

Dewey's Transactional Constructivism

RAF VANDERSTRAETEN

Constructivism is very influential in education. However, its underlying ideas and assumptions have not yet been critically analysed sufficiently. In this paper, I argue that John Dewey's analyses of the transaction of organism and environment can be read as an account of the construction processes that lie beneath all human activity. Dewey's work anticipates, if it does not explicitly articulate, much of what is important and interesting about constructivist epistemology and constructivist pedagogy. The paper is devoted to a reconstruction of the formulation of this transactional constructivism, and to an analysis of its consequences for a constructivist understanding of communication and education.

INTRODUCTION

There is much ado about constructivism in education. Constructivism informs a wide variety of reflection on information processing and cognition, on student learning and classroom teaching methods. Educational researchers, curriculum developers, school administrators and teachers have appropriated the constructivist label in one or other of its various manifestations. Some critical observers have argued that this perspective is invoked to counterbalance the overwhelming dominance in schools of content-oriented, test-driven methods. As such, constructivism has 'attained the status of political correctness' (Phillips, 1997, p. 154). But it can also be argued that questions about how construction actually takes place offer an important starting point for thinking about education and instruction, since the way persons generally construct understandings and misunderstandings may be a good guide for how these processes take place in classrooms and other educational contexts.

Until now, the philosophical and epistemological foundations of constructivism have received comparatively little attention. Reviewers of recent constructivist literature have pointed to a number of 'misframed issues' and 'weaknesses in the doctrine' (for example, Suchting, 1998; Burbules, 2000; Vanderstraeten, 2001a). In this paper, and in reaction to this state of affairs, I will explore the transactional framework elaborated by John Dewey. Although Dewey (1859–1952) did not use

the concept of constructivism, his analyses of the transaction of organism and environment can be perceived as an account of the construction processes that underlie all human activity. In my view, his work anticipates, if not explicitly articulates, much of what is important and interesting about constructivist epistemology and constructivist pedagogy. In the recent constructivist literature, references to Dewey are also quite common. For example, Ernst von Glasersfeld—who is probably the most influential psychologist on the contemporary scene—thinks of Dewey as someone ‘who undoubtedly said related things, but whom I do not know well enough’ (1995, p. 25; see also Garrison, 1995). It is my contention that a reconstruction of Dewey’s transactional constructivism will make possible a clarification of some of the ‘weaknesses in the doctrine’.

In the following sections, I will focus on the evolution of the formulation of this transactional constructivism. A starting point for this reconstruction is Dewey’s widely acclaimed 1896 paper, ‘The reflex arc concept in psychology’ (see Langfeld, 1943). Next, I will indicate how Dewey’s critique of the use of the reflex arc concept leads to a reconsideration of core issues in epistemology and philosophy at large—because ‘modern philosophy is...epistemology’ (1920/1988 p. 150).¹ Afterwards, it will become possible to explain Dewey’s ideas about communication and education in terms of an intersubjective co-construction of reality. In the concluding section, I will discuss Dewey’s position in the light of some persistent philosophical and epistemological dilemmas.

THE COORDINATION OF ORGANISM AND ENVIRONMENT

The basic framework of Dewey’s transactional constructivism can already be found in his epoch-making article, ‘The reflex arc concept in psychology’ (1896/1975, pp. 96–109). In this text, Dewey starts with a criticism of the prevailing model adopted by psychologists, that is, the reflex arc. While he inveighs against the dualism of body and soul (or mind) that had plagued psychology, Dewey is no less critical of such dualisms of his time as central and peripheral structures and functions. Furthermore, he criticises such artificial fragmentations as sensory stimuli, central processes (for example, ideation), and motor responses. ‘The older dualism between sensation and idea’, Dewey writes, ‘is repeated in the current dualism of peripheral and central structures and functions; the older dualism of mind and soul finds a distinct echo in the current dualism of stimulus and response’ (1896/1975, p. 96).

Dewey’s main objection to the stimulus-response model is that it assumes the existence of an isolated, passive organism that only (re)acts upon external stimulation (see also Smith, 1973; Bredo, 1998; Backe, 1999). Following Dewey, this assumption ignores the fact that the organism is not inactive until it is stimulated, but that it is always already active. ‘A stimulus is always a *change* in the environment which is connected with a *change* in activity. No stimulus is a stimulus to action

as such but only to a change in the *direction* or intensity of action' (1930/1984, p. 224). Stimulus and response, Dewey therefore concludes, must be understood as functioning factors within a 'single concrete whole' (1896/1975, p. 97). This single concrete whole cannot be the reflex arc, as this structure is entirely situated inside the organism. The unit of analysis has to be 'the process all the way around' (Dewey in a letter to Angell, quoted in Coughlan, 1975, p. 139). This process all the way around is the interaction—or what Dewey near the end of his career referred to as the transaction (see esp. Dewey and Bentley, 1949/1991)—of organism and environment.

