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Abstract

In this paper, we present Schön's approach to design, as we have described it in *The Cognitive Artifacts of Designing* (2006). Schön is (if one excepts the design theorist Rittel) the first author after Simon to introduce a new approach to cognitive design theory. Schön formulated his view on design in terms of "reflective activity" and related notions, especially "reflective practice", "reflection-in-action", and "knowing-in-action". We interpret the activities underlying these notions as forms of what situativity authors have qualified as "situated action" and "situated cognition". In "reflection-in-action", "doing and thinking are complementary. Doing extends thinking in the tests, moves, and probes of experimental action, and reflection feeds on doing and its results. Each feeds the other, and each sets boundaries for the other" (Schön, 1983, p. 280). Reflection-in-action is the reflective form of knowing-in-action: It is Schön's assumption that "competent practitioners usually know more than they can say" (Schön, 1983, p. 8): this illustrates the classical, generally applicable difference between "knowing how" and "knowing that". For Schön, design was one of a series of activities in domains that involve reflective practice: City planning, engineering, management, and law, but also education, psychotherapy, and medicine. As he says it, "the designer *constructs* the design world within which he/she sets the dimensions of his/her problem space, and invents the moves by which he/she attempts to find solutions." (Schön, 1992, p. 11)

Schön: Design as a Reflective Practice

Except for Rittel, Schön is, as far as we know, the first author after Simon to introduce a new approach to cognitive design theory. Another author of early SIT-inspired[1] research is Bucciarelli, who has focused, in particular, on collaborative design analysed from a social perspective.

Schön formulated his view on design in terms of "reflective activity" and related notions, especially "reflective practice," "reflection-in-action," and "knowing-in-action." We interpret the activities underlying these notions as forms of what situativity authors have qualified as "situated action" and "situated cognition" (Greeno & Moore, 1993).

"Reflective activity" may be defined as the "activity by which [people] take work itself as an object of reflection" (Falzon et al., 1997, quoted in Mollo & Falzon, 2004, p. 532). Schön (1983) writes:

When a practitioner reflects in and on his practice, the possible objects of his reflection are as varied as the kinds of phenomena before him and the systems of knowing-in-practice that he brings to them. He may reflect on the tacit norms and appreciations that underlie a judgment, or on the strategies and theories implicit in a pattern of behaviour. He may reflect on the feeling for a situation that has led him to adopt a particular course of action, on the way in which he has framed the problem he is trying to solve, or on the role he has constructed for himself within a larger institutional context. (1983, p. 62)

In "reflection-in-action," "doing and thinking are complementary. Doing extends thinking in the tests, moves, and probes of experimental action, and reflection feeds on doing and its results. Each feeds the other, and each sets boundaries for the other" (Schön, 1983, p. 280).

In a presentation of "Donald Alan Schön (1930–1997)" in The Encyclopedia of Informal Education, Smith (2001) writes that, even if Schön was "trained as a philosopher,… it was his concern with the development of reflective practice and learning systems within organizations and communities for

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[1] "SIT" is the abbreviation of "situativity," an approach to action, not only cognitive action (Greeno & Moore, 1993), which Schön adopted in his analysis of design in terms of "reflective pratice".

which he is remembered." In design circles, one generally refers to Schön as the author who, through his proposal of the reflective-practice concept, offered an alternative to the SIP approach defended by Simon in his *Sciences of the Artificial* (Simon, 1969/1996).

Schön's research and thoughts on design thus originate from an educational perspective. Schön was an educator. He was Ford Professor Emeritus on Urban Studies and Education, and Senior Lecturer in the Departments of Urban Studies and Planning, and Architecture, at the Massachusetts Institute of Technology, from the early 1970s until his death in 1997 (Pakman, 2000, p. 5). Schön's enterprise is concerned with the way in which "professionals think in action" as "reflective practitioners" (Schön, 1983), and with "educating" this reflective practitioner (Schön, 1987a, 1987b).

Relative to the contrast between the "reflection-in-action" that underlies reflective practice, and "school knowledge" (1987a), Schön does not see himself "as saying anything really new at all." He is drawing on "a tradition of reform and criticism which begins with Rousseau and goes on to Pestilotsy and Tolstoy and Dewey and then, as we approach more contemporary times, Alfred Schultz and Lev Vygotsky and Kurt Lewin, Piaget, Wittgenstein and David Hawkins today" (1987a). It is Dewey who introduced the concept of "reflective conversation with the situation" that is the locus of reflection-in-action (see the title of Schön's famous 1992 paper "Designing as reflective conversation with the materials of a design situation").

