Position Paper for CHI 2000 Workshop No 14: Towards a Deeper Understanding of Task Interruption

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A Future Rich in Context

In the future, if we have not reached this stage already, we will be able to carry around with us many sensors capable of providing a whole slew of contextual information. Is the user tired? Is the user annoyed? Is the user talking to someone? Is the user walking, jogging or driving? It seems conceivable that each of us could soon be carrying a device capable of answering all of these questions. However, what is far from certain is what we can usefully do with this newly-available information. Our particular interest is develop application software which can take such context information gleaned from sensors and use it to support and possibly improve the interruption management strategies of mobile workers.

An Increase in Interruptability

A mobile device which is always on and always with the user is always capable of interrupting her. With the increase in ownership of mobile phones, and now smart phones and wireless PDAs has come a sharp increase in the possible methods of interruption (email/SMS/phone call) and an overall increase in the numbers of hours in every day for which the user is interruptible.

Perhaps we can find some way of using our mobile computing and its increasing access to our context to manage interruptions so that our levels of stress are not increased, and our levels of productivity are not lowered by constant interruption. For example one can easily imagine a situation in which our mobile phone or other mobile computing device is capable of detecting that I am in a face to face conversation with someone and therefore directs all phone calls to my voice mail and waits until the conversation finishes before notifying me of incoming email and other messages. In fact applications similar to this have already been developed [Sawhney and Schmandt, 1999]. This seems to be the archetypal case of how access to context can be used to mediate interruptions. However, further consideration shows just how *unhelpful* such an application might be, depending on the finer detail of the situation. It may be that the interrupting phone call that my mobile phone is shielding me from is from a colleague with a pricing vital to the deal I am discussing. It may be that I am merely chatting with a colleague while killing time. It may be that the silent, thoughtful period after I have left a meeting is exactly the *wrong* time to distract me with a flurry of message notifications.

We may have some intuitions about what effect this significant increase in susceptibility to interruptions has on efficiency and well-being of the mobile worker but there is little concrete research, and what there is offers conflicting evidence. For example, a study has shown that a high percentage of interruptions which occur in an office environment are useful rather than disruptive and significantly affect which tasks are performed [Ziljstra et al., 1999]. This raises the prospect that workers who are away from an office environment may not be being interrupted enough! Another study has shown that the nature of the individual task and the experience of the subject can greatly influence the effect which interruptions have on performance [O'Conaill and Frohlich, 1995]. There may be no general rule which can be applied as to how and when to interrupt a subject without fairly specific knowledge of the task they are trying to accomplish.

It seems to us that a much deeper understanding of how interruptions interact with the supposed "main tasks" of mobile workers, also an understanding of the effective strategies that are already being used by workers (both static and mobile, some of which may be highly task specific) is required before we put forward models for choosing an appropriate interruption time based on context. It also seems to us that, in the case of interruptions, context may well be simply insufficient to decide whether now is a good time to interrupt the user with any specific interruption - the content of the interruption and the nature of the task in hand may also be crucial.

References: -

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