The Instant of Being Everywhere: Options and Obstacles in Technology-mediated Education

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Abstract

Contemporary technological advancements create new forms of human experiences – most notably the speed of communication, and the linking of the here-and-now and there-and-now settings. We analyze the new hybrid setting that is created for the teaching/learning contexts through seminars that use videoconferencing between remote locations, and emphasize that through these technological means teaching and learning activities move into the liminal place – heterotopia – where time and space of actions is set up under new constraints of immediacy.

Human relations of our time emulate new technological devices in ways that let us forget them. Once mastered, we forget all the confusions we lived through when trying to use a computer, cell phone, or i-pod for the first time. Moreover, reliance on such hard-attained technological devices becomes a primary psychological necessity – as anyone forgetting one's cell phone may understand. Objects which once – not so long

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ago – were foreign and somewhat untrusted interventions into our ordinary ways of living quickly become hyper-ordinary.

Yet information technology is special; it changes us more than technological breakthroughs in other life areas – cooking technology (microwaves), water reprocessing technology, or laundromats – do. The old social boundaries or private<>public kind are broken down (e.g. receiving a phone call while in bathroom) and newly established (e.g., switching off one's cell phone at the beginning of a relevant social event). We turn around while walking in a street hearing somebody behind us saying a loud «hello» to meet the friendly stranger, only to find her deeply attached to her cellphone. Even more curious are the street scenes where seemingly normal human beings can be seen talking loudly to themselves. The hands-free sets make the difference between ordinary street and an insane asylum that of a matter of degree. The nature of social institutions is likewise changing. The historic difference between formal (school) and informal (community) education crumbles with the wireless internet connections arriving inside school classrooms, and the cell phone photo cameras used to communicate exam questions to the peer elsewhere. Technology makes us free – or, more precisely – makes us dependent in new ways. These new ways both enable and restrict our ways of living; the speed of sending a message instantly to the other side of the world is balanced by the slow agony of trying to remember one's own forgotten password among the many.

Technology as a Tool of Youth and the Impact of Technology on Education

The notion of technology and dependence on new norms reaches easily into education. Users of technology tend to be either consumers or contributors of content or a combination of both. As information contributors and consumers, learners can create connections that were once not easily made. Access to information has changed dramatically in the recent decade such that educators are forever behind on the curve of modes of communication and access to information. As is known in psychology beyond the limits of the human species, the invention of novel ways of accomplishing new tasks is the prerogative of the juveniles of the given

species. They invent, begin to use new devices, and gradually these uses proliferate upward in the age/status hierarchy. As the pupils and teachers are located at different levels of that hierarchy, it is the pupils who lead the way of using modern technology. They become teachers for their teachers.

Ideally learners and teachers alike are indeed dependent on new methods in a very symbiotic relationship. Teachers who can utilize technology to increase collaborations can subtly persuade learners to increase knowledge and information and this embraces the youthful tendency to consume and contribute to information and content during those interactions. Likewise, the goals of the teachers can be successfully counter-acted and neutralized by the superior mastery of new technology by pupils – whose computer hackers' competence might give them jobs in the software industry even if they never finish school.

The Human Psyche Within the IT World

In principle, human beings have adjusted to all kinds of new technologies, starting from the invention of the stone axe and sustainable fire. Our contemporary IT world probably adds just the speed of technological changes, and in the requirement of re-evaluating what NOW (versus THEN) or HERE (versus THERE) means. Thus, obviously at the time of trans-Atlantic shipping being the only way to travel between Europe and the Americas, there was no possibility to know immediately «what is there». It took a week's time to travel and inquire. With modern airplanes that boundary was cut to under 10 hours, and with contemporary internet connections to under 1 second. Our own sequence-bound living here-and-now can gain immediate access to (and exposure) to what is happening there-and-now. The immediacy of video linkages makes such mutual exposure almost complete-save the absence of the olfactory texture of the different places.

The settings of social encounters that are made available by tele-conferencing are heterotopias. Michel Foucault described such places:

> There are [...] in every civilization, real places, actual places, places that are designed into the very institution of society, which are sorts of actually realized utopias in which the real emplacements, *all the other real emplacements that can be found within*

a culture are, at the same time, represented, contested, and re-versed, sorts of places that are outside of all places, although they are actually localizable. Because they are utterly different from all the emplacements that they reflect or refer to, I shall call these places heterotopias', as opposed to utopias; and I think that between utopias and these utterly different emplacements, the-se heterotopias, there must be a kind of mixed, intermediate ex-perience, that would be the mirror. *The mirror is a utopia after all, since it is a placeless place. In the mirror I see myself where I am not, in an unreal space that opens up virtually behind the surfa-ce; I am over there where I am not, a kind of shadow that gives me my own visibility, that enables me to look at myself there where I am absent-a mirror utopia* (Foucault, 1998, pp. 178-179, added emphasis).

A seminar or a group meeting organized through videoconferencing has all the characteristics of heterotopias. It is both real (people in the participating places are in a real room, they come there for a really spec-ified time period), and unreal – the interaction through teleconferenc-ing creates the illusion of the others being close in one's own location (as they directly participate in a joint activity). Surely such settings are not utopias-mirrors that show us ourselves where we are not[1]. Such hetero-topic places are on the margins of reality-like ships and airplanes (other heterotopias) they make it possible to transcend the confines of the lo-cal worlds while still being linked with these worlds.