According to Schön (1987a), reflection-in-action is the "kind of artistry that good teachers in their everyday work often display," whereas school knowledge refers to a "molecular" idea of knowledge, to "the view that what we know is a product," and that "the more general and the more theoretical the knowledge, the higher it is." From the school-knowledge perspective, "it is the business of kids to get it, and of the teachers to see that they get it."

Reflection-in-action is the reflective form of knowing-in-action. It is Schön's assumption at the start of his famous 1983 book, *The Reflective Practitioner*, that "competent practitioners usually know more than they can say. They exhibit a kind of knowing in practice, most of which is tacit.… Indeed, practitioners themselves often reveal a capacity for reflection on their intuitive knowing in the midst of action and sometimes use this capacity to cope with the unique, uncertain, and conflicted situations of practice" (1983, pp. 8-9).

In order to show the nature of knowing-in-action, Schön (1987a) uses the example of what happens "if you are riding a bicycle, and you begin to fall to the left." People who *know* riding a bicycle will do the right thing when *in situ*, but will often give the wrong answer when asked certain questions, in a classroom or anywhere else, outside of a bike-riding situation. An example of such a question out of context, might be: "If you are riding a bicycle, and you begin to fall to the left, then in order not to fall you must turn your wheel to the ___?" This contrast between "[doing] the right thing when *in situ*" and being unable to answer correctly when not, requires an explanation:

"This capacity to do the right thing.… exhibiting the more that we know in what we do by the way in which we do it, is what we mean by *knowing-in-action*. And this capacity to respond to surprise through improvisation on the spot is what we mean by *reflection-in-action*. When a teacher turns her attention to giving kids reason to listening what they say, then teaching itself becomes a form of reflection-in action, and we think this formulation helps to describe what it is that constitutes teaching." (Schön, 1992, p. 11).

Even if not taken from a professional situation, this example illustrates the classical, generally applicable difference between "knowing how" and "knowing that" (Ryle, 1949/1973, pp. 28-40 and passim).

For Schön, design was one of a series of activities in domains that involve reflective practice: City planning, engineering, management, and law, but also education, psychotherapy, and medicine. Architectural design was the first professional domain studied by Schön in order to develop his epistemology of professional practice based on the concepts of reflection-in-action and knowledge-

in-action. In his 1983 book, Schön has "collected a sample of vignettes of practice, concentrating on episodes in which a senior practitioner tries to help a junior one learn to do something.… The heart of this study is an analysis of the distinctive structure of reflection-in-action" (pp. 8–9). Indeed, the characteristics of design that Schön presented as general were displayed in the communicative context that he used to collect his observations, that is, educational situations. Focusing on the education of reflective practitioners in the domain of design, Schön's studies examined design students learning with experienced designers (Schön, 1992; Schön & Wiggins, 1992). These studies have been conducted in "reflective practicums such as the design studio in architecture" (Schön, 1987a).

Adopting ethnographically-inspired or workplace-oriented perspectives (Nilsson, 2005) in his analysis of particular educational design projects, Schön (1983) discusses specific situations in detail, in order to reveal the central role of reflection-in-action in professionals' practice. In their reflective conversations with design situations, designers "frame" and "reframe" problems. In such conversations, "the practitioner's effort to solve the reframed problem yields new discoveries which call for new reflection-in-action. The process spirals through stages of appreciation, action, and re-appreciation. The unique and uncertain situation comes to be understood through the attempt to change it." "Furthermore, the practitioners' moves also produce unintended changes which give the situation new meanings. The situation talks back, the practitioner listens, and as he appreciates what he hears, he reframes the situation once again" (Schön, 1983, p. 131-132).

In one of his first papers handling specifically with design (Schön, 1988), Schön announces that, "in this paper, [he] will treat designing not primarily as a form of 'problem solving,' 'information processing,' or 'search'" (p. 182). Problem solving is generally considered as handling problems as "given," whereas the process of "problem setting" is neglected. Starting with problems as "given," matters of "choice or decision are solved through the selection, from available means, of the one best suited to established ends. But with this emphasis on problem solving, we ignore problem setting, the process by which we define the decision to be made, the ends to be achieved, and the means that may be chosen. In real-world practice, problems do not present themselves to the practitioner as givens. They must be constructed from the materials of problematic situations which are puzzling, troubling, and uncertain" (Schön, 1983, pp. 39-40). "Problem setting is a process in which, interactively, we *name* the things to which we will attend and *frame* the context in which we will attend to them" (id., p. 40, the emphasis is ours).

