementioned categories. For instance, access to and reception of ...content is influenced by the user's location, i.e. the user's personal ...nment, which may or may not be identical to that of other users (a ...y media-culturalist view); a technologically oriented outlook of media ...t generation and reception would fall under the media-materialist ...ory; the relationship between media content exchange and the wider ...context in which it occurs could be seen as pertaining mainly to a ...culturalist approach, whereas the ease of access to digital information ...be considered a reflection of contemporary social, political, and ...mic conditions. Most importantly, however, no single perspective will ...for an adequate treatment of the communicative aspects of locative ...since locative media use has several implications that pertain to ...levels of analysis, from the intra-personal (e.g. how one's experience ...ing a mobile device and navigating a technologically enhanced ...nment changes) to the society-wide (e.g. how the widespread ...bility of affordable mobile devices and location-aware applications ...ts social structure). It is suggested that locative media use may belong ...ually all levels of social communication as defined by McQuail (2005, ...). In ascending order, these are: intrapersonal (e.g. processing ...ation); interpersonal (e.g. dyad, couple), intergroup or association ...roup, local community), institutional / organisational (e.g. political ...n, business firm); society-wide (e.g. mass communication).

basic categorisation of communication models

According to McQuail (2005, pp. 68-74), media use may be ...bed by one or more of the following general models:

Transmission model

This is the historically dominant view of communication, namely the ...iission of a fixed amount of information from a sender to a receiver,

possibly entailing a process of selection on the part of the sender based on his/her knowledge and estimation of the receiver's interests. In general, the process is guided by the interests and demands of the receiver (or, in the case of mass communication, the audience). This model applies to media activities which are instructional, informational, or propagandistic in nature or purpose.

3.2.2 Ritual / expressive model

This model views communication as ritualistic, aimed at the preservation of existing society. Communication is associated with concepts such as sharing, participation, fellowship, and common faith. The goal is not to convey information, but to underline – and even reaffirm – shared beliefs. It is decorative rather than utilitarian; it is expressive, relying on shared emotions and understanding, and undertaken for the purpose of pleasure, irrespective of its usefulness in terms of material outcome (or lack thereof). Furthermore, it entails an element of performance. The ritual / expressive model is related to art and entertainment.

3.2.3 Publicity model

This model views communication mainly as the attraction of attention. In advertising and mass media contexts, this is often synonymous with the generation of revenue. Here, the fact of attention is more important than its quality, and the way of attracting attention more important than actual content. Communication is competitive, as the amount of available attention on the part of the receiver is finite and often sought after by numerous media. Typically, the only temporal definition that really matters is the present.

3.2.4 Reception model

This is the model with the most profound differences to the transmission model and is based on the assumption that the message is not received and understood as originally sent. The message is open and polysemic, and meaning is generated and attributed depending on the receiver's context (physical, social, or cultural). Although messages are often given an intended meaning, receivers can discard it and interpret the messages according to their own experiences and contexts. This model underlines the fact that receivers do not passively accept whatever information is transmitted, but, in decoding the message, they rely on subjective factors such as past experiences and cultural values.

transmission model provides a mechanistic description of the process of
munication via locative media. It may apply to purely or predominantly
mational locative media applications, whether mobile or not.

The ritual / expressive model concerns group activities in a ritualistic
ext and is important for the investigation of location-based activities
h entail such a component, such as location-based games (of which
l and performance are key aspects) – although it could be suggested that
munication via locative media will at some point develop its own
essive codes and rituals, just as Internet-based communication did. In
case of LOCUNET, the planned activity is game-like in nature.
efore, this model is relevant to our investigation of the
municational dimension of locative media.

The publicity model applies to locative media applications that aim
vertising; tying location to attention attraction may result in increased
ency of impulse buying (which translates to more revenue), as users
have easier access to products that may satisfy their needs (whether
l or perceived). Additionally, people may employ locative media in an
pt to improve the image of themselves that they wish to present to
s, as is normally the case in most social encounters involving strangers
rsons who cannot be said to stand in close relationship (Goffman,
). The fulfilment of this need is an important factor of the apparent
ss of social networking applications on the Internet.

The reception model is of great importance to the theoretical
igation of locative media use, since the user is given a more active role
: process of communication. Locative media entail the reception or
s of digital information depending on the users' actual position, but
pervasive, 'always on' nature is mitigated by subjective factors (the
experience, mood, cultural values etc.) which may facilitate or hinder
ise.

Users tend to prefer media they perceive as more efficient and
nient, i.e. media that can reach the intended audience more quickly
ith less effort (Debray, 1991). Locative media may be considered
nt and convenient on account of the fact that, due to the convergence
[s, it is possible to access a variety of functions previously available
n desktop systems and/or specialised equipment (e.g. video and sound
ing, Internet access, etc.). Furthermore, the reception and
etation of a message will be influenced by both the social context and

the physical environment. Additionally, the user can be both the sender and
the receiver, and a mobile device is constantly within easy reach. Thus,
using it can be less time-consuming, as it does not require the allocation of
time solely for this purpose.

3.3 Communication patterns during locative media use

Locative media (and new media in general) transform the pattern of
communication flow from sender to receiver. According to Bordewijk &
van Kaam (McQuail, 2005) there are four basic patterns of information
flow: *allocution, conversation and exchange, consultation*, and *registration*.

