

Reason and Creativity in Classroom Dialogues

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The development of reason has long been an important aim for education. This is possibly reflected in the emphasis on the importance of explicit verbal reasoning in definitions of 'Exploratory Talk', a concept that has had some influence on classroom teaching. In this paper I argue from transcript evidence that, while Exploratory Talk is a specific dialogical model of reason that has proved to be a useful pedagogic tool, there are educationally valuable ways of talking together that are characterised more by verbal creativity than by explicit reasoning. Close analysis of actual dialogues highlights the essential importance of verbal creativity even to the task of solving reasoning test problems in small groups. This analysis also suggests that the extent and quality of creativity found in classroom dialogues is influenced by shared ground rules. This implies the need to expand our understanding of dialogical reason to incorporate creativity and to develop dialogical models to support the stimulation and channelling of creativity in educational contexts.

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Both Aristotle and Plato argued that the promotion of reason should be a central aim of education. The movement for universal education that began in 18th century France was at least in part inspired by the belief that education for all would expand the influence of reason in society and therefore fuel social progress. This is perhaps reflected today in the focus on explicit reasoning in thinking skills programmes such as 'Philosophy for Children' (Lipman, 1991) and in the idea of 'Exploratory Talk' as a model for classroom dialogues. Some 'post-modernist' thinkers, such as Lyotard and Foucault, have, at times, strongly criticised what they refer to as the enlightenment project to use education as a vehicle for the application of reason to social life (e.g. Foucault, 1961; Lyotard, 1984). However, most post-modern theory applied to education, when examined closely, does not involve a rejection of the ideal of reason so much as a redefinition of reason in terms of local dialogues (e.g. Parker, 1997). As feminist philosopher Seyla BenHabib (1992) and others have argued, it is not really possible to do without some ideal of reason, or perhaps, of reasonableness, when we are bringing up children.

Some have argued that the real problem is not with the ideal of reason itself so much as with the way in which this ideal has been taken over by a narrow model of reason (Saul, 1993). The problem is perhaps that models of reason have often been 'monological' – seeking to reduce every difference to a single 'true' perspective – whereas the reality of reason in human affairs is 'dialogical' – requiring the inter-animation of two or more perspectives. In this paper I begin by unpacking the distinction between monological and dialogical and then I go on to claim that

dialogic models of reason can be constructed and applied to good effect within education and I illustrate this idea with the example of 'Exploratory Talk'. However, I go on to argue, using evidence from four transcript extracts, that close observation of actual dialogues in classrooms highlights the essential importance of verbal creativity to the success of Exploratory Talk, even when the task set is something as narrow and 'rational' as the solution of reasoning test problems. This analysis also suggests that the extent and quality of creativity found in classroom dialogues is influenced by shared ground rules. In the conclusion I argue that this implies the need to expand our understanding of reason to incorporate creativity and to create dialogic models that support the stimulation and channelling of creativity in educational contexts.

The Dialogical Paradigm

One source for the dialogical paradigm in the social sciences are the writings of Ragnor Rommetveit (1992) and Per Linell (1998) which systematically compare dialogical assumptions and monological assumptions. The monological paradigm, still very much the dominant paradigm in all areas of science, seeks to find the universal laws and structures underlying and explaining surface phenomena. Both Rommetveit and Linell argue that while monologism is clearly useful in some contexts it needs to be understood within a deeper and broader dialogical framework. Two key assumptions of this framework can be stated as:

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

(For a more detailed account of the assumptions of a dialogical paradigm see Linell, 1998: 48.)

The dialogical paradigm is relevant for any attempt to understand reason. Dialogicality means not merely that participants in interactions respond to what other participants do, they respond in a way that takes into account how they think other people are going to respond to them. Rommetveit, quoting Barwise and Perry, calls this circularity 'atunement to the atunement of the other' and points out, firstly that it influences most human behaviour and secondly that it is impossible to understand the effects of this circularity using monological representations (Rommetveit, 1992).

Reason has been codified in various ways that have not taken this dialogical circularity into account. This is obviously true of accounts of argument found in formal logic but it is equally true of the various lists of 'critical thinking skills' that underpin many educational programmes. In the monological paradigm it is normal to see models as a way of getting a handle on reality which we can use to inform interventions that change things. Models of reason have served precisely this purpose in education. For those who adopt the assumptions of the dialogical paradigm, on the other hand, the role of models is not so straightforward. In the next section I will discuss what it means to create a pragmatically effective dialogical model of reason.

