Chapter 12
From Dialectic to Dialogic

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Introduction

A key claim in Wertsch and Kazak's paper (Chapter 9) is that "cultural tools have 'constraints' as well as 'affordances'" (p. 155) so I am sure that they would agree with me that, while their theory of learning as being taught how to use cultural tools illuminates some aspects of education, there are other aspects which it obscures. I have been influenced by Wertsch's work in the past and have found it useful in understanding and improving the way in which children are taught to think together through being drawn into particular ways of using language (e.g. Wegerif, 2001). However I have become increasingly concerned that this version of socio-cultural theory does not provide an adequate account of how children learn to think creatively. I suspect that this is because creativity originates in the dialogic relation, rather than in the use of pre-existing cultural tools. Wertsch and Kazak's paper is the position paper in a section of this book headed "dialogic theory of learning" yet in their paper they do not seriously discuss the issue of dialogic, pointing out that, since their theory is about "mediation", which is "the most basic conceptual category in the writings of Vygotsky", it is, therefore, about dialogue. I want to challenge the idea that dialogues in education can be adequately studied through a focus on mediation and the possible implication that Vygotsky was a dialogical thinker. Against these claims I will argue that accounts of learning dialogues in terms of their "mediating means" presuppose the prior achievement of a dialogic relation between people through which signs can be interpreted as meaning something and that, while Vygotsky could reasonably be called a dialectical thinker, he is not a dialogical thinker. Wertsch and Kazak are right to suggest that a focus on cultural tools is compatible with a dialogic account of learning but, in my view, a dialogic account goes further and so leads to a different overall understanding of the nature and purpose of education.

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Vygotsky as a Dialectical Thinker

I am always surprised when I read references in educational literature to Vygotsky as a "dialogical" thinker (e.g. Wells, 1999; Kozulin, 1986; Shotter, 1993). I can only imagine that the passages which leap out at me when I read *Thinking and Speech* (or *Thought and Language*), do not appear so significant to others. In Chapter 6, for example, Vygotsky affirms his commitment to a monologic philosophical position several times in terms which are so clear they could hardly be misunderstood. He uses the model of classical mathematics to suggest that ultimately concepts are all subsumed into a logical system which he refers to as a system of equivalences:

> The higher levels in the development of word meaning are governed by *the law of equivalence of concepts*, according to which any concept can be formulated in terms of other concepts in a countless number of ways. (Vygotsky, 1986, p. 199, emphasis in original)

He then uses an image of a global grid to affirm that this grid of concepts is a totalising system with an image rather similar to the current global positioning satellite network:

> If we imagine the totality of concepts as distributed over the surface of a globe, the location of every concept may be defined by means of a system of coordinates, corresponding to latitude and longitude in geography. One of these will indicate the location of a concept between the extremes of maximally generalised abstract conceptualisation and the immediate sensory grasp of an object – i.e. its degree of concreteness and abstraction. The second coordinate will represent the object reference of the concept. (Vygotsky, 1986, p. 199)

As I am not able to read Russian, and so cannot claim to be an expert on Vygotsky, I was, at first, a little concerned that my reading of Vygotsky did not apparently converge with the accepted interpretation. I was therefore pleased to find Jim Wertsch, who is an expert and a Russian speaker, acknowledging my more monological reading of Vygotsky in one article where he refers to Vygotsky as "an enlightenment rationalist" (Wertsch, 1996). However, Wertsch claims, there is ambivalence in Vygotsky's texts and the implication of his theory of signs as psychological tools often led him beyond a simple one-way street view of development. One theme running through Vygotsky's work is dialectical method and I think that this might also explain this apparent ambivalence. A key feature of dialectic in Hegel and Marx is that it attempts to integrate real dialogues and struggles into a logical story of development leading to unity either in the "Absolute Notion" of Hegel or the rational society under global communism of Marx. It is possible that Vygotsky engaged more with Hegel than with Marx (Van der Veer & Valsiner, 1991) and the influence of Hegelian dialectic is certainly very evident in many of his theoretical formulations. At one point Vygotsky implies that his whole approach to psychology can be described as the application of the Hegelian dialectic to the issue of individual cognitive development:

> Thus we may say that we become ourselves through others and that this rule applies not only to the personality as a whole, but also to the history of every individual function. This is the essence of the progress of cultural development expressed in a purely logical form.

> The personality becomes for itself what it is in itself through what it is for others (Vygotsky, 1991, p. 39).

The account he gives here of development from ‘being-in-itself’ to a more complex, self-related, ‘being-for-itself’ through the passage of ‘being-for-others’ is borrowed directly from Hegel (see, for example, Hegel, 1975, p. 139).

Dialectic and dialogic sound similar and often look similar. However making a distinction between them is important for some versions of dialogic theory. For those postmodernists influenced by Lévinas ethical critique of monological reason, including Derrida and Lyotard, dialectic was often seen as the worst kind of monologic precisely because it was monologic dressed up to look like dialogic (see Descombes, 1980, for an account of post-modernist thought as resistance to Hegel). The argument is that the ‘other’ which often appears in the dialectic algorithm, is not genuinely other at all but merely a prop for the development and expansion of the ‘self’, in the form of a totalising system of explanation and control. ‘Difference’, Lévinas claims, is posited only to be appropriated and reduced to ‘equivalence’ in systems of ‘representation’ (Lévinas, 1989, p. 77). Like Buber, Levinas was a Jewish theologian as well as a philosopher and he contrasted the “egology” of western rationalism to the “wisdom” of responding to the “infinite” call of face of “the Other,” an infinite call that, he claimed, disrupts all totalising systems of thought.

