



DIGITAL INTERACTION

Introduction to the First International Workshop

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Abstract

We may be working toward making human interaction through devices (or with a device) resemble as much as possible interpersonal interaction. Or we may aim at a different type of interaction, so that digital interaction is a sort of augmented interpersonal interaction. In any case, it appears that the creation of *common ground* amongst interacting agents is both a prerequisite and a goal of interactive processes. In this workshop several authors report their work toward the design of systems supporting digital interaction.

Introduction

In « We All Want to Change the World: The Ideology of Innovation in Digital Media », Espen Aarseth complains that the word ‘interactive’ ‘contains no clear, analytical concept’, and then goes on to suggest that ‘perhaps future attempts to clarify what ‘interactivity’ means should start by acknowledging that the term’s meaning is constantly shifting and probably without descriptive power and then try to argue why we need it, in spite of this.’ (Aarseth, 2003: 424-426)

Nevertheless, in « Interactivity: a concept explication », one of the most comprehensive articles reviewing, outlining, and synthesising theoretical formulations of digital interactivity to date, Kiousis offers the following conceptual and operational definitions of interactivity:

...interactivity can be defined as the degree to which a communication technology can create a mediated environment in which participants can communicate (one-to-one, one-to-many, and many-to-many) both synchronously and asynchronously and participate in reciprocal message exchanges (third-order dependency). With regard to human users, it additionally refers to the ability of users to *perceive* the experience to be a simulation of interpersonal communication and increase their awareness of telepresence.

Operationally, interactivity is established by three factors: technological structure of the media used (e.g. speed, range, timing flexibility, and sensory complexity), characteristics of communication settings (e.g. third-order dependency and social presence), and individuals’ perceptions (e.g. proximity, perceived speed, sensory activation, and telepresence.) (Kiousis, 2002: 379)

Examples of familiar features or devices which might enhance users’ perceptions of interactivity would include link mapping in terms of the creation of verbal, visual, or spatial narrative (as used, for instance, in museum exhibits to construct ‘living memory’ (Reading: 2003)), or the use of ‘vicarious kinaesthesia’ (Darley, 2002 : 155-157) which gives the impression of active entry into a mediated environment. Critics of interactive computer media remark that users are simply following ‘pre-programmed, objectively

existing associations’, and in an ‘updated version’ of Althusser’ s concept of ‘interpellation’, are being asked to mistake the structure of somebody else’s mind for their own (Manovich, 2001: 61).

Digital interaction as simulation of interpersonal communication?

Perhaps, for the mediated communication process to be most effectively perceived as interaction, it should be conceptualised not as a *simulation* of interpersonal communication, but rather as an exchange which suggests qualities and impressions *similar* to those produced in human interpersonal communication, but which also (whether as a result of context, structure, technology, etc.), offers different opportunities for interaction (as in interactive digital art, for example (Holmes: 2000)).

The quality of engagement or immersion implied in ‘Telepresence’ might be conceived of as not necessarily privileging the mediated environment over the physical environment, but rather as the creation of a new environmental site of exchange – the ‘experiential’ interface: adaptable, individual, flexible, drawing on qualities of both mediated and physical environments simultaneously.

Common ground as the basis for interaction

Grice, in « Logic and Conversation » (Cole & Morgan: 1975), supplies a set of maxims which guide cooperative conversation; these maxims seem to be an essential part of the ‘Common Ground’¹ of shared information and knowledge used in interpersonal communication:

The parties involved in the exchange assume 1.) that the speaker will provide truthful and accurate information (Quality), 2.) that the speaker will supply the quantity of information that is required – neither more nor less (Quantity), 3.) that the information will be relevant and appropriate to the task (Relation), and 4.) that the speaker will avoid obscurity of expression & offer clear and unambiguous information (Manner).

If, in the course of a conversation, the hearer believes that the literal interpretation of what has been said violates any of the above maxims, he will start an inference process allowing him to find an interpretation of what has been said that does not violate the maxims. For example, if the maxims of quantity seem to be violated the hearer will try to infer why extra information has been included.

In fact, it is through this process of inference and interpretation that the hearer becomes a truly active participant, rather than passive receiver, in the communication process.

After all, Plato chose the interactive medium of the Dialogues to convey Socrates’ logical philosophy.

As Lakoff and Johnson point out, we understand the world, the physical and cultural environment, through our interactions with it (Lakoff & Johnson, 1980: 194), and metaphor is the linguistic, emotional, and cultural device we use to convey the interactional properties of our conceptualisations. In language, ‘metaphor plays an essential role in characterizing the

¹ Here we refer to the « common ground » as defined by Clark (1996), however similar concepts have been used in linguistics, logics and artificial intelligence under the name of « common knowledge » or « mutual knowledge ». One of the earliest formal accounts can be found in (Halpern and Moses 1984)

structure of our experience' (118), in creating a spatial relationship between form and content (127), in inducing similarities and making similarities possible (147), in creating 'similarities of a new kind' (151), and in providing a way of '*partially* communicating unshared experiences' (225). But metaphor is 'not merely a matter of language', but of 'conceptual structure', involving intellect and 'all the natural dimensions of our experience, including sense experience.' (235)

Thus metaphor provides another 'Common Ground' of shared similarities through language, conceptualisations of time /space, structure, sensory experience, visual and kinaesthetic narratives – and, to paraphrase Gigliotti, an important consequence of this is the capacity it offers the conceptual systems of digital media to influence other emergent structural metaphors (Gigliotti, 1999). And just as metaphor provides this 'common ground', so the concept of the 'common ground' provides a metaphor for the production of *new* similarities and the creation of a communication environment which is not a *simulation*, but a site of exchange between mediated and physical environments as well as between senders and receivers.

Digital interaction

In human communication, interactive processes are often established in order to build / enlarge / improve the common ground necessary to efficiently achieve some communication goal. The common ground includes the physical, social and cognitive environments shared by the partners in communication. One of the objectives of the new generation of Information and Communication Technologies (ICT) is to supply tools that enhance the interaction process by allowing communication partners to improve their common ground more efficiently.

The focus of ICT on common ground aims at responding to several needs including:

1. the recreation of lost common ground due to device mediated communication, and
2. the need to support common ground improvement in complex communication environments (e.g. business meetings).

The former need is consequent to the fact that, in device mediated communication, common ground may be drastically reduced because communication partners may be physically located in different places (therefore they are not able to see, hear, touch, smell the same environment) and because communication may take place within a very heterogeneous community, i.e. amongst people who have a significantly different social and cognitive background.

The latter need originates from the fact that complex communication environments often rely on multiple multimedia devices and community members find it difficult to both access and acquire the contents within the time frame of the communication exchange (often real-time).

The workshop

The papers presented at the workshop offer a good overview of the many research issues and software tools being studied with the aim of supporting common ground creation and thereby enhancing the interaction processes. In particular common ground is targeted by the recreation of the mediated environment, of shared meaning, of social roles and of social rules.

One approach, represented for example by the paper by Brodie, Evans, Brooks, and Perry aims at the recreation of real time and real space in virtual environments by simulating physical social contacts. A classic ontology based approach to the creation of shared meaning is presented in the paper by Haan. Rosenberg, Foley, Kammas, and Lievonen address, amongst other issues, the recreation of social roles. These roles may be very fluid such as their *active participants*, *overhearers*, and *trackers*' roles. Finally, some aspects of the recreation of social rules - in particular linguistic rules - and the evaluation of their effectiveness are discussed by Duffy and Jacobus, and by Laine

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