

**Invited Commentary on the paper
Architects or builders; scaffolding or duck tape? by Russell Beale**

Builders with a conscience

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ABSTRACT

In this commentary, we elaborate on the necessity to choose among a wider, higher-level conceptual approach and a more concrete, skills oriented one in HCI education, as a result of HCI enlarging scope and curriculum pressures. First, the role and usefulness of more abstract topics are discussed, and second, some reflections on how to cover them in HCI education are presented.

Categories and Subject Descriptors

K.3.2 [Computer and Information Science Education]: Information systems education

General Terms

Design, Human Factors, Theory.

Keywords

Design Education, Philosophy of Design

1. ABSTRACT OR PRACTICAL?

As I was reading Russell Beale's paper [2] I could not resist recalling some now distant memories of my days as a Philosophy student, not surprisingly the same that come to me each year when I begin my course of Design Methodology and "Philosophy of Design" for undergraduate Media Design students [7].

Philosophy classes at Milano state university were really traditional at that time (and might have not changed that much): full professors read classic texts standing calmly on the chair, literally from the height of their scientific competence and official status; interactions with lesson attendants were extremely rare, if any at all. Focus was only on the conceptual discourse – in the common sense of the term, everything was absolutely abstract. But abstraction was not undervalued over there. I distinctly remind one of the most respected Theoretical Philosophy professors takes on a famed anecdote from Plato's *Theaetetus*, in which the proto-philosopher Thales of Miletus is mocked by a servant girl because he falls into a well as he gazes into the sky.

“‘What do you mean, Socrates?’

I will illustrate my meaning by the jest of the witty maid-servant, who saw Thales tumbling into a well, and said of him, that he was so eager to know what was going on in heaven, that he could not see what was before his feet. This is applicable to all philosophers. The philosopher is unacquainted with the world [...] For he is always searching into the essence of man, and enquiring what such a nature ought to do or suffer different from any other” [12].

Even though my undergraduate students usually do not have similar reasons to mock me, as I strive not to follow the absent-minded philosophical stereotype, I well recognize their initial perplexities when I start to engage them with Descartes readings and introduce the basic idea of epistemology. So, this is the moment in which my old classes come back. As we were told then, Thales might have fallen down in the well, but the servant did not know that she was a servant – this is the nature of philosophical attitude and the awareness that it feeds, about one's own condition and place in the world (wrong or right as it may be). Since my course is not a pure philosophy class, I stop before going back to Plato's argument (or to the essence of philosophical questioning as in the original case, in which the professor was actually picking up Martin Heidegger comments on Plato, adding some of his own). Still, the point of not refusing abstraction as something irrelevant in principle sounds usually quite clear to the students; it strikes a curiously sensitive chord. Thinking beyond conventional wisdom might feel abstract initially but can turn into a valuable option.

Hence, I would suggest the opportunity to elaborate a bit on Russell Beale's paper opposition between high-level, abstract concepts and low-level practical approaches in HCI education, although I share much of his diagnosis and think that the proposed suggestions are very useful and sensible. I would just complement them with some more hints and I would recommend to take very seriously some abstract and theoretical discussions anyhow – at least for practical reasons.

2. BROADENING VISIONS AND UNPLEASANT REALITIES

As Russell Beale highlights in his premises, HCI educators have to cope with the challenge of following HCI expanding trajectory, whose scope and articulation keep growing since when HCI has to address all new kinds of technologies springing out from the world of mobile systems and

ubiquitous computing. To put it in Bill Moggridge's words, design, and especially designing interactions, "is getting so complicated" [9], with ever increasingly complex frames of physical artifacts, electronics, intangible services and social dynamics [10].

On the other hand, Russell Beale appropriately describes the stark contrast between these broad perspectives and the narrow, squeezed room left for HCI specialist courses in computer science curriculum. This is not by chance: both students and learning institutions seem to converge on a similar pressure to get down to the practical, operational skills, considered more urgent in the face of future professional needs and, more immediately, of higher importance on the educational market. Although I can not provide strong, documented evidence in support, my personal experience is that similar trends do not occur only in the computer science education environment; design schools and fine arts academies, in which the growing importance of digital technologies have made HCI and interaction design very relevant topics, have similar difficulties in accommodating the more theoretical courses, which are often compressed or restrained under by the concentration on technical skills in creative production and tools apprenticeship.

If this is a major tendency (likely it is), HCI educators had better to find pragmatic ways to deal with it. This is where I find the teaching strategies and methods suggested by Russell Beale as most useful. Still, in my opinion it is possible to reserve some room for more theoretical, abstract, high-level content, provided that it is conveyed in a form that it is suitable with the described constraints.