While not as messianic as Lévinas, Bakhtin was similarly clear about the significance of the important distinction to be made between dialectic and dialogic:

> Take a dialogue and remove the voices (the partitioning of voices), remove the intonations (emotional and individualizing ones), carve out abstract concepts and judgments from living words and responses, cram everything into one abstract consciousness – and that’s how you get dialectics. (Bakhtin, 1986, p. 147)

To paraphrase and repeat Bakhtin’s main point here: dialectic is a dynamic form of logic leading all apparent differences to be subsumed into identity in the form of a more complexly integrated synthesis, it is not dialogic since dialogic refers to the interanimation of real voices where there is no necessary “overcoming” or “synthesis.” I interpret the Vygotsky of *Thinking and Speech* as a dialectical thinker who gave dialogue a role in his theory of development. While he offers insights which have been read by some in a dialogic way, I think that it is misleading to refer to him as a dialogic thinker or to refer to his theory of education and development as a dialogic theory.

Learning to Use Cultural Tools as a Theory of Education

Wertsch and Kazak ground their theory of teaching and learning on what they call the Vygotsky-Shpet perspective which they claim can be found in the seventh chapter of *Thinking and Speech*, where Vygotsky writes about the development of word meaning. It is interesting, Wertsch and Kazak write, that Vygotsky gives such importance in this chapter to his “discovery” that word meanings change. This points us, they continue, to the way in which using signs often leads us to say more than we know that we are saying. So novices in a discourse may take up words that have complex meanings and use them with very limited understanding, but in a way that is sufficient for communication with teachers, who can thereby draw them up to more advanced levels of understanding. From this Wertsch and Kazak develop a more general theoretical position which is that all education is about "know how" rather than "know that" – specifically knowing how to use cultural tools appropriately and skillfully. The outcome of education, they say, is not individual cognition so much as distributed cognition between people and their cultural tools. The methodological challenge posed by this theory is the need to assess "how well students have mastered words and other semiotic means." Wertsch and Kazak illustrate how their theory helps us to understand the role of graph paper and key concept words in the Lehrer classroom data discussed at the Allerton workshop (see Koschmann, Chapter 1). In their analysis, cultural tools, such as words and graph paper, serve as a robust, yet flexible, mediating means, which enables intermental relations to be established even between people with very different levels of understanding.

Although Wertsch and Kazak base their theory on Vygotsky I am sure that they would agree that their reading is necessarily a selective one due to the ambivalence in Vygotsky referred to often by Wertsch (1985, 1996). It is therefore worth saying more about what Vygotsky himself might have meant by the idea, that is perhaps implicit in his work, that we say more than we know when we use words. In Chapter 7 of *Thinking and Speech*, Vygotsky makes a distinction between a word's proper meaning and the contingent "sense" of words that stems from the associations that they form from the ways in which they are used. The "meaning" of words for Vygoksky is, he repeats several times, a "generalisation or a concept". In earlier chapters of *Thinking and Speech*, Vygtosky outlines the development of the meaning of words from contextualised and concrete uses (syncretism) through fuzzy generalisations (complexes) to proper concepts (Vygotsky, 1987; also see commentary by Van der Veer & Valsiner, 1991, p. 263). The higher stages of concepts are characterised by more abstraction and generalisation (Wertsch, 1996, p. 25) while the lower are characterised as based upon more contingent, concrete and fuzzy criteria. Vygotsky described the initial stage of children's thinking as "participatory," a style of thinking which Vygotsky claims that children share with primitive people and with schizophrenics (Vygotsky, 1986, p. 236), while the highest stage of thinking is characterised as abstract rationality exemplified by the "law of equivalence," which I quoted above.

From this account of the development of concepts, it would make sense if Vygotsky were to suggest that we mean more than we know that we mean when we begin using potential concept-words, because, simply by using them, we are taking the first step on a one-way journey that will lead us all the way up into pure reason and scientific thought. "Sign-vehicles," on this theory, act like a kind of ski-lift for development; children can latch on to them while still in the valleys of concrete thought ("schizophrenic," "primitive" and "participatory" thought, let us not forget) and be lifted by them to the higher-altitude universal abstractions of reason and science. According to Vygotsky, the mechanism that drives this ski-lift is formal education. In the zone of proximal development teachers engage with children in order to train their spontaneous concepts into the already laid down routes of scientific concepts.

Wertsch and Kazak sum up their theory with the formula:

> the act of speaking often (perhaps always) involves employing a sign system that forces us to say more (as well as perhaps less) than what we understand or intend… (p. 156)

The addition here, of the small escape clause "as well as perhaps less" in brackets, shows their caution in relation to Vygotsky's ski-lift theory of development. But can Vygotsky's theory survive transplantation if the intrinsic telos of concepts towards abstraction, generalisation and truth is removed? What is the value of a ski-lift that does not carry us up a mountain? As Wertsch and Kazak themselves point out, words can mean more than we know because of the way that others interpret them and so they can also sometimes mean less than we know or they could be taken to mean something completely different. Certainly words like "histogram", which figure in their account of the classroom data, have a dictionary meaning, which the teacher leads the students towards, however without the modernist meta-narrative of progress towards truth, the proper meaning of such terms is presumably left to be defined by the curriculum. The same approach could be applied to teaching any content whatsoever including, for example, scholastic doctrine about the numbers and the powers of the Cherubim and Seraphim in medieval Byzantium or Nazi accounts of the physiological differences between Aryans and Jews. This theory accounts for how we teach defined meanings in the existing curriculum, but it does not appear to offer a place for the development of new meanings through critical thinking and through creativity.

