Enhancing Conversation through Context Output

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ABSTRACT

The great disadvantage - and advantage - of digital information is that it can be received anywhere. It is therefore a devoid of context. When your lunch partner receives a cell phone call, all that you know is that the call has occurred. We see a need to create context as output from the digital information; the physical domain of interaction displays the context. The caller to a cellular phone often asks "Where are you?", "Am I disturbing you?". These questions also express the need to create context or an idea of place. Fundamentally, what is displayed must reflect the context and not the content of the message: if your dining-mate is receiving a call from their significant other, that is sufficient to know and understand; the exact details are unnecessary. What we seek is to restore context to digital interaction.

Keywords

Context, digital, architecture, output, physical, environment, interface, interaction

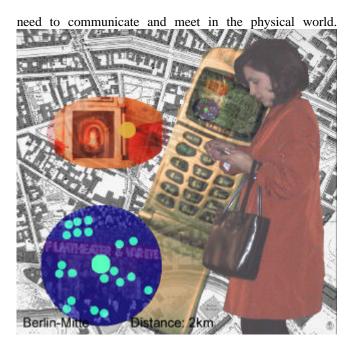## WHY DIGITAL NEEDS CONTEXT

A Childhood Vision

When I was a child I had a reoccurring daydream when I was feeling lonely: I wished I could put on a pair of glasses and through them I could see where my friends were and what they were doing. Through these glasses, I would have the chance to feel with them, part of this community.

We now see information technology starting to make this vision come true. Cellphones will become location-aware in the next few years, spurred on by the need to locate emergency calls. However, we expect commercial and social uses of this technology to far exceed the number of uses for emergency calls. Add that to embedded webcams, and this vision starts to become a reality. Through various interactive devices one can even participate in their social gathering. Digital technology enables the ability to be part of communities unrestrained by proximity.

Belonging

The meaning of belonging has changed, as have the locations of being. We have the freedom to share and exchange our interests and thoughts with people all over the world. Location becomes irrelevant, it is implied; our dependence on email and telephones implies there is no

need to communicate and meet in the physical world.

[Digital media provide opportunity for location context.]

Communities have transformed from a physical meeting into virtual meeting places. The reality people become part of is this virtual world - a virtual community! We substitute our physical gathering with friends by going online, emailing or chat-rooms. We even read our newspaper online and do business there. The virtual world has started to claim a more extensive role in our life than physical contact.

The advantage of digital technology is that it conveys a feeling of belonging elsewhere than the physical realm. But it is also a world that vanishes as soon as you turn off the computer and disconnect yourself from that network. Digital information can be received anywhere. It doesn't have a place and is therefore devoid of context.

THE UNEASY INTERACTION BETWEEN DIGITAL AND PHYSICAL

Digital Information Has No Context

These new digital technologies provide us with the possibility of being available for more people at one given moment in time independent of our physical location. We can be part of multiple communities at one moment -- I am in a cafe with a friend and I am available on my cell phone

for others; via laptop and email I can sit everywhere and communicate anywhere with anyone.

Physical Spaces Must Provide Context

Communication technologies divorce production from reception of conversation. As we will argue and illustrate, we feel that the role of place changes to incorporate the display of context of the communication. This raises a number of questions, which we merely begin to pose.

- What kind of places can be created through information technology?
- How can we incorporate information technology into our physical space so that we create a more diverse and open community and strengthen the sense of belonging?
- How can information technology develop a physical presence?
- What is the interaction of virtual communities and interests with a physical meeting place?
- How can we merge the interaction forms of communication at a distance and physically gathering together?

As a responds to these questions we need to create a physical space that displays the information or the context of the virtual world. We need to create a physical environment were the digital world with its information is displayed in the periphery: context.

SO WHAT IS CONTEXT IN THIS CONTEXT?

Context Exists In the Periphery

We feel that the place for context is overwhelmingly in the periphery. User interface researchers have started to conjecture about the role of the periphery in conveying information, which is known as 'calm technology' The interaction itself is located in the immediacy; it cannot be overtaken by the context, such as when a phone call is drowned out by the sound of a train going by. That's a failure to place context in the periphery.