Dewey illustrates his viewpoint starting from the familiar example of a child-reaching-for-candle-and-getting-burned. The conventional story has it that 'the sensation of light is a stimulus to the grasping as a response, the burn resulting is a stimulus to withdrawing the hand as response and so on' (1896/1975, p. 97). But Dewey argues that the real beginning is with the child's active looking and not with a sensation of light. The seeing of the candle involves looking, and this requires motor adjustments of head and eyes. The child's reaching for the candle is guided throughout by seeing where it is located, and so on. These two things, seeing and reaching, work hand-in-glove throughout the entire sequence as aspects only of a larger unitary event, which is the primary datum.

For Dewey, the basic phenomenon is the co-ordinated transaction of organism–environment or act. Stimulus and response are not external to the act, but are 'always inside a co-ordination and have their significance purely from the part played in maintaining or reconstituting the co-ordination' (1896/1975, p. 99). The situation which gives rise to the 'birth' of the stimulus is the situation where there is a 'conflict within the co-ordination', or, more precisely, where there is 'doubt as to the next act' (1896/1975, p. 107). This situation gives the motive to examining the act. The organism must actively seek the stimulus in order to be able to respond adequately. The stimulus is something 'to be discovered', something 'to be made out', and it is 'the motor response which assists in discovering and constituting the stimulus' (1896/1975, p. 109).

This entire process has to be understood transactionally. It is neither the case that the organism can simply invent the stimulus, nor—as is assumed in the position criticised by Dewey—that the stimulus is an external occurrence, which determines the behaviour of the organism. Dewey uses the following formulation: 'The stimulus is that phase of the forming co-ordination which represents the conditions which have to be met in bringing it to a successful issue; the response is that phase of one and the same forming co-ordination which gives the key to meeting these conditions, which serves as instrument in effecting the successful co-ordination. They are therefore strictly correlative and contemporaneous' (1896/1975, p. 109). An event described in everyday terms, as a child reaching-for-candle-and-getting-burned, has a continuity, which must not be violated by verbally breaking it up into separate segments. Even if one could do so, such fragments would have no more meaning taken out

of context than a single, solitary piece of a jigsaw puzzle (see Pronko and Herman, 1982, p. 233).

Contrary to the idea that the stimulus is something that befalls the organism from without and only sets it into motion—making the organism, in a sense, a slave to the stimulus—Dewey argues that the stimulus is a *construction*, constituted by the ‘coordination-seeking’ activities (responses) of the organism. Although the construction is an achievement of the organism, it is not a construction that is exclusively located on the side of the organism. Dewey’s transactional framework entails an explicit rejection of ‘any form of behaviorism that defines behavior in terms of the nervous system or body alone’ (1930/1984, p. 220). Construction concerns ‘the process all the way around’.

THE CONSTRUCTION OF OBJECTS IN PERCEPTION

In publications of a later date, Dewey refers to the process of stimulus constitution in terms of ‘perception’. In his 1912 article ‘Perception and organic action’, Dewey defines perception as the ‘functional transformation of the environment under conditions of uncertain action into conditions for determining an appropriate organic response’ (1912/1985, p. 19). He stresses that perception cannot precede or be isolated from action. Even under conditions of uncertain action, the organism cannot stop its behaviour. Perception has therefore to be understood as ‘a factor in organic action’ (1912/1985, p. 8). Moreover, the act of perception is a ‘temporal act’. It is not choice, accomplished all at once, but ‘a process of choosing’ (1912/1985, p. 23). During this process, the ‘motor response...is directed to *moving* the sense-organs so as to secure and perfect a stimulus for a complete organic readjustment—an attitude of the organism as a whole’. Perception concerns the coordination of a number of ‘present but ineffectual motor tendencies’ into ‘an effective but future response’ (1912/1985, p. 28; see also Garrison, 2001, pp. 729–730).

The question is, of course: How can this effective or appropriate response result from perceiving? How are potential actions evaluated in the act of perception? Dewey argues that perception can only be a useful part of the act of choosing a useful response if the effects of previous responses are exhibited in such a way as to provide continuously improving stimuli for subsequent responses. Only through ‘a presentation in anticipation of the objective consequences of a possible action’ can an organism ‘be guided to a choice of actions that would be anything except either mechanical or purely arbitrary’ (1912/1985, p. 24). The perceived subject matter is not a manifestation of conditions antecedent to the organic responses. Perceived subject matter, Dewey writes, ‘at every point indicates a response that has taken effect with reference to its character in determining *further* response. It exhibits what the organism *has* done, but exhibits it with the qualities that attach to it as part of the process of determining what the organism is *to do*’

(1912/1985, p.20). Perceived objects serve as *anticipations of the consequences of possible actions* (see also Hickman, 1992; Jordan, 1998).