Two Triangles for Thinking About Dialogue and Development

In *Vygotsky and the Social Formation of Mind*, published in 1985 (pp. 64–65), Wertsch offers a rather similar theory to that presented by Wertsch and Kazak in 2005, but this time the vehicle is not Vygotsky's account of word meaning, but his account of children learning to point. First the baby tries to grasp at something it wants, say a rattle, then the attentive mother gives it to the baby and so the baby learns that merely pointing at the object will draw the attention of the mother and so achieve its purpose. In 1985, Wertsch (quoting Wertsch & Stone, 1985) argued that this shift from using signs in a relatively ignorant way to using them in a more conscious way is generally the case with learning how to use cultural tools. However, in the case of learning how to point, it is clear that the mysterious force of language as a whole does not need to be invoked: the infant is carried beyond herself to mean more than she knows, through the attentive response of her mother. This learning to point takes place in the context of a mutually responsive relationship or "couple" between mother and child. It is through taking the perspective of the mother that the baby learns to understand that her own grasping gesture can be perceived as pointing and so, reversing perspectives again, she can learn to understand the gestures of her mother as pointing.

The self-other-sign triangle that sums up these relationships is a representation used by developmental psychologist Peter Hobson to explain how it is that infants first learn to use symbols. Hobson argues that what is crucial is an initial dialogic relationship with their mother (or other primary care-giver) which enables them to see things from at least two perspectives at once (Hobson, 2002; Hobson, 1998). If an infant sees a toy that makes them nervous they immediately turn to their mother and see that she has a different response to the same toy. If they now pick up the toy they do so with two emotions in mind, their own initial reaction and that of their mothers. Later, and this is the significance of Hobson's curved dotted line in the triangle, they learn that by taking a different perspective, the perspective of another person, they can create symbols, using one thing to stand for another, a piece of paper for a doll's blanket perhaps. Hobson claims that early dialogic relationships in which we learn to see from two perspectives, beginning with smiles and peek-a-boo games, are the origin of creative thought because they open up what he calls "mental space," a space of possibilities through which things become thinkable and bits of the world (sign-vehicles) become tools for thinking about the rest of the world. Thinking, on his account, is essentially a process of taking multiple perspectives – even if we only have one thought about something, he writes, it is the possibility of taking other perspectives that makes that thought thinkable.

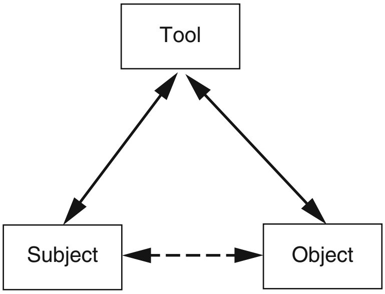
Hobson's account suggests a different dialogic triangle from the famous subject-tool-object triangle that is often taken to underlie the sociocultural notion of mediation.

A possible response to the claim that we understand signs by taking the perspective of other people is that we only know the perspective of others through interpreting their signs. However, the signs involved in Hobson's account of the origin of symbolisation, smiles and emotions, are not tools for working on an object but part of a relationship with a person, indeed they are parts of that embodied person. Once we start saying that smiles are "signs" of a feeling or a person then we quickly get into the familiar philosophical problem of locating the person independently of their signs often referred to as the problem of Descartes' homunculus or the little person inside the person pictured as pulling all the levers. Wittgenstein writes in this context:

> We do not see facial contortions and *make the inference* that he is feeling joy, grief, boredom. We describe a face immediately as sad, radiant, bored, even when we are unable to give any other description of the features'. (Wittgenstein, *Remarks on the Philosophy of Psychology*, quoted by Hobson 2002, p. 243)

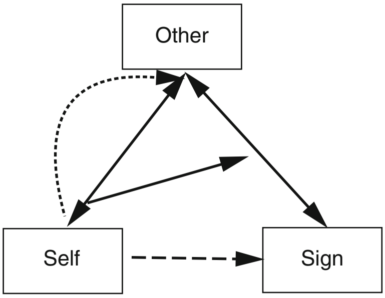
From the inside of a parent-baby "couple" the baby's smile is not taken as a sign of an inner state but is experienced as a radiance and is hard to distinguish from the answering smile. Interpreting that same smile as a sign that refers to an inner state of the baby already implies taking an outside perspective. Taking an outside perspective can be useful, as Garrison (Chapter 18) demonstrates when he explores the physiological basis of some facial expressions, but from a dialogic point of view, it is only possible to take this outside perspective on the basis of an inside perspective that is always prior and presupposed, although often not acknowledged.

Fig. 12.1 Subject-Tool-Object mediation triangle



The argument here about a modest difference between two triangular representations of "mediation" has implications for theories of development and of education. Wertsch and Kazak's theory is that the use of cultural tools carries us beyond ourselves. This seems to follow from Fig. 12.1, the subject-tool-object triangle, as does their idea that the aim of education is to draw learners into the effective use of cultural tools. An alternative approach is that we are carried beyond ourselves by learning to take the perspective of other people. This is represented in Fig. 12.2, the self-other-sign triangle. On this, in my view, more genuinely dialogic account, language and culture are seen as an inexhaustible field of possible perspectives that open up in the space between people in dialogue. These two perspectives are reconcilable if it is recognized that dialogic relations between people provide a context for using tools, however mediation by cultural tools and dialogic relations are not, as Wertsch and Kazak imply, equal and reversible perspectives: dialogic relations precede and exceed tool use and are not reducible to tool use.

Fig. 12.2 Self-Other-Sign "dialogic" triangle



Definitions of "Dialogic" and Theories of Education

In this paper I have already used the term "dialogic" in a number of different ways with out pausing to define them. There are at least four different but interlinked ways of understanding dialogic, all of which can be traced to the writings of Bakhtin and all of which have implications for education.