The New Immediacy-Videoconferencing Technology on its Way

What could be considered, by definition the beginning of point to point or multi-point video conferencing was the launch of commercial televi-sion, announced at the 1939 New York World's Fair. Perhaps more closely aligned with current trends, was, NASA's use of UHF and VHF links to communicate with manned space flights. Finally this media ex-panded to mobile satellites, a rather common technology for news and

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[1] It goes without saying that technologically it is easy to re-create a mirror kind of utopia in the context of videoconferencing – by projecting all the participants «from here» into the environmental location «over there». Such mirroring of the settings would create a video-utopia, in Foucault's sense.

media reporting. These examples demonstrate the immediacy of communicating over distance. The obstacle with the described technologies was cost and the scalability of such technology to education, medicine and business meetings. It was not until AT&T experimented with slow scan video over telephony that the emergence of current video conferencing trends begin. The first Videoconference was demonstrated in 1968 and was followed by picturephone in the 1970's. Picturephone operated on a 1 Mhz bandwidth and a 6 Mbit/sec bit rate. Although this progress provided an increase in overall quality, poor image quality and inefficient compression techniques perpetuated failure of the technology as a reliable tool. In the 1980s, digital telephony such as ISDN became possible and this set the tone for successful Video conferencing. ISDN operates at a 128 Kbit/sec bit rate with compressed video and audio. Dedicated systems began to appear and included expensive proprietary equipment and software and network infrastructure. By the 1990's Internet protocol video conferencing became possible. This led to an affordable high quality dedicated equipment solution that is not subject to surcharges associated with ISDN. Finally by the new millennium, a shift occurred to PC software and peripheral based solutions such as MSN messenger, Yahoo, and Skype. Different competing sources are offering easily accessible albeit low quality video conferencing (Wikipedia).

As the quality improves, the visual and acoustic environment of the meeting over the internet begins to acquire features of immediate joint reality. The interacting partners may find themselves – in the height of their long-distance discussions – in a situation of as-if that distance in space and time did not exist. The immediately responding partner on the video screen may become understood as the real one here-and-now (rather than there-and-now). Of course the technology has not (yet) overcome the olfactory and tactile boundaries to create a complete illusion of the closeness of the far-off friends. Only symbolically can these become introduced in the present time (Figure 1).

Learning from our Experience

The experience of using the videoconference framework for regular weekly teaching of a course (Valsiner & Pokrovsky, 2006) on cultural

Figure 1. Handshake at 8-hour distance between Worcester and Moscow.

psychology and sociology of urban living (in 2006 and in 2007) has provided us with first-hand experience of how such educational frameworks work, and where they can fail.

As to the latter, the experience of seminar by way of videoconference is not useful for traditional forms – such as lecturing. Lecturing over the web does not add anything to the delivery of ideas, but rather introduces artificial distance between the lecturer and the audience as the lecturing format-one-sided delivery of messages reduces the immediacy of the shared experience. Such sharing depends upon the immediacy of feedback (which the lecturing framework does not include, even if the lecturer is attentive to the signals from the audience). Lecturing entails a social power differential – the lecturer is put into a powerful role even if in live classroom. If the lecturing occurs over audio-visual channels – be it from the neighbouring room or half-a-world away – that distance is the format of politicians or preachers delivering their messages over the TV and the recipients become consumers of those messages in increasingly passive ways. Lecturing in the context of the videoconference comes close to the uni-directional communicative event; the communicator transfers some fixed messages to audiences whose role is to accept these, rather than become co-constructors of the message. Whether this happens in one lecture room, or is transmitted from one room to the next by a TV system, or over «videobridge» across oceans,

the structure of the activity is not changed. It is an equivalent to TV broadcast, not of two-way communication.

In contrast, the joint seminar-type discussion of the new projects in both locations worked very well precisely as that activity structure allowed the joint nature of action – across the time/distance barrier – to create a new communal setting where ordinary boundaries of time and space were violated. The seminar involving mutual joint actions takes place in a real-yet-unreal space. Discussing parallel research projects during the seminar (simultaneously) necessarily led to carrying them out non-synchronously: when the Worcester team exited from the joint seminar into broad daylight, their peers in Moscow faced the evening darkness. Here our experiences indicated that our joint seminars created a heterotopic context-somewhere which is both continuous with the local way of living in both places, yet nowhere because during the seminar both sides are psychologically exiting from the local settings.

Our experience fits with the predictions of the special role of telepresence (Walker & Sheppard, 1997) becoming crucial in technology-assisted human activities. The jointly shared virtual space of HERE-AND-NOW of the problem solving – which in actuality is not at all that (the time difference between Worcester and Moscow is 8 hours, and we were reminded of that at any time wishing the other side «good morning» while forgetting the reality of their impending evening outside of the video studio).

Yet the HERE-AND-NOW space created through telephony does not eliminate the sequential order of the joint problem solving. Despite the telephonic simultaneity our joint activities still involve the sequence of problem solving. Only these sequences at different locations become coordinated across time: what happens at this moment in the far-away location is immediately used here-and-now in the making of the next step in problem solving. The history of events in another location becomes input for constructing new history here-and-now.

General Conclusions

The essence of presence is the fulfilment of the visual experience. Though sitting in a familiar space, connecting with others through a

video bridge creates the illusion in one's mind of having been present in another place. As a comparison, text and audio can facilitate communication that disregards space and distance, yet at the same time does not fulfil the visual experience.

In our contemporary education at all levels – from kindergarten to university – substantial re-organization of the teaching and learning processes occur. The general move is that of leaving behind the traditional one-sided (teacher dominated) classroom practices and give the learners direct experience with problem-solving (Cole *et al*, 2006). Contemporary information technology affords transferring that direct experience from the ordinary reality to its luminal margin, the heterotopias of joining the learners (and teachers – who are also learners) in the simultaneous interaction across geographic and time differences. Technology here is not only a learning tool, but a unique organizer of such heterotopias, thus forcing the participants to open their minds (Marchessou, 1999, p. 117) to «the others» who otherwise cannot be integrated into joint activities at an instant.

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