Anarchistic dialogues in autopoietic design systems

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Introduction

I will begin this paper with an anarchistic dialogue example: *there is no such thing as a designer*. Educational anarchism is designed to take away your certainty that there is such a creature, while initiating a conversation around whether there really is or should be such creatures. Social communication means voluntarily giving up your individual rights to absolute certainty, and declaring your willingness to accommodate the other. In that sense there can be no such thing as an individual personality sans any formative social background, or a designer divorced from that which is being designed for: the contextual social world.

Two issues are immediately apparent: first, in communicating with the outside-self we have to use language, but in design terms what else is involved? Secondly, the whole of the social structure could be involved in the design process to some degree, depending on each contextual situation. This creates a problem: how do we discuss the very idea of design without, at the same time and in some commensurate way, discussing the use of language (or at least being aware of how language can function), and discussing the social system within which that language structure is being used. Therefore, in order to explore new ways of interrogating the idea of design, in this paper I will be looking at some of the various investigative tools to be found in a study of second-order cybernetics and systems thinking. These methodologies are primarily concerned with the inner workings of our social system, as humanly designed activity systems, and as such have much to contribute to the understanding of design as human constructs.

To return to the first issue, I will be looking at the notion of *dialogue*, since narrative, or the telling of stories, is a vital part of social structuration dialogues, and narrative as a concept forms the basis for communication between people in a social system, between the designer and the social environment. It all begins with conversation, but of an anarchistically minded type.

Anarchism is as anarchism does

Deconstructing the social system means breaking free of old habits of thought, and seriously questioning the basis for knowledge, those paradigmatic models that use exemplars (tradition) and normative reasoning to shape the world (Bermudez 1996). According to Braddick and Casey (1996: 237) Action Learning promotes the “iconoclastic smashing of frames by encouraging meta-questions … these … have the power to jump the problem” from one level of reasoning to a next higher and more insightful level. What these writers have in common with Derrida’s notion of deconstruction is this breaking of the frame, or stepping outside the strict social frame of reference, a communication / dialogue with both your own and other peoples’ social constructs. This process can only be initiated via a *designerly* adaptation of anarchism, not to destroy but to use differently and better by using least, and a refusal to (exclusively) accept constructed and institutionalised truths and authority as either self-evident or absolute.

Design anarchists may also use the conversational tools of social psychology, because these do not allow a conversation-as-inquiry to have set boundaries or frames; these tools are closely connected to the culture of life and infused with the ideas of change-oriented practices. Social psychology in this optimistic constructionist frame favours a provocative dialogue (Gergen 1996), and the type of critical thinking coupled to this dialogue has to be based on a "reflective scepticism - the judicious suspension of assent" (Smith 1992: 103-104) while also displaying a willingness to listen to alternative explanations through a position of critically-neutral receptivity, because of a suspension of own judgment (Coetzee 1983: 78). A provocative dialogue cannot be other than anarchistic at heart.

Search for dialogue

David Bohm's introduces his notion of dialogue with the injunction to suspend all thoughts and judgments, an attitude necessary for knowledge exploration, a process that can take place only during listening – to others and to oneself. Dialogue is not a discussion, since the latter points to a breaking up of things, with an implicit, goal-seeking agenda that *hammers* out agreement. Dialogue is not designed to expect anything, least of all for a predetermined goal to be reached, nor can it try deliberately to change the behaviour of the participants, although change can and does occur – "because observed thought behaves differently from unobserved thought." In dialogue no boundaries are set that can stop exploration, instead, dialogue - from *dia* (through) and *logos* (the meaning of the word) - stands for an image of a river of meaning flowing around and through people (Bohm, Factor and Garrett 1991); this is a description of social structuration that engenders the construction of meaning. Using the concept of dialogue, designers can

