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Must Electronic Gadgets Disrupt our Face-to-Face Conversations?

Over the last century, advances in technology have massively expanded our choice of ways to connect to each other. Nevertheless, our original means of communicating—talking face to face—persists as the most immediate, natural, and universal means we have of communicating. Conversing face to face we have at our disposal not only the full richness of our spoken language, but also a nonverbal vocabulary that includes gestures, shifts of gaze, and facial expressions. When we need to convey our innermost feelings, explore a sensitive topic, influence a key decision, or simply make others laugh, this is usually the channel we prefer.

Can technology enhance our face-to-face conversations, or can it only make them worse? This question was on my mind as I read the fascinating articles on gadgets in the last two issues of *<interactions>*. Will these new technologies, I wondered, turn us into better conversationalists? Or will they hinder us from conversing? Could

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they, as SMS sometimes does on school buses, eventually replace talking by keystrokes, making our speaking skills redundant?

Right now, however, I see the main problem as one of *interference* in conversation, resulting from distraction by gadgets. We've all experienced this. We can all remember conversations with people whose attention

was constantly being drawn away by a mobile phone, laptop, or some other gadget. As these devices become more and more widespread, they're likely to interfere increasingly with our

conversations. Making them less disruptive could be a major design challenge.

At University College London's Interaction Centre (UCLIC), we're working on this design problem. We're studying videotapes of real-world, face-to-face encounters such as medical consultations. Through this, we're discovering how conversation is affected when people perform tasks on a computer, or with pen on paper.

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Important results are emerging from this study. They're suggesting both an explanation for the disruptions to talk, and a design strategy that may reduce them. The explanation lies in a *natural rhythm*, hitherto undocumented, in two-person conversations. Basically, if one person begins a task, and talk is therefore suspended, it will usually be resumed *within ten seconds*, as in this example:

Patient: Things have really improved.

Doctor: [facing screen, starts scrolling through on-screen records] Good.
[ten seconds' silence]

Doctor: [still facing screen, scrolling] You haven't had any sort of tummy trouble for some time, have you?

Patient: No.

As here, it's usually the performer of the task who breaks the silence, but sometimes it's the other person. Both partners in the conversation show a preference to keep the suspension of talk from continuing beyond the ten-second timeframe. This is especially marked when paper is used. A significant proportion of pauses terminate at or around this point. When computers are used, however, nearly three times as many pauses extend beyond ten seconds.

We're seeing evidence here that computer users have difficulty keeping pauses below ten seconds; we think this may contribute to the disruption of conversation. Computer usage may be throwing users off their natural rhythm and hindering them from synchronizing with the other speaker.

A related study focusing on the use of laptops in workplace meetings has been conducted at Microsoft Research in Cambridge, UK. Its results suggest that the ten-second time frame may again be a factor. The basic problem here is that people using laptops stop attending to the meeting; they lose track of what is being said, and then can't pick up the thread when they reengage. A recent report on Microsoft's work indicates that most people in meetings, whether they're using laptops or pen and paper, orient toward reengaging in the conversation within ten seconds [1]. However, laptop users again appear to get thrown off their natural rhythm: When the user makes a show of engagement, it is often just a brief glance every eight to ten seconds, followed by a quick

return to the ongoing laptop task. Users of paper are much more likely to reengage fully.

Can this research suggest a design strategy for reducing the disruption of conversation? Paper users appear skilled in fashioning an efficient method for performing each task, requiring a pause of ten seconds at most. When writing a quick note, for example, they abbreviate where possible. When looking something up, they flip through the document, looking for visual cues. As we know from Sellen and Harper's work, paper offers us many *affordances* that help us perform tasks efficiently [2]. Computers, on the other hand, often frustrate our best attempts to do things quickly, and stretch things out far beyond what we had intended.

A way forward may lie in following two design strands in parallel. First, we can set about redesigning the interfaces of gadgets and laptop tools. Our aim should be to offer users affordances that help them keep their tasks within ten seconds. This isn't a trivial design task; it will require much iteration, testing, and rethinking.

Second, to assist in this design task, we may benefit from models of how tasks are performed during conversation. The work at UCLIC and Microsoft is providing some preliminary models that can be helpful in reducing reliance on prototypes. Suppose, for example, we think our new interface design can provide an answer—within ten seconds—to any question that arises during a meeting; a quick modeling exercise may tell us whether the idea is worth pursuing.

I've described here an HCI problem that has existed for some time and will almost certainly take a while to solve, but clearly needs solving. In these respects it's different from many of today's design problems, with their focus on exploiting new technologies or offering new services. Here we have the opportunity to invest in research, aim for small design improvements, and measure whether we've succeeded. And who knows? Maybe one day we'll be able to talk about our work without being disrupted by gadget use! ♦

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