The 'change in the organic structures that conditions further behavior', which is provoked by the ongoing transaction of organism and environment, constitutes what Dewey calls a 'habit'. A habit is not a particular act but a predisposition to ways or modes of response. Habit means 'special sensitiveness or accessibility to certain classes of stimuli' (1922/1988, p. 32). Habits are the organic sediments of acts of stimulus construction. They store previous experiences, and in this sense they can be considered as the 'basis of organic learning' (1938/1991, p. 38). The development of habits implies that the responses of the organism become more structured and more specific. After it has been established, for example, that a light spot represents something edible, it is likely that the next time this spot enters the perceptual field of the organism, the habit formed in the first encounter with the yellow spot (for example, grasping and eating) will be activated. The light spot has now acquired a (more) specific meaning for the organism.

Given the fact that habits are developed in the organism–environment transaction, saying that habits become more structured and acquire more form is the same as saying that the perceptual field becomes more structured and acquires more form. We can say, therefore, that the events within the organism–environment transaction become (more) meaningful events. Events change into *objects*, that is, 'events with meaning' (1925/1981, p. 240; see also Boisvert, 1998, pp. 117–138).

Thus, objects of perception are constructed in the organism–environment transaction and have their organic basis in habit. Objects summarise the outcome of previous processes of stimulus construction. In this sense, they guide the organism in future transactions. 'The character of the object is like that of a tool...; it is an order of determination of sequential changes terminating in a foreseen consequence' (1925/1981, p. 121). This implies—and this point is crucial in any discussion on constructivism—that objects have no pre-existing, ontological status outside the organism. They have to be understood as emerging in the organism–environment transaction. In the co-ordination of organism and environment lies the origin and the function of the objects of perception. Thus, Dewey's constructivism is a realism, although no realism in the traditional sense of a theory that accepts an organism-independent reality of pre-existing objects. 'The essential contrast is that reality... for pragmatism is still in the making' (1907/1983, p. 99).

From the perspective of the evolution of Dewey's theoretical and transactional framework, the introduction of the concepts 'perception' and 'habit' indicates an important shift of emphasis. In Dewey's discussion of the reflex arc concept, the environment, which surrounds the human organism, appears as an original, a historical and natural environment. In the later writings, it becomes clear that this environment is socially, culturally and historically determined.²

KNOWING AND REFLECTING

So far, I have discussed Dewey's ideas about the construction of objects of perception. There is a sense, in which we could say that this construction of objects of perception is a process in which the organism acquires *knowledge*. Yet, two qualifying remarks must be made.

First, as I have stressed before, Dewey's transactional approach implies that knowledge concerns not an external, mind- or organism-independent reality, but rather the *relationship* between the activities of the organism and the consequences these activities bring about. The fact that the world is never 'available' independent of the activities of the organism, not only means that knowledge is always engaged in action, but also that knowing is itself a form of intervention. It is not a registration, but 'literally something which we do' (1916/1985, p. 367). Second, it should be noted that I have so far only discussed the construction of the objects of perception on the level of action and transaction. On this level, the objects of perception are completely embedded in the organism–environment transaction, which implies that the meaning they incorporate is restricted. This meaning lives, as Dewey says, 'in the muscles, not in consciousness' (1922/1988, p. 124). In order to make the shift from the level of habits to the level of knowledge claims, some further elements of Dewey's philosophical framework need to be introduced and contextualised.

Dewey's account of knowledge, which, as will become clear, is for the larger part a restatement of what we have already seen in terms of stimulus construction and perception, takes its point of departure in the notion of experience. For Dewey, 'experience' refers to the transaction of human beings with their environment. Experience 'is not a veil that shuts man off from nature', but it is 'a means of penetrating continually further into the heart of nature' (1919/1981, p. 5). An important consequence Dewey draws from this transactional point of departure, is his rejection of the idea that experience is identical to knowledge. Knowledge is only a *mode* of experience. 'Things are objects to be treated, used, acted upon and with, enjoyed and endured, even more than things to be known. They are things *had* before they are things cognized' (1925/1981, p. 28). This means, that 'we do not have to go to knowledge to obtain an exclusive hold on reality. The world as we experience it is the real world' (1929/1988, p. 235; see also Campbell, 1995, pp. 67–96; Seigfried, 2001).

But Dewey also qualifies the preceding remark about the reality of the experienced world. He argues, on the one hand, that 'as manifestations of interactions of a naturally existent organism and existent environing conditions all experienced materials stand on exactly the same level', but, on the other hand, that this 'does not mean that with respect to their *evidential* value, their function as dependable signs, they stand on the same level' (1939/1991, p. 26). It is precisely this evidential value which is at stake when the organism is confronted with 'the appearance of incompatible factors within the empirical situation', because in such a

situation 'opposed responses are provoked which cannot be taken simultaneously in overt action' (1916/1985, p. 326).