> explore the individual and collective presuppositions, ideas, beliefs, and feelings that subtly control their interactions … It can reveal the often puzzling patterns of incoherence that lead the group to avoid certain issues or, on the other hand, to insist, against all reason, on standing and defending opinions about particular issues … The problem with thought is that the kind of attention required to notice [these patterns of] incoherence seems seldom to be available …What is needed is a means by which we can slow down the process of thought in order to be able to observe it while it is actually occurring. (Bohm, Factor and Garrett 1991)

So far we have an anarchistic breaching of the frames of meaning that can be achieved via a process of flowing dialogue between partners in a conversation. No boundaries are set for both viewpoints, which is fine for the exploration of knowledge, but in social structuration boundaries *are* set as a matter of course, and to enable the process of dialogue to slow down the process of thought enough for observation to take place, some form of closure, or establishing boundaries, seems to be implied, which appears to create a problem of contradiction. However, both the concepts of deconstructive anarchism and of dialogue can provide a way out of this complex situation, and that is through the skill of systems thinking – not moving in two-dimensional serial thought, but in three-dimensional parallel thought. Computational thinking essentially makes use of serial analytical processing (two-dimensional cause and effect), whereas human thinking should largely make use of parallel creative processing, connectionist, holistic and conceptually three-dimensional. Our restricted perceptual knowledge of the three-dimensional (real) world should interact with the abstracted conceptual world of ideas, and become a wider socially-inspired reflection (Pribram 1977; Martin 1995; Irwin 2003) on our designed image schemas, or 'systemic models' that our mental three-dimensional parallel thought is based on, since the creation of meaning will always be parallel, instantaneous and continuous in principle. In this sense

'three-dimensional parallel thought' is based on perceptual spatial reality, but extrapolated towards connotative and imaginative reasoning. Alec Robertson calls this 4D design, "dynamic form resulting from the design of the behaviour of artefacts and people in relation to each other and their environment" (Robertson 1997).

Designers are not really looking for physical changes to occur, for these can be achieved without much effort. The difficult changes lie in our bounded ways of thought, and yet, these *can* be changed if we could observe (follow, through a well-constructed design dialogue) the processes of thought in three (or more, conceptual) dimensions. Design thinking and systems thinking have this in common, both deal with all the human senses including our experience of and in three dimensional (real) space, but also including our experience of the 'three-dimensional virtual space' of becoming (emergence), and both use the communicative facility of story-telling to transfer knowledge from one person to the next (below**)**. Both design and systems thinking are based on social reality, and that reality is manufactured contextually, proving that boundaries can be permeable when required, according to the environment the system finds itself in. But what exactly is systems thinking?

Systems of our lives

Cybernetics and systems theory both began as transdisciplinary studies to investigate the complex behaviour of phenomena and to find ways of regulating their organization. Cybernetics is today divided into first-order and second-order cybernetics, likewise systems theory is divided into Hard Systems Methodology and Soft Systems Methodology (Heylighen and Joslyn 1999a; Warren and Ragsdell 2002: 100), keeping in mind that *methodology* here means not a single technique to guarantee results, but rather indicates the stages of a learning system (Checkland 1981: 18-19). The difference between the hard and soft divisions is that the first (hard) order is now seen as a hard sciences and more deterministic approach to systems thinking that concentrates on control and prediction, while the second (soft) order is a social sciences approach that deals with analyses of problem situations in society - the first is a study of observed systems while the second is a study of observing systems, of living systems including the observer of that system (Geyer 2000). For the sake of this argument I will refer to both second-order cybernetics and soft systems methodology as simply *systems thinking*, since the aims and methods of both are close enough for this purpose (Heylighen et al 1999b). Systems thinking, then, "is a conceptual framework, a body of knowledge and tools … to make the full patterns [of a complex life] clearer, and to help us see how to change them effectively" (Senge 1990: 7). It follows that systems thinking is a "methodology for tackling real-world problems [and] for exploring social reality … the latter is not a 'given' but is a process in which an ever-changing social world is continuously recreated by its members" (Checkland 1981: 20).