Dialogic as Pertaining to Dialogues

Bakhtin defined dialogues as "inquiry and conversation" writing that "if an answer does not give rise to a new question from itself, it falls out of the dialogue" (Bakhtin, 1986, p. 114 and 168, quoted in Alexander, 2000, p. 520). This usefully distinguishes dialogues from social conversations without obvious educational significance on the one hand and monologues, the products of a single voice, on the other. Dialogic defined as pertaining to dialogue sounds like a straightforward ordinary language definition but raises certain problems which point to the need, in some contexts, for a more specialist definition. Bakhtin developed his account of "dialogic" out of a reading of Dostoevsky's novels which, as the work of one author, do not qualify as dialogues in the everyday meaning of the term. There are not many theories of learning that do not include a role for dialogues, including that of Piaget, but if this makes them all "dialogic" then "dialogic" is no longer a very useful term for characterising theories of learning. The meaning of dialogic for Bakhtin was not primarily a reference to an empirical area of investigation, that is to researching actual dialogues between people, but more a way of reading texts.

Dialogic Utterances Opposed to Monologic Utterances

Bakhtin described several ways in which texts and utterances could be located on a dialogic to monologic continuum, for example they can be more or less multi-voiced and they can be more or less open to the other. This description of texts and utterances relates to a contrast in types of orientation to the other first articulated by Buber who distinguished between an "I-thou" orientation to the other in dialogue and an "I-it" orientation (Buber, 1923/1970). The I-thou orientation is characterised by listening and understanding while the I-it orientation objectifies the other and is ultimately about controlling the other. Buber's contrast is echoed in Bakhtin's account of the difference between the "authoritative" voice that remains outside of my words and the "internally persuasive" voice. Bakhtin's account of the impact of what he called "the persuasive word" gives this an educational significance:

> Such a word awakens new and independent words, organises masses of our words from within and does not remain in an isolated and static condition: it is not finite but open; in each of the new contents that dialogise it, this discourse is able to reveal ever new ways to mean. (Bakhtin, 1981, p. 343)

Wertsch (1991) refers to this contrast between the "authoritative" and the "persuasive" in *Voices of the Mind* and relates it to a theory of learning as appropriating the voices of others based on Bakhtin's own account of how we appropriate the words of others:

> The word in language is half someone else's. It becomes "one's own" only when the speaker populates it with his intention, with his own accent, when he appropriates the word, adapting it to his own semantic and expressive intention. (Bakhtin, 1986, pp. 293–294).

Wertsch's synthesis of Vygotsky and Bakthin in the idea of learning as the appropriation of social voices and social discourses has been influential. However the philosophical frameworks of Bakhtin and Vygotsky are so different that this "synthesis" may be problematic. On Wertsch's model, the voices of others are treated as if they were cultural tools to be acquired and used by learners. The problem with this is that voices are "I-positions" (Valsiner, 2004) and so are also agents of a sort. If "mediating means" are voices then this must raise questions as to what exactly is meant by Wertsch's repeated assertion that the most basic unit of analysis is "an agent acting with mediating means."

Dialogic as an Epistemological Framework

While some of Bakhtin's characterisations of the dialogic features of utterances contrast with monologic, others refer to all utterances. In particular he claims that all utterances are a response to a situation or to somebody else's utterance and are addressed to somebody who is supposed to do something with them (Morson & Emerson, 1990, quoted by Linell, 2003). According to Rommetveit (1992) and Linell (1998, 2003) dialogism is a "paradigm" or "an epistemological framework" that makes a number of assumptions, three which I have selected as being central:

1. that any communicative act is interdependent with other acts, it responds to what has gone before and anticipates future responses;
2. that acts are similarly "in dialogue" with other aspects of context such as cultural traditions and social setting and,
3. that meaning does not exist "ready-made" before dialogues but is constructed in dialogues (which may well be the internal dialogues of thought).

In referring to this as an epistemological framework, Linell is saying that dialogic it is not about how the world "is" so much as about how we come to know things.

Dialogic as Ontology: A Postmodern Reading

Dialogic as epistemology often appears to assume an implicit ontology of subjects facing an objective world which they come to know about through talking together. A more radical step is to understand subjects and objects as already intrinsically dialogic. Bakhtin made it clear, in the context of a reading of Doestoevsky, that he intended to question the philosophical principle of identity:

> A human being never coincides with himself. The formula of identity "A is A" is not applicable to him. (Bakhtin, 1973, p. 48)

Sidorkin relates Bakhtin to Buber and claims that dialogic is not only about epistemology, or how we know things, but is also an ontology, asserting that the "essence" of being human (or human being) is not some kind of identity such as “a self” in the face of “a world” but the opening of dialogue (Sidorkin, 1999). The self, for Bakhtin is defined through dialogue and is at its most authentic as the opening of a difference between perspectives.

The idea of dialogic as an opening of a difference that is the source of meaning relates Bakhtin’s dialogism to the postmodern theme of difference. Although perhaps best known in the form of Derrida’s “différance”, this postmodern theme can be traced back to the later Heidegger’s lectures on “Identity and Difference” where he questions what he calls the “A = A” principle of identity thinking and finds the origin of meaning in an unmediated “ontological difference”, the difference between Being and beings (Heidegger, 1969). Heidegger’s account of this ontological difference is also an account of how mankind and Being belong together in what he calls “the event of appropriation” (*Ereignis*) which he describes as a movement of “overwhelming” and “arrival” and as the circling of beings and Being around each other (1969, p. 69).