The Concept of a 'Dialogical Model' of Reason

What would a dialogical model of reason that could be an effective support for pedagogy look like? I argue that any such model would need to specify at least two aspects of dialogue, intersubjective orientations and shared ground rules. The example of Exploratory Talk shows that such a model can be a useful support to pedagogy.

Intersubjective orientations

Habermas begins his account of communicative rationality by drawing a distinction between 'a success-oriented attitude' and 'an attitude oriented to reaching understanding' (Habermas, 1991: 286). While he does not dismiss the strategic or profit-maximising rationality that issues from a success-oriented attitude he argues that this kind of rationality is parasitic on a more fundamental communicative rationality issuing from an attitude oriented to reaching understanding. Use of the word 'attitude' carries with it the danger of being interpreted as only referring to individual states whereas Habermas makes it clear that he is referring to ways in which participants in a dialogue can orient themselves to each other. He refers to this as the 'structural properties' of intersubjectivity. To emphasise this I will use the term 'intersubjective orientation' in place of attitude.

Habermas's claim about the centrality of intersubjective orientations connects his later work to the very different tradition of Jewish writer and theologian, Martin Buber. In his seminal work, *I and Thou*, (Buber, 1923/58) Buber draws a distinction between the 'I-thou' type of relationship, characterised by mutual responsiveness, and 'I-it' relationships in which an active subject confronts and dominates a passive object.

A similar distinction is found later in the work of Bakhtin who contrasts the 'authoritative' voice, that demands that we either accept or reject it to the 'persuasive' voice (Bakhtin, 1934/81: 343) that enters into us and stimulates our own answering words.

Evidence confirming the significance of intersubjective orientations for the development of human reason has recently been offered by Peter Hobson (2002). A developmental psychopathologist, Hobson studied the difference between the development of thinking in autistic children and in normal children. He claims to demonstrate, using experimental evidence as well as case studies, that the normal development of thinking crucially depends on the quality of the relationships formed in the first 18 months of life. He describes relationships in which different perspectives are brought together as motivating initial symbol use and opening up 'a mental space' between the participants which then becomes internalised in individual consciousness.

These varied sources all suggest the significance of an account of 'intersubjective orientation' to any dialogical model of reason.

Shared ground rules

Buber's 'I-thou' relationship might be a pre-condition for the emergence of reason, as Hobson claims, but it is not, in itself, reason. In Habermas's account of communicative rationality a second level of description of reason is often referred to as the social rules governing what he calls an 'ideal speech situation'.

These rules are of the kind that every participant has an equal right to participate and to question claims (Habermas, 1990: 92). These particular rules have been criticised by Seyla BenHabib and others as being too formal. Benhabib's claim is that reasonableness stems not from the abstract rights of a universal other but from recognising the needs of a concrete other (BenHabib, 1992) which presupposes an attitude of care not mentioned by Habermas. But while Habermas can be challenged on the details his important insight here is that we need shared social rules to open up a space for thinking between the Scylla of coercion on the one side and the Charybdis of unreflective consensus on the other.

Exploratory Talk as a Dialogical Model

So far I have argued from a discussion of the literature that dialogical models of reason require at least two levels of analysis: an account of fundamental intersubjective orientations and an account of social ground rules followed in an interaction. This can be illustrated more concretely in the idea of 'Exploratory Talk' that has been influential in education in the United Kingdom since the 1970s (Barnes & Todd, 1978). The concept of Exploratory Talk was first put forward by Douglas Barnes and has more recently been developed and championed by Neil Mercer and colleagues. This is presented by Mercer (1995) as emerging in the context of a characterisation of three 'types of talk' found empirically in collaborative learning in classrooms. The three 'types of talk' described by Mercer can also, as a later article made clear (Wegerif & Mercer, 1997) be seen as reflecting orientations of the kind that Habermas referred to as 'structural properties of intersubjectivity':

- cumulative talk reflecting an orientation towards a group identity with sharing and a desire to understand each other but without any critical challenges;
- disputational talk reflecting an orientation towards individualised identity so that argument is seen as a competition which each seeks to win; and
- exploratory talk which is oriented beyond group or individual identity towards the process of shared inquiry so it allows critical challenges and explicit reasoning within a co-operative framework.