Systems thinking can help to change the patterns of social complexity (including Bohm's patterns of incoherence, above, and general misunderstanding), and thus peoples' inability to change can be altered, because as the process of dialogue makes clear, a study of observing systems is also a study of the observer, and observed thought behaves differently from unobserved thought. Vickers' work on the theory of appreciative systems makes it clear that when looking at what goes on in real life we should, in observing thought, be looking at the construction and adaptation of human relationships, a cyclical process "which both leads to our taking regulatory action and modifies the norms or standards [of social structuration], so that future experiences will be evaluated differently" (Checkland 1981: 261-263). This describes a learning process that is at the heart of systems thinking and of dialogue as a design conversation –this design conversation-as-dialogue-as-relationship with the world can

produce knowledge of that world through systems thinking, because design is an autopoietic system.

Life is autopoietic

Life in the form of human beings is autopoietic, which means that autoproduction takes place: we reproduce ourselves as ongoing and constantly evolving products – we are at the same time the product and the producer (Dimitrov and Ebsary 1997; Mariotti 1996). "Maturana and Varela introduced the idea of autopoiesis as a form of system organisation where the system as a whole produces and replaces its own components in an ongoing structural coupling with the surrounding environment" (Dimitrov 1998), a conscious interaction with the environment, while the changes sought by a living system are only possible in its internal structure. This makes an autopoietic system both open and closed at the same time, with a unique boundary that both suspends and renews the system's relationship with its environment (Dimitrov 1998; Maula 2000). Human systems are fluid structures requiring constant maintenance. Restructuring brings innovation and renewal, and a system finds its new configuration, not specifically in a new property of any one constituent part, but in the new perspective gained by the system as a whole if it allows this new property (usually a familiar and always-been-there property transformed) to influence the direction the system takes in its development towards the as-yet-unknown (Van der Merwe 2000: 13).

A design dialogue meets these conditions of autopoiesis, and is indeed its own producer and product in a process that is simultaneously open and closed. Any self-organizing system cannot be influenced by an outside force (making it inherently *anarchistic*), therefore influence is only possible as an internal restructuring (Dimitrov 1998), just as the participants in a dialogue can influence each other but cannot be influenced by a force 'external' to the structure of the conversation. Luhmann's interpretation of an autopoietic system is one that "constructs itself upon a foundation that is entirely *not there*" (Metcalf 1999), and the elements comprising the design conversation, the people in dialogue, construct not only their own 'environments' but mutually construct their social environment based entirely on what is in fact *not there*. Social reality and meaning is constructed inside the system, so it only influences itself, in that respect, and change takes place as an internal restructuring. Yet this system is 'open' to the world in the sense that the 'unique boundary' of an autopoietic system, separating it from the environment through allowing only internal influence but also reuniting the system to an 'external environment,' can consist of the roles and functions performed by people (designers) who form not an isolating but "a connecting and absorbing surface" between the system and its environment (Maula 2000). In this way we can enable the process of dialogue to 'slow down the process of thought' (above) enough for observation to take place, by forming this unique 'autopoietic boundary.'

Designed life as narrative

The people-boundary of a design system in dialogue, as a connecting and absorbing surface, cannot afford to be influenced (as far as restructuring is concerned) from outside the system, since a conversation that is goal-driven "suffers from directional overdose," and the participants encounter fixed agendas and perspectives that insist on agreement and attempts to control the discussion (De Weerdt 1999: 66). In dialogue, says De Weerdt, this need for direction, in its absence, is offset by creating a 'space' for emergence, and this notion of space is a deconstructionist view, one that anarchistically breaks the frame of accepted direction for the sake of finding an internal direction that does not yet exist, that is not entirely there, yet. It is in this sense that Virtual Systems Methodology (VSM) intends discovering the virtual connections that are brought into being by the productions of human