Heidegger’s language here may seem a little obscure but Merleau-Ponty, whose later work was very much influenced by Heidegger, offers an illustration which I find helpful. As I stand out in a landscape a horizon forms around me (I interpret this as Heidegger’s “arrival”) but at the same time as I create this horizon around me I also find myself placed as an object within this horizon (which I interpret as Heidegger’s “overwhelming”). Merleau-Ponty refers to these two sides together as a “chiasm,” a term that has been taken up by some dialogical theorists. The word chiasm is borrowed from grammar where it refers to the reversability of the subject and the object in a sentence and is used by Merleau-Ponty to refer to the mutual envelopment and reversibility between two total perspectives on the world around an unbridgeable gap or hinge which is also a “pure opening” of meaning. The unmediated “difference” (*écart*) at the heart of the chiasm is “ontological” because it is not simply a difference in a pre-given world but it also creates that world. Merleau-Ponty is particularly relevant to the ontological understanding of dialogic as he applies his figure of the chiasm to empirical dialogues and particularly to the phenomenon that Wertsch and Kazak foreground, which is being surprised to find that one knows more than one thought one knew in a dialogue (Merleau-Ponty, 1968, p. 15 and 113; Merleau-Ponty, 1964, p. 29 and 159). Merleau-Ponty argues that an implication of his ontology is that thought should not become stuck with representations of an objective world of things on one side, or with representations of a subjective world of ideas on the other, but remain in the opening between these two perspectives using “*surrefléxion*” (hyper-reflection) to grasp representations in their full context, a context which includes the implicit whole of being as the background to every fore-grounded figure. There is a fascinating similarity between the ontology proposed by Heidegger and Merleau-Ponty and the ontological interpretation of quantum theory proposed by the theoretical physicist, David Bohm. Bohm became an advocate of dialogue as a way of enabling creative thought, which he described in terms of a “holomovement,” uniting the explication (unfolding) and implication (enfolding) of a background implicit wholeness (Bohm, 1996). Through the advocacy of Senge, Bohm’s ontology which leads to an account of the opening of dialogue as a way of enabling creative emergence, has had an impact on the practice of organisational learning (Senge, 1993).

Implications for Models of Education

Each of these four ways of understanding dialogic has implications for education. Dialogic as pertaining to dialogue suggests the promotion of dialogue as chains of questions in classrooms both through teacher-pupil dialogues (Alexander, 2004) and through establishing communities of inquiry (Wells, 1999). Dialogic as being about the open and poly-vocal properties of texts brings in the need for intertextuality in classrooms (Maybin, 1999; Kozulin, 1996; Matusov, 2007) and the appropriation of social discourses as a goal in education (Hicks, 1996; Wertsch, 1998). Dialogic as an epistemologic framework suggests an account of education as the discursive construction of shared knowledge (Mercer, 2000). While all of these approaches to teaching and learning have been referred to, quite reasonably, as dialogic they could have developed without dialogic theory. In fact, in most cases, they have: Socratic dialogue, communities of inquiry and learning as mastery of particular genres of talk are not uniquely "dialogic" methods. Dialogic as an ontological principle, however, has more radical and original implications. Heidegger points out that the most important thing to be learnt is learning itself and, to achieve this, teachers need to be even more teachable than their students (Heidegger, 1978, p. 380). Another way of expressing this same point is that dialogue is not primarily a means to the end of knowledge construction, but an end in itself, the most important end of education (Sidorkin, 1999). In my view the ideal of "teaching" learning to learn through promoting dialogue as an end in itself is the most distinctive and important contribution that a dialogic perspective brings to the debate about education (Wegerif, 2007; Wegerif, 2010).

Dialogic and Researching Learning Practice

From a dialogic perspective the project of this book, to apply a range of different theories embodying different ideals as lens through which to analyze a single body of data, is problematic. As Packer (Chapter 10) points out the data given is not value neutral but is already informed by the educational ideas and ideals of the researchers, teachers and others who produced the educational practice and recorded it. The various theories of teaching and learning explored in this book are not neutral methods but also embody ideals of what education ought to be. So part of what we actually get when the data is "analysed" from a theoretical framework is a conversation between perspectives, however this form of conversation is a very unequal one in which one side, "the theorist", measures the recorded behaviour of teachers and learners and congratulates them or criticises them according to whether or not they fit the theorist's perspective embodied in a theory of learning. There is an ethical imperative in a dialogic approach which suggests that a more genuine engagement with the perspectives of practitioners and children is required in research on educational practice.

However, having expressed that concern, I find some of the micro-analysis of interactions in this book very insightful in exploring what look like fundamental processes of teaching and learning. By “fundamental processes” I simply mean processes which are not a product of a particular theoretical perspective but are relevant from a range of perspectives, including the perspectives of practitioners and of learners. Wertsch and Kazak’s focus on cultural tools, for example, leads to a useful account of how teachers draw children into the desired use of graph paper. The focus on the dialogic relationships between people within which learning occurs, which I propose in this paper as a corrective to Wertsch and Kazak’s focus on tools, does not aspire to replace this account but to augment it. To show how this might work in practice I will re-visit in turn each of Wertsch and Kazak’s illustrations.

Illustration 1: Teacher–Student Interaction

This illustration demonstrates the practical value of Wertsch’s synthesis of Vygotsky’s Zone of Proximal Development idea and Bakthin’s idea of the appropriation. It is based upon events that occurred on Day 26 (see Appendix B) when LS worked with the members of Group 3, Edith, Jasmine, Tyler and Kendall [Excerpt 4, 0:20:51–0:32:25]. If the pedagogical objective is to teach how to use histograms, as it seems to be here (see Greeno, Chapter 3), then there is little point just modelling how to make histograms because this will not be taken in by the learners. The best way to teach this is to engage students in the problem for which histograms are a solution, that is the problem of representing a spread of data in a way which makes finding typical values possible, and then, once they have struggled with this problem, to offer them histograms as a solution to what has now become “their” problem. This is exactly what we see happening in this extract. The students engage with the problem and eventually the teacher uses the groups shared focus on the graph paper as a way of guiding them to the solution – histograms. When the solution is offered the whole group appear to understand how it solves their problem and they seem pleased with it and even grateful to the teacher for giving it to them.