Of these three intersubjective orientations the one found most educationally desirable by teachers, and that is closest to traditional ideas of rationality, is exploratory talk. This combines features of cumulative talk, being a kind of co-operation, with features of disputational talk, because it includes challenges and competition. However, the competition in exploratory talk is between ideas not between people. A key indicator of an exploratory orientation is that participants are able to change their minds in response to good arguments. In the light of the previous discussion of intersubjective orientations it seems that an exploratory orientation is a development from a communicative orientation in which social ground rules support shared inquiry within a relationship of trust and co-operation.

To turn this idea of exploratory talk into a useful model that could be applied in a classroom the research team needed to specify it more closely in terms of social ground rules. These include such 'ground rules' as:

- everyone is asked to make their reasons clear;
- challenges and alternatives are made explicit and are negotiated;
- the group seeks to reach agreement before taking a decision or acting.

This model has now been applied in several research studies (e.g. Mercer *et al.*, 1998; Mercer *et al.*, in press; Wegerif *et al.*, 1999). Encouraging children to take an exploratory orientation and to use these ground rules has meant working with teachers to 'teach' these ground rules and to turn the classroom into a social and physical environment that supported and rewarded their use. Displaying shared ground rules (of the type given above) on the wall is important for this as is the seating arrangements and the frequent reminders from the teacher that the way groups talked together is as important and valued as the answers that they came to. Equally important is the way that the teacher talked with the class modelling the kind of reasoning required, by for example, always giving reasons for claims, asking children what they think and showing through careful listening that their views are valued.

A study in Mexico by Rojas-Drummond *et al.* (2003) confirms earlier findings reported by Mercer *et al.* (1999) and by Wegerif *et al.* (1999) that teaching primary age children to use exploratory talk leads to an improvement in their individual test scores on standard tests of non-verbal reasoning. These findings support the claim that children learn to reason better as individuals through personally appropriating strategies used first in dialogue with others. This finding fits well with Vygotsky's theory that, as he put it: 'all that is internal in the higher mental functions was at one time external' (Vygotsky, 1991: 36.) meaning that the ability to perform cognitive tasks when acting alone stems from a prior socialisation process when the same or similar tasks are performed with the help of others. More qualitative analysis of the talk of children solving reasoning test problems also supports the claim that the exploratory orientation and the ground rules of exploratory talk worked as a dialogical model of reason (Wegerif & Mercer, 2000).

A Neglected Fourth Type of Talk: Playful Talk

Transcripts of children's talk collected in the course of this series of projects have always included a great deal of apparently off-task nonsense talk or banter. When the team began thinking about the three types of talk in terms of 'intersubjective orientations' they realised that this was a type of talk that could be characterised in terms of a fundamental intersubjective orientation, one of playfulness, with a concomitant set of ground rules. Although this idea was discussed by the research team it was not included in presentations of the types of talk idea. The reason for this was that it mostly concerned off-task talk and did not seem very useful to educators. In this paper I will re-visit the neglected idea of 'playful talk' and suggest that it may well be central to the aim of improving the quality of thinking and learning in classrooms. My argument is that incorporating the understanding of creativity in talk should help us to expand the original notion of exploratory talk into a broader dialogical model of reason, for use in education, that includes all talk that helps forge new shared understanding.

To help make this argument I will attempt to trace the connection between

playful talk and cognition through four examples taken from transcript extracts of classroom talk.

Off-task playful talk

It is actually very hard to get children to perform any kind of task at school without their being creative with language. In the following example three nine year old children: Sharon, Gail and Nick were asked to work together around a piece of software called 'Bubble Dialogue'. This software shows cartoon characters in a difficult situation and the users have to fill in the thought bubbles and speech bubbles of the characters. In this case the cartoon characters were called Jane and Robert. Jane knew that Robert had stolen some chocolates from the sweet shop. Now her money was missing and she thought Robert might have stolen that too. Sharon, Gail and Nick were asked to talk together about the issues and think about how the characters would feel. They did not really do that but they did produce some interesting word-play. We join them as they construct together what they will type.

Transcript Extract 1: Funny money

Sharon: I think
Gail: I think Robert stole the stuff
Sharon: That
Nick: That Robert stole my bunny
 (Sharon and Gail laugh)
Sharon: My money
Gail: Funny
Nick: It's not money I said bunny
Sharon: It's his money
Gail: I've said bunny

A few lines later they are typing in together the word 'chocolates' and Gail says: 'lovely, *yummy*, chocolates' echoing the earlier use of money, bunny, funny. She then continues in a different voice to indicate that she is quoting:

'life is in a box of chocolates'

Nobody picks up this reference to the film: *Forest Gump*. Three lines later Gail tries another reference to a different context, singing:

'Choc-o-lets. Tasty. Cadbury's Quake'

in the tune of an advertisement for Cadbury's Flake. This time Nick picks this up responding to use of Quake with the word:

'Quavers'

which is a popular snack also advertised on TV. Sharon, who is typing this whole time, brings them back to the task, as she sees it, by saying:

'Chocolates'

and then beginning to spell it out.