activity systems. “Virtual logic is not logic … It is the pivot that allows us to move from one world of ideas to another. The meaning of what is going to emerge is a virtual meaning” (Dimitrov 1998). Again, this is a description of the processes of dialogue, since social meaning is virtual meaning and based on what is entirely *not there*, as Luhmann (above) stated. VSM, in dealing with autopoietic systems, creates a limitless free virtual space for the “self-organizing capacity of complex dynamics to reveal the characteristic signs of its nature” (Dimitrov 1998). This space that both Dimitrov and De Weerdt refer to is the space of possibilities wherein the structures of narrative have their becoming, and it is the very space of personal constructs.

De Weerdt’s space for emergence and Dimitrov’s virtual space are akin to Winnicot’s notion of potential space (below) *and* Kelly’s psychological space (below) – these all describe how the connecting and absorbing surface of the autopoietic boundary is formed, and they all use the intensional, virtual logic of the story structure of narrative. Systems methodological tools for investigating design as a human activity system are dependent not only on the larger scale social structure, but more importantly also on the smaller scale single personal construct that every person creates. “Each man erects for himself a representational model of the world which allows him to make some sense out of it and which enables him to chart a course of behaviour in relation to it” (Bannister and Mair 1968: 6). This virtual logic explanation of Kelly’s personal construct model is entirely *not there*, since it corresponds to Winnicot’s potential space that is “neither inside the individual nor outside in the world of shared reality [but is] the location of cultural experience itself” (Fuller 1988: 202), or the communicative facility of narrative story-telling. It is into these several worlds of ideas that design dialogues have to plunge and become a facilitator for the emergence of meaning, and systems thinking as a circular feedback process seems the ideal methodology to utilise, especially since the word cybernetic is Greek for *steersman*, and better yet, the same Greek word was transformed into the Latin word for *governor* (Beer 2002). A systems approach can free the imagination, while acting as a governor or regulator on that same imagination (Smith 1992: 63) to achieve the right balance between analysis and creativity, between the old and the emergent new.

Conclusion

This paper investigated the correlations between design and social systems, using some of the qualitative tools of systems thinking. It has been accepted that the processes of design practice and research are embedded in the matrix of social structuration, and furthermore that the human variables that influence the design process can be questioned using the narrative aspects of dialogue. The main findings are that a design conversation must be inherently anarchistic to be creative, that design systems do indeed function much like autopoietic social systems, and that communication in the form of constructive dialogue is the real autopoietic element in the mix.

A knowledge-seeking design dialogue must be based on a thoroughly deconstructive anarchism if it is to break free from restrictive modes of thought. Design (education) should never be narrow-minded, nor concentrate on what is supposedly ‘unique’ to design. An anarchistic dialogue would then mean a cybernetic conversation in which “we use language [as] an invitation to dialogue,” because “when we are talking with each other, we … invent what we both wish the other would invent with me” (Von Foerster, quoted in Waters, 1999: 83). Any level of education in design should ask these philosophically probing questions of

the social system to discover its own structure in the mirrored autopoiesis of that potential space driven by a creative, and brave, language use.

References

Bannister, D. and Mair, J.M.M., 1968, *The Evaluation of Personal Constructs*, Academic Press, London.

Beer, S., 2002, What is cybernetics?, *Kybernetes* 31(2), 209-219.

Bermudez, J., 1996, *On Paradigms & Avant Garde: Peeking into the Architectural Mind*, http://www.arch.utah.edu/people/faculty/julio/parad.htm [accessed February 2000].

Bohm, D., Factor, D. and Garrett, P., 1991, *Dialogue - A Proposal*, http://www.users.globalnet.co.uk/!infed/e-texts/bohm_dialogue.htm [accessed July 2001].

Braddick, B., and Casey, D., 1996, Developing The Forgotten Army: Learning and the Top Manager, in *How Organizations Learn*, Starkey, K. (ed.), International Thomson Business Press, London.