3. SUGGESTIONS AND IDEAS

Generally speaking, my preliminary assumption is that we should take care in trusting too much a separation among the theoretical side of a discipline and its practical applications; the separation itself might be the result of a contingent unbalance in power that favor concentration on skills. In other words, it is not obvious to find a sound theoretical and pedagogical foundation for such a neat and general distinction. Furthermore, we agreed on the fact that some general themes concerning HCI and general design are valuable and should be part of the curriculum. Let us then try to find a way to do that by adding a couple of suggestions to the ones put together by Russell Beale.

3.1 A few useful concepts

Multidisciplinarity is very much in HCI roots and in its current evolution in the broader context of interaction design [1]. A wide range of elementary concepts is an essential element of its discourse (and some of them are common in everyday language too): experience, participation, activity, emotion, to name a few. Each of them brings a wealth of perspectives in various scientific domains, not to mention the centuries-old philosophical tradition. Stimulate the students' perception of this complexity is not only important from the cultural point of view. Professionally, most of them will have to rely on operational frameworks and references that will assume some specific positions about those concepts in any case. Although we should not expect that being focused on these topics would be everyone's job, having a minimal critical understanding of the issue is a requirement for being able to orientate oneself as a mature and cultivated practitioner.

Of course, given the curriculum limits, an educator has to be to very selective; but, as pointed by Russell Beale, going deep in only one or two themes could work better than providing a shallow overview. This is actually what I did with my design methodology class, in which I opted for an investigation of the method concept. Naturally, the topic of choice can be defined according to the educational context: is HCI part of a computer science, or arts and design, or media and communication studies curriculum?

3.2 Experience abstractions

The difficulty of getting students attention with theoretically dense, conceptual topics is not negligible indeed (again, I am afraid that Russell Beale's note on students "less commitment to [computing] as an intellectual pursuit" is valid for other domains as well). My own teaching experience suggests that one strategy to address it is to go straight to some short but classic texts, right from the very original sources, providing pointers to other resources (online or at the library) for more systematic presentations. The creative and intellectual strength of so many crucial ideas is often difficult to grasp from today syntheses (such as the ones typical of university books). Adding historical background and biographical details about an author is as much as important as explaining her ideas. In my case, students are quite intrigued by reading e.g. Descartes "too human" account of his own wandering across kingdoms and battlefields, his intimate needs of truth and knowledge, his quest of a method; should one just go to the essence of "Cartesian ideas", they would likely resound just like vague abstractions, in the more conventional sense of the expression. Topics taken from the HCI or the interaction design domain could be introduced in the same way, as in the excellent examples of the avalanche beacons and other seminal research and design experiences discussed in [4].

One more way to experience abstractions is literally to play with the concepts in class exercises, with a constructivist approach [11]. Role-playing and design games [3] schemes can offer some help here. The interpersonal, collaborative exchanges typical of interactive systems are e.g. played out by having competing teams building Lego towers according to some specified rules, in which notions such as process, phases and group management are experimented in practice [7].

3.3 Processes as maps

I share very much Russell Beale's recommendation on the opportunity to provide the students "with a design process they can use", as well as the utility to teach a user-centered design process and try to apply it in a design project. One more thing that could benefit the understanding of both aspects is to introduce before the idea of the design process as such. Especially for students engaged in studies other than computer science (e.g. arts and design or communication), we should not take for granted a proper understanding of the idea, and its main articulation (time, phases, transformation, and so on). Moreover, going directly to one specific design process could generate too much rigidity in the way students apply whatever the process recommends. Instead, some foundational and more neutral teaching of essential process concepts could help them in using specific design processes as maps to orientate themselves, being more aware of the existence of these kind of tools and representations. Namely, this is one of the topics for which I consider some of the discussions in J.C. Jones *Design Methods* [8] still extremely useful.

3.4 Explain values

The interactive systems that learners will design as future HCI professionals are not going to be placed in a void. They will be part of the society at large, they will have to work in situated contexts, they will be used by people and organizations motivated by different aims, and shaped by various values and orientations (see also aptly named “Worth-based design” perspective) [5]; The pervasivity of information technology is also pushing ethical issues on the foreground, as evident in recent dedicated studies, e.g. in [6]. The impact on HCI practice seems quite high. How to design according to a user-centered process if there is not awareness of these dimensions? Hence, how to leave them out of HCI education? Once again, this is not a cultural ambition as such, but a pragmatic need. Make values explicit and taking them into account might be an essential aspect of the design process.

4. CONCLUDING REMARKS

Coming back to Russell Beale’s question to which HCI educators should pay attention, if it is better to educate architects or builders, “people who want to get it all right” or “who want to cobble something that works”, I fear that at the moment there is no way to escape the wave that favours the builders direction, but there could be still a bit of room to resist it and provide learners with some higher level, conceptual understanding. We might not be ready (or not more able) to educate “architects of the future”, but we could try to train builders with a conscience, professionals that despite being focused on “getting the job done”, instead of having all the time to redefine or invent, would be capable to have some critical, minimal awareness of their role, also in social and ethical terms, and an initial perception of reality inherent complexities – to some extent, they will be anyhow reflected in design and development engagements.

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