

The Techies vs. the Non-techies: Today's Two Cultures

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Extended Abstract

During the postwar heyday of physics, C.P. Snow, wrote a short article entitled "*The Two Cultures*" (1954). There he pointed out the growing division between the 'science culture' and the "non-science (literary) culture." He observed that scientists basically had no understanding of - - nay, even any concern for -- literary culture, and vice versa. He pointed out the profound loss to society that was resulting from this dichotomy. Namely, creativity often arises in the interchange of ideas. Sadly, the two cultures were so polarized, even then, that Snow felt that little real dialogue took place between members of the two cultures.

Here it is, almost 40 years later. And, in what follows I invoke Snow's argument as my response to the charge given to this panel: Why hasn't AI had more of an impact on software engineering? And more particularly, why hasn't AI had more of an impact facilitating effective human-computer interaction in software engineering environments. My contribution is (1) to instantiate Snow's argument in updated terms, i.e., Techies vs. Non-techies, where AI folks are, surprise, the Techies, and (2) to, quite simply, draw the community's attention to a most provocative argument.

Briefly, a Snow-like argument goes like this. By and large, *AI is driven by its own questions*, e.g., what counts as an effective truth maintenance system? how can we formally characterize various representational schemes? etc. In contrast, interfaces by definition involve issues (e.g., humans and their idiosyncrasies) *external* to the computing mechanism(s). Sensitivity to user needs is just not a strong suit of AI (or, computer science in general). In fact, it takes individuals that can bring together the two cultures to make significant inroads in the interface problem. And there are precious few of those androgynous types, who feel comfortable with "real" psychology (not the academic brands of cognitive, social, perceptual, etc.), computer science, and AI.

In the "*Mythical-Man Month*," Fred Brooks Jr. points out that "programming is representation." Since AI is all about representation, one would think that we would have built for ourselves, at least, wonderfully usable software development tools. In the old days we did have Interlisp.

But today we are just recovering from Lisp Machine Lisp - - and, moving with great speed towards a standardized Lisp that is meant to be a common denominator. Actions speak louder than words: we still don't even have modern interfaces for our own environments. How many still use OPS5 and think "surely there must be a better way." (Buy one of the rule-based shells available on *personal* computers.)

There *is* progress: thank goodness we no longer hold up "automatic programming" as the objective of our systems. (Though, if pushed to the wall, my guess is that AI'ers, optimists of the first water, still believe that it's a reachable goal.) But, AI still has its healthy dose of *hubris* in using the term "intelligent interfaces." That epithet will (hopefully sooner than later) go the way of "user-friendly," a comparable term.

What then is the prognosis? On the one hand, given that we have experienced only increased polarization over the last 40 years, one has little reason to be sanguine for the future. On the other hand, external forces (e.g., funding) are reshaping the field by emphasizing more applied work. In effect, AI will need to educate itself about these "human concerns" in order to survive. The alternative? Technology will move blithely ahead. For example, a recently initiated *customized* newspaper service uses a 40 year old, weighted, keyword search algorithm to find articles that meet a user's profile. Forget all that fancy user modelling.

In sum, while the future is uncertain, there is a definite movement within the AI community to become more engaged in the design of "effective" human-computer interaction. In stepping into the morass of real live users, AI will benefit at least as much as those users!