As such, context needs to be ignorable; the interaction must remain the fundamental unit of conversation, augmented by not replaced by context. We propose that simplicity of context display (visual or otherwise) is key in allowing this to happen. As a metric, the display must improve the interaction; if there is an overall decrease then it has fundamentally failed.

Context Is The Output

Perhaps the most drastic conceptual change we're proposing is the idea of context as an output. A key topic in the field of human-computer interaction over the last five years has been that of context as an input, as in the phrase 'context-aware computing.' We propose reclaiming context as an output, to be designed and considered and actively created.

SCENARIO
Cell Phone Call at Lunch

Patricia and Kevin work together in the same corporate marketing firm. They're having lunch together in a café around the corner from the office when Patricia's cell phone rings. She picks it up and starts talking. The context display shows the logo of a client company intertwined with that of theirs. Kevin's been working on the same project, and so pulls up the file on his laptop and picks up his cell phone. Patricia nods, and Kevin joins in the conversation. He's able to supply the figures the client needs from his laptop.

Later, Kevin's cell phone rings. It's his girlfriend, and his context display indicates that it's a private conversation. When he's finished, he turns back to the table, and Patricia has started talking to the woman at the next table: she noticed the logo and has been meaning to talk to the company about a marketing project for her startup. They leave with her business card: a potential client!

Why is such a display important? Cell phones only begun to influence in public realm. People constantly carry their cell phones with them, afraid to miss something or being not available for someone. Communicating with someone in another part of the world has gained more importance than attention to the real and immediate, a situation enforced with every context-free phone call. The minute someone answers a cell phone, he/she actually separates and isolates her-/himself from the physical context and enters the digital domain of communication. The real counterparts of the physical world are being ignored and excluded.

Context as output allows the person with you to become part of your interaction with this virtual conversation by understanding its context. The feeling of integration is conveyed instead of exclusion and isolation.

New Town, New Café

[Physical spaces become a location for context display.]

The use of context has other possibilities; our fundamental interaction with space changes when one can manipulate the context within which one is displayed. We have developed scenarios wherein the context display functions as a tool for

meeting new people. The physical environment itself can change and morph; a broker may want a stock ticker unobtrusively available to him as part of his context or a sports fanatic may want to have the newest football scores available as well. Some may wish to attract attention; some may want the opposite. A context display gives opportunities for both.

The space itself becomes created by the people within it, interacting with them, and changing as people come and go. This interactive and smart environment is determined by the desires, thoughts and interests of the people who inhabit it. Their being is reflected in the space and therefore the space transforms into a mirror of the people who are physically in the space. The virtual world of information enters the physical realm and provides the opportunity for a new quality of interaction and communication strengthening the sense of communities and neighborhoods. Personal interests and information can be shared in the physical public space in the similar neutral and anonymous way as on the platform of the Web.

This new physical place incorporates virtual environments, real people and makes different interactions possible that are only accessible through information technology. It brings back the quality of personal communication and interaction. In this space people act and interact in a different way with each other. It actually influences and changes people's behavior and perception of communication and acting with each other. The space and the people's behavior will change through the visual display of information in the spatial periphery.

WHEN THERE'S JUST TOO MUCH CONTEXT
We recognize that there is a danger in the context overwhelming the interaction. More immediately noticeable is the uneasy interaction between displaying context and respecting privacy. One vision is a future whereby holographic display all output to be personally configured for the receiver. However, in the meantime we recognize that it is necessary to err on the side of caution, and minimize the amount of private information available to the outside world. It is this uneasy tension between privacy and context that will pose the greatest problems for both the social realm we have discussed and commercial uses of location-enabled cellphone technology.

VISIONS & CONCLUSIONS
We propose taking the exclusion of the digital world and re-projecting it in the physical as context to create a better sense of community and sharing of interests. People's attention towards the virtual communication is carried back into the physical realm. We substitute a focus on the computer monitor with a focus on the world around you; ambient media inherently allows for communication.. The digital world gains its presence in the periphery.

Personal interests become accessible to others as information in the periphery without revealing intimate content. A feeling of sharing and integration is created instead of physical isolation and exclusion as soon as we get in touch with digital technology. The physical domain displays the context of the digital information and can therefore strengthen a personal relationships.

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