Checkland, P., 1981, *Systems Thinking, Systems Practice*, John Wiley, Chichester.

Coetzee, P.C., 1983, *Reading and Readers*, University of South Africa, Pretoria.

De Weerdt, S., 1999, Dialoging: Exploring the Dialectics, *Emergence*, 1(3), 64-70.

Dimitrov, V. and Ebsary, R., 1997, *Intrapersonal Autopoiesis*, http://www.pnc.com.au/~1fell/vlad2.html [accessed October 2002].

Dimitrov, V., 1998, *Complexity and Semiosis of Human Life*, http://members.Tripod.com/~Vlad_3_6_7/Complexity-of-Life.html [accessed December 2002].

Fuller, P., 1988, *Art and Psychoanalysis*, The Hogarth Press, London.

Gergen, K.J., 1996, Social psychology as social construction: the emerging vision, in *The Message of Social Psychology: Perspectives on Mind in Society*, C. McGarty and A. Haslam (eds.), Blackwell, Oxford, http://www.swarthmore.edu/SocSci/kgergen1/web/printer-friendly.phtml?id=manu1 [accessed March 2003].

Geyer, F., 2000, *What is Sociocybernetics?* http://www.unizar.es/sociocybernetics/whatis.html [accessed April 2003].

Heylighen, F., Joslyn, C. and Turchin, V. 1999b, *What are Cybernetics and Systems Science?*, http://pespmc1.vub.ac.be/CYBSWHAT.html [accessed October 2003].

Heylighen, F., Joslyn, C., 1999a, *Second-order Cybernetics*, http://pespmc1.vub.ac.be/SECORCYB.html [accessed October 2003].

Irwin, T., 2003, *A Crisis in Perception*, http://www.commarts.com/CA/coldesign_d/terI_197.html [accessed October 2003].

Mariotti, H., 1996, *Autopoiesis, Culture and Society*, http://www.oikos.org/mariotti.htm [accessed October 2002].

Martin, P., 1995, *Spatial Design Beyond Three-Dimensional Form*, http://www.dmu.ac.uk/ln/4dd/synd4h.html [accessed October 2003].

Maula, M., 2000, The sense and memory of a firm – implications of autopoiesis theory for knowledge management, *Journal of Knowledge Management*, 4(2), 157-161. http://ninetta.emeraldinsight.com [accessed June 2003].

Metcalf, G.S., 1999, *A Critique of Social Systems Theory*, http://hypernews.ngdc.noaa.gov/hnxtra/Metcalf_paper.html [accessed December 2002].

Pribram, K. H., 1977, Holonomy and Structure in the Organization of Perception, in *Images, Perception, and Knowledge*, Nicholas, J.M. (ed.), Reidel, Boston.

Robertson, A., 1997, 4D Design: Concept and context, in Proceedings of the conference *Contextual design- design in contexts*, http://www.svid.se/ead_docs/robertson.PDF [accessed October 2003].

Senge, P., 1990, *The Fifth Discipline*, Doubleday / Currency, New York.

Smith, F., 1992, *To Think: In language, learning and education*, Routledge, London.

Van der Merwe, J., 2002, Sawu Bona: Systems Theory in Design, in Proceedings of the conference *Systems Theory and Practice in the Knowledge Age*, Ragsdell, G., West D. and Wilby J. (eds.), Kluwer Academic / Plenum Publishers, New York.

Warren, L. and Ragsdell, G., 2002, Improving systems intervention in SMEs: Reflections on systems boundaries in practice, in Proceedings of the conference *Systems Theory and Practice in the Knowledge Age*, Ragsdell, G., West D. and Wilby J. (eds.), Kluwer Academic / Plenum Publishers, New York.

Waters, C., 1999, Invitation to Dance – A Conversation with Heinz von Foerster, in *Cybernetics and Human Knowing*, 6(4):81-84.