The teacher here sits as part of the group, seeming to hunch down so that she does not tower over the children, often with her hand over her mouth. When, 23 min into the activity, she moves to propose a way forward, she does so in a very tentative and hypothetical way, her hand hovering over the graph paper as if very unsure and working out the solution as she goes along.

If you look at Excerpt 4 [0:24:14–0:26:18] LS’s tentativeness is very marked in the transcript. There is frequent use of phrases indicating uncertainty as to how to go forward such as “I don’t know” and “Let’s think”, “kind off” and “maybe” as well as many pauses. This attitude contrasts markedly with the certainty she expresses in her notes for this day when she writes:

> These kids seemed incredibly clumsy with organizing this rather large data set (larger than we've seen before). Even putting the numbers in serial order was difficult and time consuming for these kids.

This contrast in the texts suggests that her tentativeness, either consciously or intuitively, was intended to open up the text of her speech to the others. Her pauses were not empty, they were filled with the facial expressions of the children in the group, showing their comprehension or lack of it. The teacher constantly searched their faces to check their response and everything she said was tailored to that response. At first she sees from their faces that they don't understand so she apologises and tries again.

Excerpt 4 [0:24:44–0:24:48]

0:24:44	LS:	I'm not making myself very clear, am I?
0:24:45	Jasmine:	Hha ha I don't know what you're talking about actually.

This second time she succeeds in drawing them into her perspective partly by pretending that she does not know what she is doing and modelling the process of working it out from scratch.

Excerpt 4 [0:24:58–0:25:40]

0:24:58	LS:	Well I wasn't very clear (.) I was thinkin' (.) we certainly don't have two hundred and twenty five numbers across here (.) but if we said let's use a square and put all the ones that go from say thirty tah:: to fifty or sixty and then: every time we see a number we could put an X above it?
0:25:17	LS:	You understand what I'm saying?
0:25:18	Edith:	Yah-
0:25:19	LS:	It would give a line of Xs for all: the numbers between thirty and sixty
0:25:24	Edith:	⌈and then could like (.) °for°
0:25:24	LS:	⌊And then we'd have another square between sixty and ninety=
0:25:28	Edith:	=and then we could do ninety blahblah
0:25:30	LS:	Or maybe we could do it with twenties I don't know lets count, twenty forty sixty eighty one (.) ten- twenty forty sixty eighty. That would be (.) maybe we could even do it by tens↑.

The children join her in working it out, following her gaze and her gestures as she approaches the graph paper. When she counts the lines on the graph they were all counting together (at least those whose mouths were visible), moving their lips in unison with her words. After this she says:

Excerpt 4 [0:25:58–0:26:01]

```
0:25:58 LS:          ⌊Well that’s one way of doing it but I don’t
                      know if it makes sense to you guys?
```

And this time they all seem to get it and the children start talking now, making explicit how they are going to set about doing the graph.

The teacher is not the only one contributing to the construction of the dialogic space in the group. Clancey brings out well (Chapter 15) how the humour in this group, mainly originating with Tyler, implies holding more than one perspective at once and so loosens the grip of identity thinking and facilitates the flow of new meanings (see my account of “playful talk” as a source of creativity in Wegerif, 2005). Edith also contributes actively, supporting the teacher and sustaining her with her smiling gaze and her agreements. Twice Edith starts talking at the same time as the teacher and carries on in parallel to the teacher for a while. Just looking at the transcript it might appear as if she is trying to take the floor and is being drowned out by the dominant voice of the teacher but on the video it looks more like this is a supporting voice, Bakhtin’s “answering words” that run parallel to the words of the other as we appropriate the voice of the other into our voice.

The central role played by the graph paper in this episode might be related to the fact that a particular use of this graph paper is the teaching objective of the activity. Wertsch and Kazak claim that the graph paper, as a “sign-vehicle” and robust cultural tool, is facilitating the creation of intersubjectivity between teacher and children. However, in her notes on the day LS seems to think that the graph paper might have been a problem.

> Maybe passing out graph paper was the source of some of the confusion, for example, kids looking for ways to make coordinate systems. The graph paper, coming in close conjunction with the recent graphs of the wicking, may have pushed some of the kids in that direction.

It seems that the children might have been misled by what they saw as the “affordance” of the graph paper for plotting co-ordinates. This reminds me of the similar issue that often arises with key words in teaching science. Everyday words, like “force” are given a special meaning in science which leads to confusions. Teachers often complain that it is much easier to teach a new concept with a new word that is untainted with everyday associations. While, clearly, the children are being taught how to use a cultural tool, it is not obvious that it helps to maintain intersubjectivity at different levels of understanding, this is the job done by the dialogic relationship established between teacher and learners. The teacher has to lead the children to lift their attention from the graph, which seems to speak to them of co-ordinates, in order to carry them along a different path with her voice, her gaze and her gestures.

It is not obvious to me that all learning is learning how to use cultural tools, as Wertsch and Kazak claim. What if the pedagogical objective was something quite different such as learning that "the Battle of Hastings took place in 1066" or "learning how to love"? From a more dialogical perspective, what is general to many types of learning is the importance of establishing a "robust" dialogic relationship between teachers and learners, or between groups of co-learners: relationships between people that are capable of sustaining within them different levels of intersubjective understanding about the pedagogical aim, whatever that happens to be.