Allocution is the unidirectional flow of communication from a
central source to a number of peripheral receivers simultaneously. Typical
examples of this pattern are lectures, 'traditional' broadcast media (radio,
TV), and concerts or performances. The place, time, and medium of
communication are usually chosen by the sender.

Conversation and exchange refers to direct interaction between
potentially networked individuals. The receivers essentially bypass the
centre by choosing partners, as well as space, time, and medium. Examples
of conversation and exchange include communication by post, e-mail, or
telephone. In certain cases, as the ones just mentioned, the process may
involve an intermediary, who might not play an active role in the process of
communication (e.g. service provider).

Consultation is an individual's enquiry at a central information store,
such as a library or a database. Reading a newspaper may be considered
consultation if the time and place of reading (as well as the articles read) are
decided by the individual.

Registration may be viewed as the opposite of consultation. In this
case, a centre obtains information from individuals at the periphery. Any
means of information gathering that rely on surveillance fall under this
category.

The four patterns described above may be interrelated in terms of
two main variables: central vs. individual control of information, and central
vs. individual control of time, place, and choice of the subject, as shown in
table 1.

| | | Control of information store | |
		Central	Individual
ɔntrol of time, *ıce and choice* *of subject*	Central	Allocution	Registration
	Individual	Consultation	Conversation

Table 1: The four patterns of communication (McQuail, 2005, pp. 147)

In general, new media, including locative media, have facilitated the ɔ from allocation to consultation and conversation. However, locative a have reinforced registration, due to their ability to store information t the user's habits, which may subsequently be forwarded to interested ɔs (such as advertisers, government or law enforcement agencies, etc.). conflict between conversation and registration practices has always a characteristic of traditional media, but it has become more ɔunced in the case of new media, mainly because today's technologies ngage in various practices deemed as threatening to one's privacy. An ɔpecting user can be easily misled or deceived by a technology that ingly promotes the conversational paradigm while arguably breaching ser's privacy.

wards a communication model of locative media use

A significant part of the theoretical framework of locative media use, ʌ is the primary research objective of LOCUNET, is a communication :l that describes locative media use from the standpoint of nunication theory, shown in figure 1 and described in greater detail in ɔoulos et al. (2008). Such a model needs to view communication not as ɪple act of information transmission and reception, but of a *constant inition of a common ground.* Therefore, the proposed model is based ⊀isting communication models that exhibit this kind of versatility, ly Newcombe's ABX model and its derivative, the *co-orientation ɔach* (McQuail & WIndahl, 1993). In brief, both approaches view nunication as a constant strive for equilibrium in the orientation of two nunicating parties towards each other and a number of other elements r objects. The orientations of the communicating parties toward the elements of the context are influenced by subjective factors such as s, attitudes, or relationships. When these factors are combined with the ɪnce of the environment in which this interaction takes place, a wider l context emerges.
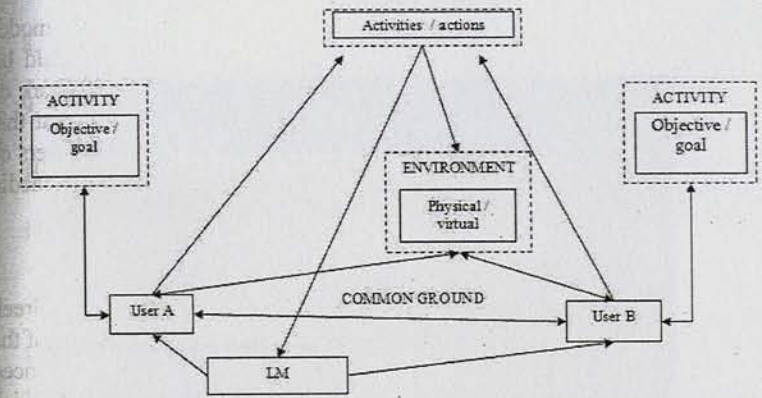

Figure 1: The modified co-orientation model that describes communication via locative media

In addition to these approaches, the proposed model incorporates various elements of Activity Theory (e.g. Kaptelinin & Nardi, 2006) and the Ecological Approach to Visual Perception (Gibson, 1986). The former provides useful insights regarding the appropriation of artefacts by humans towards fulfilling specific objectives, while the latter is relevant to any investigation of locative media on account of their spatial character. These two theoretical approaches are complementary in many important ways (e.g. the treatment of artefact use). Some aspects of Castells' Theory of Flows (1996, 2004) are also incorporated in the model on account of the relevance of this theory to the communicative aspects of modern urban settings.

With respect to the taxonomy of media theories discussed earlier in this paper, the proposed model can be said to belong to all four categories. However, it mostly emphasises social (and not technical) aspects of locative media use. As such, it may be considered less relevant to the media-materialist perspective when compared to the other categories.

5. Summary and concluding remarks

This paper reviewed some theoretical approaches to communication and highlighted their relevance to locative media research. In doing so, it briefly described a proposed theoretical model of locative media use viewed as a communicative act. The proposed model incorporated elements of the

:mentioned theoretical approaches, as well as other theories of human
ity and environmental perception.

The connections that were established between the proposed model
the theories described herein (as well as the model itself) should be
:ded as a first step towards a comprehensive theoretical framework of
ive media use for communicative purposes. It is envisioned that this
ework will apply not only to the interaction among individual users of
ame medium, but also to that among users of different locative media
e in the same hybrid (i.e. physical and digital) environment.

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