Thinking, Dewey argues, is a way to find out in imagination what the various lines of possible actions might lead up to. The crucial difference between trial and error and an approach where 'activity is turned from execution into intra-organic channels, resulting in dramatic rehearsal' (1922/1988, p. 133)—that is, in experimenting with various lines of action on a *symbolic* or *conceptual* level—is that it does not commit the organism to actual consequences. 'We perform experiments by means of symbols which have results which are themselves only symbolized' (1929/1988, p. 121). Symbolic or conceptual operations provide the organism with 'a medium of a postponed conclusion and of investigation continued till better grounds for affirming an object (making a definite, unified response) are given' (1915/1985, p. 77; see also Lubling, 1999). It is this which transforms action into intelligent action. We can say—and this is the term Dewey prefers—that the conceptual result of intelligent action leads to 'warranted assertions' (primarily) about certain actions and their consequences.

For Dewey, knowing has to do with the ability of the organism to use given things as signs or indications for something else not directly given. But making such *inferences* is a precarious journey. Inference brings 'truth and falsity in the world' (1915/1985, p. 70). It makes no sense to look for truth in the present situation, because the present is what it is. Responding to an absent thing as if it were present, however, adds the property of affording assurance and correction, of confirming and refuting: 'Truth and falsity present themselves as significant facts only in situations in which specific meanings and their already experienced fulfilments and non—fulfilments are intentionally compared and contrasted with reference to the question of the worth... of the given meaning or class of meanings' (1906/1983, p. 118). Or, as Dewey writes elsewhere, 'the agreement, correspondence, is between purpose, plan, and its own execution, fulfillment' (1907/1983, p. 84). Truth refers to the correspondence of suggested meaning and realised meaning; it refers to *coherence in the course of time* (1911/1985, pp. 12–68). Knowing is looking backwards and forwards.

The main condition for the transformation of a trial-and-error approach into intelligent action lies in the ability of human organisms to use symbols. Dewey sees this ability as 'far the greatest event in the history of man' (1929/1988, p. 121) as it provides the only way to escape from a 'submergence in existence' (1929/1988, p. 129). But symbolisation also refers to co-operation and co-ordination between human beings; it brings the social dimension of knowledge claims to the fore.

COMMUNICATION AND EDUCATION

In the case of human beings, the co-ordination of organism and environment is not just dependent on existential operations (1938/1991), that is, on trial and error. It is also embedded in symbolic operations. As

Dewey points out, symbolic operations are means or instruments. They do not describe or represent a reality outside the subject, but are put to use in deliberations, to come to intelligent action. On the symbolic level, it comes to warranted assertions about the relations between acts and consequences, and to these warranted assertions an organism can recur in later situations—as a resource, not as definite truth. The source of this reflective reconstruction of experience is located in the social sphere. What things are used as signs or indications for something else (that is as symbols) is the outcome of human communication. In my view, this position is most clearly elaborated in the fifth chapter of Dewey's *Experience and Nature* (1925/1981, pp. 132–161).

The basic framework in which Dewey conceives of communication is one of co-operation or participation. Participation is not merely a chain of events in which one actor reacts to the actions of the other. It requires that an actor reacts to the meaning of the acts of the other. Partaking in a common, inclusive activity provokes a *generalisation* of meaning. In Dewey's words: 'The characteristic thing about B's understanding of A's movements and sounds is that he responds to the thing from the standpoint of A. He perceives the thing as it may function in A's experience, instead of just egocentrically. Similarly, A... conceives the thing not only in its direct relationship to himself, but as... it may function in B's experience. Such is the essence and import of communication, signs and meaning. Something is literally made in common in at least two different centers of behavior' (1925/1981, p. 141). Communication requires the transformation of behavioural gestures into significant symbols. The co-operation of A and B in communication is only possible if it is mediated by symbols which have more or less the same meaning for both participants.

In this context, Dewey also points to the temporal orientation of human communication. An utterance, he writes, is 'not "expression" of something antecedent, much less expression of antecedent thought'. Communication is 'the establishment of cooperation in an activity in which there are partners, and in which the activity of each is modified and regulated by partnership. To fail to understand is to fail to come into agreement in action' (1925/1981, p. 141). Successful participation involves joint anticipation, cross-referencing of meanings. It is a co-authored looking ahead. Understanding one another means that objects obtain 'the same value for both with respect to carrying on a common pursuit' (1916/1985, p. 19). The guarantee for the same manner of use is found in the fact that the objects are employed in a joint activity. Similar ideas or meanings spring up because both persons are engaged as partners in an action where what each does depends upon and influences what the other does. Dewey does not assume that 'the correspondence of things and meanings is prior to discourse and social intercourse' (1925/1981, p. 136), but argues that human communication is the very process in which the world is being made in common.