'C, H, O, C'.

For now the others join her in spelling out chocolate, but it is not long before the word-play breaks out again, 'chocolate' being turned by Sharon into 'choc, then it's late'.

Despite the teacher's best efforts these children interpreted the task as more about typing words into the boxes than thinking about issues. This task-interpretation is a common one and probably reflects their educational history. What is interesting though, is that they cannot do this task straight; they rhyme and break into little songs, use silly voices and puns and generally play around with language. In this they are not exceptional. Ron Carter (1999) argues that this creative 'poetic' use of language is so common in everyday talk amongst equals that it should be considered the norm. This has only become apparent recently because it has only recently been possible to collect large amounts of data of ordinary spoken language. Before the existence of large corpora of recorded talk research tended to focus more on available written texts and word-play was believed to be a deviant and specifically literary form found in poems, for example.

Yonge and Stables (1998) describe similar playful talk and question the idea that it is 'off-task', arguing that it supports relationships that are an important part of achieving the task. Yonge and Stables are perhaps responding to the negative valuation sometimes given to playful talk in the classroom. I use the terms 'off-task' and 'on-task' here not as a valuation of the talk but only as a useful short-hand to make a distinction between talk that feeds directly into the task set and that which is only indirectly related to it, if at all.

On-task playful talk

I am not going to claim that rhyming 'money, bunny, funny and yummy' is in itself something we should call reasoning. However, it is creative in the sense in which we normally use the term creative. Ronald Carter defines creativity in language as 'imaginative analogy' and this is very much what we see here. I will call this creativity type 1. More specialist definitions of the term creativity for use in education also often bring in the idea of 'resulting in a valued product' (e.g. NACCE, 1999). I will call this creativity type 2. For creativity 1 to lead to creativity 2, shared ground rules are important. This is brought out in a transcript extract given originally by Neil Mercer (1995: 101) to illustrate 'cumulative talk'.

This example is from a session in which two 10 year old girls, Katie and Anne, were working on the production of their own class newspaper, using some desktop publishing software for schools called *Front Page Extra*. At the point the sequence begins, they have been engaged in the task for about an hour and a quarter and are trying to compose some text for their front page.

Transcript Extract 2: Fatabuloso (Mercer, 1995: 101)

- Katie:** Okay, so right then. What shall we write?
Anne: We can have something like those autograph columns and things like that and items, messages
Katie: Inside these covers (*pause 3+ secs*) Our fun filled
Anne: That's it!

- Katie:** Something
Anne: Something like that!
Katie: Yeah
Anne: Inside this fabulous fun filled covers are – how can we have a fun filled cover? Let me try
Katie: Inside these (*pause 3+ secs*)
Anne: Hah huh (*laughs*)
Anne: You sound happy on this. Fantabuloso (*laughs*)
Katie: inside these inside these fant, inside these fun-filled, no inside these covers these fantastic these brilliant
Anne: Brilliant
Katie: Is it brilliant?
Anne: No
Katie: No. Fantast fantabuloso shall we put that?
Anne: Yeah (*inaudible*) fantabluloso
Katie: Fan – tab -u- lo-so
Anne: Loso. Fantabuloso.
Katie: Fantabuloso oso

The importance of this example, and why I am returning to it again, is that here the children, Katie and Anne, apply word-play to the task they had been given. Here creative word-play moves over from just being a bit of fun to being useful in an educational context. Katie and Anne are taking their work seriously. They could almost be a couple of creative marketing executives trying to find a new name for a product. Products with very similar names: Fab, Fanta, Brillo, etc. already exist and were presumably thought up through a similar kind of shared creative process. The difference between this and the ‘money’ transcript is that here the talk is oriented to finding the best possible solution to the problem set. Sharon, Gail and Nick do not link their verbal play to the task in hand, it is just a bit of fun, if anything it is subverting the task. Their play is creative in that it generates lots of new links and potential ideas – is life really like a box of chocolates? – but they do not build on any of them. Katie and Anne do build on each other’s suggestions. Their creative play becomes something I would like to call reasoning because they apply implicit shared criteria to select the preferred response. Katie asks ‘Is it *brilliant?*’ i.e does this word fit and she agrees with Anne that it is not quite right. Both then converge on ‘fantabuloso’.