Naming, framing, moving, and evaluating are central in Schön's view of design. As we see later [that is, in *The Cognitive Artifacts of Designing*], one of the advances of current SIT-inspired research is the operationalisation of these and other notions that are central in reflective practice.

For Schön, his observations and his approach to these observations "should be contrasted with the familiar image of designing as 'search within a problem space'.… The designer *constructs* the design world within which he/she sets the dimensions of his/her problem space, and invents the moves by which he/she attempts to find solutions" (Schön, 1992, p. 11).

An example of problem setting in architectural design is the following. Problem setting occurs when architects see the project on which they work in a new way: For example, they see a T-form figure as two L-form figures back to back.

Another design characteristic, introduced through an example from architectural design, is the "seeing-moving-seeing" sequence, which is applied iteratively on "design snippets" (Schön & Wiggins, 1992).[2] It consists of action sequences such as observing a drawing, transforming it, and, observing the result, discover "certain unintended consequences" of the transformation move (p. 139). Architects may indeed have a certain intention in transforming a drawing, but they are generally unaware of all possible consequences of their actions. Their intention is liable to evolve in their conversation with the drawing. Referring to Simon, Schön notices that it is because of our "limited awareness"

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[2] Goldschmidt (1991) sharpens this idea, distinguishing seeing-as and seeing-that, in a "dialectics of sketching."

and our "limited ability to manage complexity" that designing has this "conversational structure of seeing-moving-seeing" (Schön & Wiggins, 1992, p. 143). Schön and Wiggins refer several times to *Sciences of the Artificial*, in which Simon introduced his idea of human limited information-processing capacity into the theory of designing. They emphasise, for example, that people, therefore, "cannot, in advance of making a particular move, consider all the consequences and qualities [they] may eventually consider relevant to its evaluation" (Schön & Wiggins, 1992, p. 143).

Schön thus notices "the remarkable ability of humans to recognize more in the consequences of their moves than they have expected or described ahead of time" (Schön, 1992, p. 7). As pointed out long ago by the urban designer Christopher Alexander, who is also quoted by Schön, "our ability to recognize qualities of a spatial configuration does not depend on our being able to give a symbolic description of the rules on the basis of which we recognize them" (Schön, 1992, p. 137). Analogously, and as noticed by Alexander as well, even if designers are able to make, tacitly, "qualitative judgments," they are not necessarily able to state, that is, to make explicit, the criteria on which they base them (Schön, 1992, p. 138). This observation once again refers to the knowing-in-action as distinguished from reflection-in-action.

References

Greeno, J. G., & Moore, J. L. (1993). Situativity and symbols: Response to Vera and Simon. *Cognitive Science*, *17*(1), 49–60.

Goldschmidt, G. (1991). The dialectics of sketching. *Creativity Research Journal, 4*(2), 123-143.

Mollo, V., & Falzon, P. (2004). Auto- and allo-confrontation as tools for reflective activities. *Applied Ergonomics*, *35*(6), 531–540.

Nilsson, M. (2005, August). *Workplace studies revisited*. Paper presented at IRIS 28, the 28th Information systems research seminar in Scandinavia, Kristiansand, Norway. Retrieved June 29, 2011, from http://en.scientificcommons.org/43453220

Pakman, M. (2000). Thematic foreword: Reflective practices: The legacy of Donald Schön. *Cybernetics and Human Knowing, 7*(2-3), 5-8.

Ryle, G. (1949/1973). *The concept of mind*. Harmondsworth, England: Penguin (First published by Hutchinson, 1949).

Schön, D. A. (1983). *The reflective practitioner: How professionals think in action*. New York: Basic Books. (Reprinted in 1995).

Schön, D. A. (1987a). Educating the reflective practicioner. Washington, DC.: American Educational Research Association.

Schön, D. A. (1987b). *Educating the reflective practicioner*. San Francisco: Jossey-Bass.

Schön, D. A. (1988). Designing: Rules, types and worlds. *Design Studies, 9*(3), 181-190.

Schön, D. A. (1992). Designing as reflective conversation with the materials of a design situation. *Knowledge-Based Systems, 5*(1), 3-14.

Schön, D. A., & Wiggins, G. (1992). Kinds of seeing and their functions in designing. *Design Studies, 13*(2), 135-156.

Simon, H. A. (1969/1996). *The sciences of the artificial (3rd, rev. ed. 1996; Orig. ed. 1969; 2nd, rev. ed. 1981)* (3 ed.). Cambridge, MA: MIT Press.

Smith, M. K. (2001, July). *Donald schon (schön): Learning, reflection and change*. Retrieved August 23, 2001, from http://www.infed.org/thinkers/et-schon.htm