After this reconstruction, the main features of Dewey's view on education can be deduced rather easily. His philosophy leads to an

understanding of education in terms of communication or communicative action (Biesta, 1995; Garrison, 1997a). Education itself can be seen as a participatory, co-constructive process. Education introduces newborn generations into the system of available cultural symbols; it makes them acquainted with the objects and tools that are already used in society. Dewey stresses that 'initiation into the tradition is the means by which the powers of learners are released and directed'. But to this he immediately adds that 'the urge or need of an individual to join in an undertaking is a necessary prerequisite of the tradition's being a factor in his personal growth in power and freedom' (1926/1988, p. 57). Thus, the transmission of cultural tools through communication is not conceived as a one-way process. In his well-known *Democracy and Education*, Dewey emphatically states that communication 'modifies the disposition of both the parties who partake in it' (1916/1985, p. 12). In this sense, education can be seen as inherently creative. It creates a new reality for everyone who is participating (see also Vanderstraeten, 2001b).

For Dewey, 'things gain meaning by being used in a shared experience or joint action' (1916/1985, p. 20). This is also the case with education. Things acquire the same meaning with the child which they have with the adult because they are used in a common experience by both. Communication, Dewey writes, consists of the 'joint reference of our own action and that of another to a common situation' (1916/1985, p. 37). For him, this implies that 'persons modify one another's dispositions only through the special use they make of physical conditions' (1916/1985, p. 36). The educational consequence of Dewey's conception of communication therefore is that 'the only way one person can modify the mind of another is by using physical conditions, crude or artificial, so as to evoke some answering activity from him' (1916/1985, pp. 38–39). Central to education are 'the situations in which the young take part' (1916/1985, p. 45). To express the irreducible plurality of this situation, one can also say that the activity of education takes place 'in between' intersubjectivity and subjectivity (Vanderstraeten and Biesta, 2001).

CONCLUDING REMARKS

Starting from Dewey's critique of the use of the reflex arc in psychology, I have argued that Dewey's reflections can be understood as constructivist reflections. Dewey's approach to epistemological issues is first of all founded on a rejection of the dualistic assumptions that underlie modern philosophy. He does not begin from the opposition of subject and object, of consciousness (*res cogitans*) and matter (*res extensa*), and from the question of how 'a knower who is purely individual or "subjective", and whose being is wholly psychical and immaterial... and a world to be known which is purely universal or "objective", and whose being is wholly mechanical and physical' can ever reach each other (1911/1985 p. 441). Instead, he takes his point of

departure as the organism–environment transaction, thereby securing the relationship between organism and environment in terms of action.

The important advantage of this theoretical move is that Dewey is able to circumvent the choice between subject-centrality and object-centrality, between idealistic construction and realistic representation. Because Dewey locates the construction of knowledge in the organism–environment transaction, he can acknowledge both that knowing is not a passive registration of the world outside but an active construction, and that this construction ‘refers’ to reality — or, to put it more precise, that this construction *is* real (see also Sleeper, 1986; Garrison, 1995). Hence, Dewey’s position can be aptly characterised as transactional constructivism.

This transactional constructivism redefines the concept of ‘resistance’, which is traditionally used to underpin the referential capacity of knowledge. For Aristotle, *at physika* are characterised by the resistance they oppose to us, and they thus become objects of our cognition. It is, accordingly, by virtue of this resistance that we know them to be outside of ourselves and not illusions fostered upon us by our unreliable sensory apparatus. Without this resistance, we would never be able to ascertain whether the phenomenal or the sensible is really ‘out there’ and thus whether we have any knowledge of such an ‘out there’. Without this resistance, we would be free to imagine whatever we want. We would find no firm basis to stand on and would be unable to make progress (that is, to learn). In part, this classical line of argumentation can be maintained. But a constructivist theory of knowledge cannot situate this resistance in the external world. It has to focus on the resistance of constructions to constructions, on the opposition of experiences to experiences. The question is whether or not particular operations trigger further operations. In this sense, resistance is a problem of internal consistency. As a consequence, as Dewey clearly intimates, epistemological issues of correspondence need to be replaced by issues of *evolution and time*.

In my view, this transactional constructivism is far more radical than ‘radical constructivism’. As indicated in the introduction, Ernst von Glasersfeld sees a considerable match between radical constructivism and Dewey’s position. He even claims that his ‘constructivism *is* a form of pragmatism and shares with it the attitude towards knowledge and truth’ (1989, p. 124). However, radical constructivism continues to rely on the subject–object distinction. It departs from the *ego cogito*; ‘the thinking subject has no alternative but to construct what he or she knows on the basis of his or her own experience’ (Von Glasersfeld, 1995, p. 1). This starting point makes it necessary to postulate an outside reality — and, therefore, this position is better not called ‘radical’. In order to avoid the pitfall of solipsism, von Glasersfeld accepts ‘ontological constraints’. In his view, reality limits the imagination of subjects — without determining what exactly they should think. But such a position can easily be deconstructed (see Matthews, 1994, pp. 148–158; Suchting, 1998). Von Glasersfeld cannot answer questions such as: How

do we know—that is, construct—that or when we are meeting the real? What is the difference between bad luck and resistance from reality? In other words, radical constructivism is caught by the classical dilemmas of modern epistemology. It is caught by these dilemmas because it sets off from the same dualistic assumptions as modern philosophy.