Illustration II: Student–Student Interaction

Wertsch and Kazak's second illustration is based on Excerpt 3 [0:11:10–0:18:54] and Excerpt 5 [0:39:15–0:44:30] both on Day 26 in Appendix B. Here they seem to argue that a group of children do not really know what they are doing until a teacher comes along and, using the graph paper to support intermental engagement, steers them in the right direction. As Packer points out (Chapter 15) this account does not do full justice to the efforts that the group make to sort out their different perspectives and to find a shared way forward before the teacher arrives. They seem very engaged with the task, challenging freely, responding to challenges with reasons and struggling hard to find ways to understand each other. At one point there is a dramatic transition when April suddenly sees a point that Jewel and Wally have been making, which is, if I have understood it correctly, about how the structure of the graph can indicate information so that each data point on the graph does not need to be fully labelled. At this transition there is an evident release of tension from their faces and bodies and what Packer refers to as a "marking and celebration" of their achievement.

Changing one's mind in an argument is a very interesting phenomenon and could perhaps serve as a focus in any analysis of the micro-genesis of understanding in dialogue. April precedes her change of mind by listening intently to Jewel then turning her head away from Jewel a little, as if for a moment of private thought, then she lifts her head slowly with a long drawn out "Ohhh!" `[0:18:20]` her eyes widen as her mouth opens into the "O" shape which is at the same time a kind of smile. I assume that this dramatic enactment of a new understanding is cultural in origin but I don't really know that and the physiological basis of opening ones eyes wider in this way would be interesting to explore (see Chapter 15 by Clancey and Chapter 18 by Garrison). Is it the argument that Jewel has just given that enables her to see things so differently? Just before April's conversion experience there is an important bit of physical acting.

Excerpt 3 [0:18:07–0:18:19]

0:18:07 Wally:	=Okay Anneke, Anneke, Anneke Okay. Fifty-three numbers? Okay. that would be telling them with the graph. That's why were making the graph.
0:18:15 Jewel:	We're saying it's Day Nineteen what (.) how is it going?

As she says this last utterance Jewel makes an exaggerated welcoming gesture with her hand drawing in an imaginary viewer to look at the graph.

It seems likely that April's change of mind does not stem from the force of any abstract logic so much as from a shift in perspective to see the graph from a projected future point of view – the point of view of the addressee of the graph as a vehicle for communication. The signs that lead to this change of mind are not "tools" but "epiphanic" signs (Leimann, 2002) on the model of the invocation of a voice, for example the gesture of drawing in the alternative perspective.

There was also some loss of face involved in this change of mind. Jewel immediately sits down and says "Finally!" smiling smugly up to the camera. April then feels obliged to dispute Jewel's implicit claim to have caused her change of mind, saying, "You weren't making that point!" [0:18:33] wagging her finger at Jewel.

Clearly there was something at stake for her in not changing her mind and yet she found herself forced, almost despite herself, to see their point. In the act of changing her mind she is divided within herself. A dialogical account of the self from Hermans, Kempen, and van Loon (1992) or Valsiner (2004) would suggest that there are multiple I-positions at play and that the change of mind itself is a bit like a political "coup" as one group take over control of the main means of expression. However the leverage that enables this does not come from the graph paper here but from the idea of the addressee of the finished graph considered as an outside and future perspective projected forward from the dialogue and yet influencing it from within.

The quality of the relationships in the group is crucial to this achievement of unforced agreement. Although there is an element of what Mercer calls "disputational" talk in this group, which is conversation as a kind of competition which participants try to win and lose (Mercer, 2000) I think it is also "exploratory talk" illustrated by the fact that reasons are given and minds can change. Types of dialogue can be characterised through intersubjective orientations and shared ground rules (Wegerif & Mercer, 1997). The ground rules operating in this group mean that challenges are responded to with reasons, not with any breakdown of communication, and that changes of mind are possible, although, as we have seen, quite hard to negotiate without loss of face.

As Packer points out, this group work constructively together and do seem to be learning about perspective taking and about the affordances of graphs. However they are perhaps not learning fast enough, from the point of view of the teachers, about how to use histograms. Eventually [Excerpt 5, 0:39:15] an adult, RL, intervenes to point them in the right direction. He is not part of the group but stands to one side (see Fig. 12.4). Greeno points out that his intervention lends a teachers authority to one side in a debate within the group, Anneke's side against Jewel's side. Although the learners do take on board his suggestions they do so in a very different spirit from the way in which April changed her mind in the face of arguments from Wally and Jewel. In the first "change of mind" incident Jewel is excited and fully engaged with the task, as are the others. After the teacher intervention, however, she sits back looking disengaged and says, "Well who wants to erase all this, I don't wanna" [Excerpt 5, 0:41:50] (see Fig. 12.6).

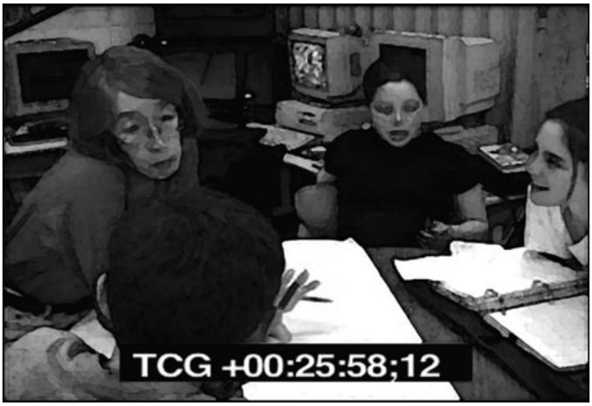


Fig. 12.3 LS: "Well, that's one way of doing it." (Excerpt 4)

The increased slurring together of syllables in her speech matches her body posture and facial expression. The impression is that, for Jewel at this moment at least, the adult's guidance here leads to resistance rather than to appropriation.