In discussing the relation of knowledge to reality, it does not suffice to reiterate once more that the correspondence between reality and knowledge cannot be proved. Neither does it suffice to postulate, in general terms, the existence of the external world, and argue at the same time that one cannot know what this world 'really' looks like. When it is argued, as von Glasersfeld and other radical constructivists do, that reality is a construction and that this construction does *not* correspond with the external world, one still needs to indicate what this 'not' means. Even when concepts such as 'viability' or 'compatibility' are put to use, it needs to be pointed out what the technical meaning of these concepts is, and what these concepts exclude or deny. In this respect, radical constructivism can certainly learn from Dewey's transactional account of knowledge construction.

In the first chapter of *Radical Constructivism*, von Glasersfeld not only begins by saying that 'all kinds of experience are essentially subjective', and that knowledge claims cannot be reliably compared between persons. He also adds: 'Taken seriously, this is a profoundly shocking view' (von Glasersfeld, 1995, p. 1). Other critics have convincingly pointed out that von Glasersfeld's subjectivism falls short of providing an account of social interaction or intersubjectivity (for example, Garrison, 1997b, 2000; Burbules, 2000, pp. 316–321). I would like to point only to the consequences he draws in the final chapter of his book regarding teaching and learning, and thus regarding the interaction of teachers and pupils. Although von Glasersfeld speaks of the 'secret of teaching', his prescriptions sound very familiar: help rather than instruction, teaching rather than training, intrinsic rather than extrinsic reinforcements, and so on:

Much depends on the teacher's sensitivity and willingness to go along with an individual student's way of thinking and, whenever possible, to involve the whole class in following and discussing the particular itinerary. The choice of task, of course is crucial and requires the teacher to use imagination rather than routine. A lesson can be started by letting a child recount an experience of his or her own (von Glasersfeld, 1995, p. 183).

It is impossible to avoid a feeling of profound anticlimax on concluding this passage, for far from registering the 'profoundly shocking view' promised, in essence it sets out simply some features of a fairly standard, middle-of-the-road, more or less progressive position. That this is the case is concealed, to the extent that it is (surely only to the neophyte in such matters), by the use of relatively unfamiliar terminology. But any effect produced by this can be cancelled just by questioning the meaning

of the concepts that von Glasersfeld uses in this text (perturbation, accommodation, negotiation of meaning, re-conceptualisation, etc.).

The central position of the subject and the corresponding neglect, in *radical* scepticism, of the social embedding of human experiences have been sharply criticised in recent sociocultural studies of mind. However, these rival constructivist positions — connected often with the names of Piaget, on the one hand, and Vygotsky, on the other — only differ on the surface. On a closer look, their basic architecture displays a close resemblance. The sociocultural approach merely substitutes community for the subject (for example, Gergen, 1995, 1997; see also Garrison, 1995). It takes its point of departure in existing sociocultural practices; it defines education in terms of acculturation. Sociocultural practices are treated as given ‘things’, as things which exist ‘out there’ and which must be learned and put to use. But our social world does not have a kind of ‘props room’, in which unused sociocultural practices are stored away, and from which they can be put back on stage on another occasion. Such a possibility could not account for the emergence and evolution of sociocultural patterns. Perhaps the basic parallel between these positions explains why most debates about constructivism currently develop along Piaget versus Vygotsky lines. But it also makes the comparison of these positions empty.

This brings me to my final remark. In this paper I have argued that there are important reasons for an understanding of Dewey’s pragmatism along constructivist lines. I have also made it clear that the activity of education can be seen as an activity of ‘making something in common’. But what is explicitly not a part of my argument is that this constructivist understanding forces us to model education as a communicative *praxis* (for example, as active inquiry, discovery learning or project work). Although I do not mean to object to such a style of education, it is my contention that the decision to educate in such a way is barely related to pragmatic and constructivist understandings of education. Such understandings in no way forbid, for example, an authoritative style of education; they merely show that even such an authoritative style will have to reckon with the underlying constructivist principles of communication. In other words, constructivism does not offer a realistic theoretical framework from which one can deduce definite or objective guidelines for structuring educational interaction.³

Correspondence: Raf Vanderstraeten, Institut für Weltgesellschaft, Faculty of Sociology, University of Bielefeld, PO Box 100131, 33501 Bielefeld, Germany. Email: Raf.Vanderstraeten@uni-bielefeld.de

NOTES

1. References are to the collected works of John Dewey, published by Southern Illinois University Press, under the general editorship of Jo Ann Boydston. Each reference is preceded by the original year of publication of the text.

2. From a biographical point of view, one can attribute this shift of emphasis to Dewey's reading of Hegel and his contacts with anthropologists such as Franz Boas and Ruth Benedict (Dykhuizen, 1973, p. 123).
3. This paper is part of a research project that is carried out with Gert Biesta (University of Exeter). Without his contribution, this paper would not have been written. The author acknowledges funding by the European Commission (HPMF-CT-2000-00835).

REFERENCES

- Biesta, G. (1995) Pragmatism as a pedagogy of communicative action, *Studies in Philosophy and Education*, 13.3–4, pp. 273–290.
- Boisvert, R. D. (1998) *John Dewey. Rethinking Our Time* (Albany, SUNY Press).
- Backe, A. (1999) Dewey and the reflex arc: The limits of James's experience, *Transactions of the Charles S. Peirce Society*, 35.2, pp. 312–329.
- Bredo, E. (1998) Evolution, psychology, and John Dewey's critique of the reflex arc concept, *Elementary School Journal*, 98.5, pp. 447–466.
- Burbules, N. C. (2000) Moving beyond the impasse, in: D. C. Phillips, (ed.) *Constructivism in Education. Opinions and Second Opinions on Controversial Issues* (Chicago, University of Chicago Press).
- Campbell, J. (1995) *Understanding John Dewey* (Chicago, Open Court).
- Coughlan, N. (1975) *Young John Dewey* (Chicago, University of Chicago Press).
- Dewey, J. (1896/1975) The reflex arc concept in psychology, in: J. A. Boydston (ed.) *John Dewey: The Early Works*, vol. 5 (Carbondale, University of Southern Illinois Press).
- Dewey, J. (1899/1983) Principles of mental development as illustrated in early infancy, in: J. A. Boydston (ed.) *John Dewey: The Middle Works*, vol. 1 (Carbondale, University of Southern Illinois Press).
- Dewey, J. (1906/1983) The experimental theory of knowledge, in: J. A. Boydston (ed.) *John Dewey: The Middle Works*, vol. 3 (Carbondale, University of Southern Illinois Press).
- Dewey, J. (1907/1983) The control of ideas by facts, in: J. A. Boydston (ed.) *John Dewey: The Middle Works*, vol. 4 (Carbondale, University of Southern Illinois Press).
- Dewey, J. (1911/1985) The problem of truth, in: J. A. Boydston (ed.) *John Dewey: The Middle Works*, vol. 6 (Carbondale, University of Southern Illinois Press).
- Dewey, J. (1911/1985) Contributions to *A Cyclopaedia of Education*, in: J. A. Boydston (ed.) *John Dewey: The Middle Works*, vol. 6 (Carbondale, University of Southern Illinois Press).
- Dewey, J. (1912/1985) Perception and organic action, in: J. A. Boydston (ed.) *John Dewey: The Middle Works*, vol. 7 (Carbondale, University of Southern Illinois Press).
- Dewey, J. (1915/1985) The logic of judgments in practice, in: J. A. Boydston (ed.) *John Dewey: The Middle Works*, vol. 8 (Carbondale, University of Southern Illinois Press).
- Dewey, J. (1916/1985) *Democracy and Education*, in: J. A. Boydston (ed.) *John Dewey: The Middle Works*, vol. 9 (Carbondale, University of Southern Illinois Press).
- Dewey, J. (1916/1985) Introduction to *Essays in Experimental Logic*, in: J. A. Boydston (ed.) *John Dewey: The Middle Works*, vol. 10 (Carbondale, University of Southern Illinois Press).
- Dewey, J. (1916/1985) An added note as to the 'practical' in *Essays in Experimental Logic*, in: J. A. Boydston (ed.) *John Dewey: The Middle Works*, vol. 10 (Carbondale, University of Southern Illinois Press).
- Dewey, J. (1917/1985) The need for a recovery of philosophy, in: J. A. Boydston (ed.) *John Dewey: The Middle Works*, vol. 10 (Carbondale, University of Southern Illinois Press).
- Dewey, J. (1920/1988) *Reconstruction in Philosophy*, in: J. A. Boydston (ed.) *John Dewey: The Middle Works*, vol. 12 (Carbondale, University of Southern Illinois Press).
- Dewey, J. (1922/1988) *Human Nature and Conduct*, in: J. A. Boydston (ed.) *John Dewey: The Middle Works*, vol. 14 (Carbondale, University of Southern Illinois Press).
- Dewey, J. (1925/1981) *Experience and Nature*, in: J. A. Boydston (ed.) *John Dewey: The Later Works*, vol. 1 (Carbondale, University of Southern Illinois Press).
- Dewey, J. (1926/1988) *Individuality and Experience*, in: J. A. Boydston (ed.) *John Dewey: The Later Works*, vol. 2 (Carbondale, University of Southern Illinois Press).
- Dewey, J. (1929/1988) *The Quest for Certainty*, in: J. A. Boydston (ed.) *John Dewey: The Later Works*, vol. 4 (Carbondale, University of Southern Illinois Press).