Both Packer and Greeno appear to argue that RL's intervention here is in some way authoritative. Macbeth (Chapter 4) also appears to question this with a detailed analysis of a carefully transcribed section of a short section of talk between the teacher and the group showing how skilfully he engages them. Macbeth's analysis is convincing, but it is possible that, in interpreting the dialogue here, the salient factors are not present in the text alone. If we compare Fig. 12.3 with Fig. 12.4, it is immediately apparent that the adult in the second example is not positioned as part of the group because he is standing to one side and towering over them. Of course this is only one incident in a continuing relationship. When RL returns to the group it is noticeable that he squats down to be at their height. However, small incidents can be revealing of how dialogic relations support or hinder understanding. If we compare Fig. 12.5 with Fig. 12.6 I think that we are seeing something of the different effects on learners of what Bakhtin calls the internal, persuasive voice as opposed to the outside, authoritative voice.

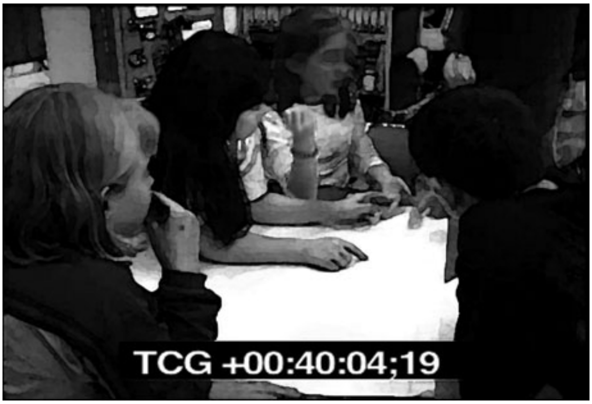


Fig. 12.4 Jewel describes her approach to representing the data (Excerpt 5)

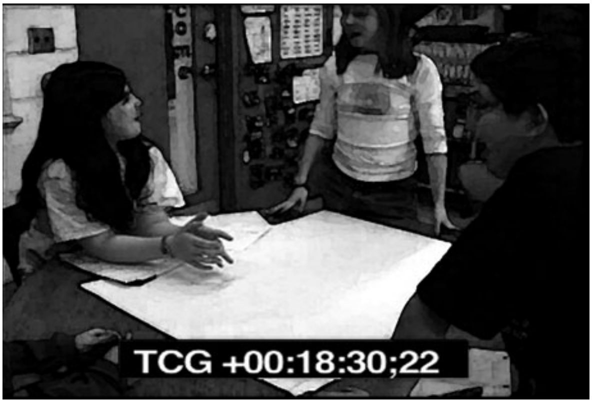


Fig. 12.5 April's enactment of a new understanding. (Excerpt 3)

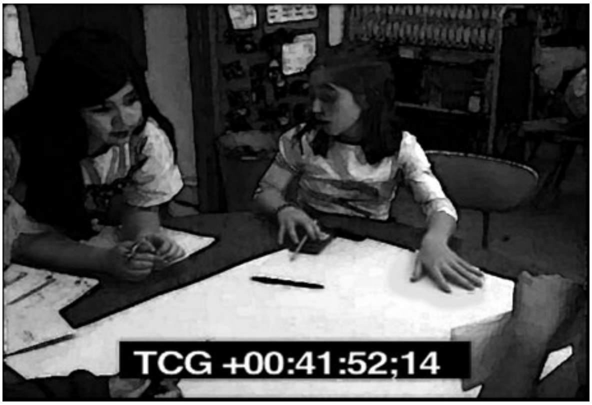


Fig. 12.6 Jewel: "Well who wants to erase all this, I don't wanna." (Excerpt 5)

Discussion and Conclusion

Wertsch and Kazak are persuasive that, in the data this book is based around, children are being led to use a cultural tool appropriately. However, my provisional re-analysis of their provisional analysis, suggests that this kind of learning takes place through dialogic relations within which people can interpret each others' signs and take each others' perspectives. It is the quality of these relationships more than the robust nature of the cultural tool that determines whether or not the teacher's words are successfully appropriated. Clearly the focus on the role of cultural tools in Wertsch and Kazak's analysis, and my focus on the dialogic relation, can be combined. However, as a general account of education, Wertsch and Kazak's focus on the role of tools seems to be limited in a way that a focus on dialogic relations is not.

The best way to research a dialogic ideal of education, education in which dialogue is an end and not simply a means, would be through design studies of teaching informed by this ideal, not through the re-analysis of teaching informed by different philosophical ideals and with different pedagogical objectives. The kind of teaching required would not only lead to the appropriation of particular voices in a debate but also the "appropriation" of the dialogical space of the debate. Such teaching would need to combine the construction of knowledge with the de-construction of knowledge. Greeno (Chapter 3) points out what he sees as a missed opportunity in the activities, to explore the affordances of different ways of using graphs: in other words to promote awareness of the field of possibilities at the same time as teaching a particular use. It would also be possible, adopting a community of inquiry approach, to explore exactly what is gained and what is lost when a piece of white paper is divided up by a grid and so turned into "graph paper." The aim of this approach to teaching would be to maintain a relation between the foreground figures that are being taught and the background field of possibilities from which they emerge.

Wertsch and Kazak's account of education as domestication of the imaginations of children may well reflect aspects of the current reality of education but it should not be used to define the limits of education. Dialogic theory suggests that a different approach to education is possible, an approach through which the taking of multiple perspectives can be encouraged and valued. All representations can be taught as moments in an ongoing dialogue or as provisional possibilities in a field of potential meaning. Through this kind of teaching dialogue would emerge as not only a means to achieving shared knowledge, but, more importantly, as an end in itself.

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