- Dewey, J. (1930/1984) Conduct and experience, in: J. A. Boydston (ed.) *John Dewey: The Later Works*, vol. 5 (Carbondale, University of Southern Illinois Press).
- Dewey, J. (1934/1987) *Art as Experience*, in: J. A. Boydston (ed.) *John Dewey: The Later Works*, vol. 10 (Carbondale, University of Southern Illinois Press).
- Dewey, J. (1938/1991) *Logic: The Theory of Inquiry*, in: J. A. Boydston (ed.) *John Dewey: The Later Works*, vol. 12 (Carbondale, University of Southern Illinois Press).
- Dewey, J. (1939/1991) Experience, knowledge and value: a rejoinder, in: J. A. Boydston (ed.) *John Dewey: The Later Works*, vol. 14 (Carbondale, University of Southern Illinois Press).
- Dewey, J. & Bentley, A.F. (1949/1991) *Knowing and the Known*, in: J. A. Boydston (ed.) *John Dewey: The Later Works*, vol. 16 (Carbondale, University of Southern Illinois Press).
- Dykhuizen, G. (1973) *The Life and Mind of John Dewey* (Carbondale, University of Southern Illinois Press).
- Garrison, J. (1995) Deweyan pragmatism and the epistemology of contemporary social constructivism, *American Educational Research Journal*, 32.4, pp. 716–740.
- Garrison, J. (1997a) *Dewey and Eros. Wisdom and Desire in the Art of Teaching* (New York, Teachers College Press).
- Garrison, J. (1997b) An alternative to von Glasersfeld's subjectivism in science education: Deweyan social constructivism, *Science and Education*, 6.6, pp. 543–554.
- Garrison, J. (2000) A reply to Davson-Galle, *Science and Education*, 9.6, pp. 615–620.
- Garrison, J. (2001) Dewey and Eros: A response to Prawat, *Teachers College Record*, 103.4, pp. 722–738.
- Gergen, K. J. (1995) Social construction and the educational process, in: L.P. Steffe and J. Gale, (eds.) *Constructivism in Education* (Hillsdale, Lawrence Erlbaum Associates).
- Gergen, K. J. (1997) The place of the psyche in a constructed world, *Theory and Psychology*, 7.6, pp. 723–746.
- Hickman, L. A. (1992) *John Dewey's Pragmatic Technology* (Bloomington, Indiana University Press).
- Jordan, J. S. (1998). Recasting Dewey's critique of the reflex-arc concept via a theory of anticipatory consciousness: Implications for theories of perception, *New Ideas in Psychology*, 16.3, pp. 165–187.
- Langfeld, H. S. (1943) Jubilee of the Psychological Review. Fifty volumes of the Psychological Review. *Psychological Review*, 50.1, pp. 143–155. (Reprinted in *Psychological Review*, 1994, 101.2, pp. 200–204).
- Lubling, Y. (1999) Deliberation as a dramatic rehearsal: John Dewey and the future of philosophy, *Contemporary Philosophy*, 21.3–4, pp. 37–43.
- Matthews, M. (1994) *Science Teaching. The Role of History and Philosophy of Science* (New York, Routledge).
- Phillips, D. C. (1997) How, why, what, when, and where: perspectives on constructivism in psychology and education, *Issues in Education*, 3, pp. 151–194.
- Pronko, N. H. and Herman, D. T. (1982) From Dewey's reflex arc concept to transactionalism and beyond, *Behaviorism* 10, pp. 229–254.
- Seigfried, H. (2001) Truth and use, *Synthèse*, 128.1–2, pp. 1–13.
- Sleeper, R. W. (1986) *The Necessity of Pragmatism. John Dewey's Conception of Philosophy* (New Haven, Yale University Press).
- Smith, A. K. (1973) Dewey's transition piece: The reflex arc paper, *Tulane Studies in Philosophy*, 22, pp. 122–141.
- Suchting, W. A. (1998) Constructivism deconstructed, in M. R. Matthews, (ed.) *Constructivism in Science Education: A Philosophical Examination* (Dordrecht, Kluwer Academic).
- Vanderstraeten, R. (2001a) Observing systems: A cybernetic perspective on system/environment relations, *Journal for the Theory of Social Behaviour*, 31.3, pp. 297–311.
- Vanderstraeten, R. (2001b). The autonomy of communication and the structure of education, *Educational Studies*, 27.4, pp. 381–391.
- Vanderstraeten, R. and Biesta, G. J. J. (2001) How is education possible? Preliminary investigations for a theory of education, *Educational Philosophy and Theory*, 32.1, pp. 7–21.
- von Glasersfeld, E. (1989) Cognition, construction of knowledge, and teaching, *Synthèse*, 80.1, pp. 121–140.
- von Glasersfeld, E. (1995) *Radical Constructivism. A Way of Knowing and Learning* (London, Falmer Press).