Thinking by resonance

To consider how to produce an understanding of dialogical reason that goes beyond a reduction to the potentially mechanical process of explicit verbal reasoning I will use the analysis of an example of thinking in the talk of seven and eight year old children engaged in a ‘philosophy for children’ session.

As we join them the children are thinking together with a teacher about issues raised by a picture book that they all have in front of them. The book is *Where the Wild Things Are* by Maurice Sendak (Sendak, 1968). When we join them they have just read aloud about how the hero of the story’s bedroom turns into a forest and the bedroom walls ‘become the whole world’. The teacher, Mark Prentice, then

encourages them to think about imagination and the meaning of the word 'world'. Below is a lightly edited version of the talk that follows:

Transcript extract 3: Creating and dissolving worlds

- Helen:** [You can just start] staring at things and make it into your picture.
Helen: It can be about 20 things in one place.
Teacher: Say that again Helen because it's interesting.
Helen: There's about 20 things in one place.
Teacher: That you can just look at and stare?
Helen: Yeh there are also lines on the curtains they could turn into loads of green leaves.
Emma: Yeh or bamboo stalks.
Teacher: So you can stare at something and get a different picture?
Emma: Yeh you could change it into a leopard or something.
Teacher: Have you ever done that? Stared at something and looked at all the shapes that are inside it?
Alex: Yeh you could turn that into a big bone or something.
Teacher: This radiator here – so we have power to change things don't we. How do we do that?
Emma: I was in my room the other day and I closed my eyes nearly shut and my rocking horse I thought it was this kind of a pot – a shaking pot.
[...]
Teacher: Can you create your own world?
Severall: Yes.
Teacher: How can you create your own world?
Severall: Imagining, dreaming.
Teacher: That's interesting so you can create your own world by imagining – did Helen create a world when she started to talk about the curtains up there?
Helen: There's about a thousand worlds all in one person's head, all in one place.
[...]
Teacher: What do you think – Alex?
Alex: Well one time I invented my own country which I called Alexland cos I became my bedroom a whole country and I pretend all my toys are alive.
Teacher: So you created a world.
Alex: Yes.
Teacher: Now is that a real world?
Alex: Well sometimes I feel like its really real but then when I've found something like a catalogue, which I pretend you couldn't get catalogues and stuff like that, then the world just disappears.
Teacher: So it disappears when you look at something else.
Alex: Yeh when I look at something – when I go downstairs it just disappears, because my bedroom's the best place – because my toys are up there.

The teacher's role is very interesting here. He is not giving them ideas but facilitating the group thinking by repeating key points and asking prompting questions.

Here there are few challenges or explicit reasons. Instead the children seem to build on each other's comments with similar memories and ideas. Helen's idea that things can seem to be different as if 'there were about 20 things in one place' is picked up by Emma and Alex who share examples of this. This is what has been called cumulative talk because there is a sharing of experience and ideas without challenges or critical grounding. But it is nonetheless apparent that some serious thinking is going on. This leads up to the realisation, articulated by Alex, that there can be two different worlds, his own world and the adult world, and that objects from the adult world, found in his world, can make his world dissolve. It could be argued that this is not reasoning but just a description of his experience. However, reasoning is implicit in the description. This way of describing experience is a way of seeking to understand it and these descriptions reveal the world in a new way. This is perhaps what Wittgenstein calls a 'perspicuous representation' (Wittgenstein, 1978). Alex describes his experience but with insight into its general structure.

This description of how his world can dissolve in the face of anomalous objects is given in response to a prompt by the teacher that could be taken as a challenge. 'Is it really real?' But Alex does not reply to this with any explicit reasoning of the kind 'yes it is, because' or 'no it isn't, because' – he replies with a description that is also an anecdote.

Well sometimes I feel like its really real but then when I've found something like a catalogue, which I pretend you couldn't get catalogues and stuff like that, then the world just disappears.

We could say of this that Alex offers a reason why Alexland is not really real. However, the whole utterance here is much more than just a piece of explicit reasoning, it is also a sharing of his experience in a way that invites us inside that experience.

For me Alex's understanding that one world can be dissolved by the presence of an artefact from another world is a powerful piece of thinking. However I understand this through the similar ideas that it evokes for me but probably not for Alex. I am thinking of the role of catalysts in chemistry turning one kind of thing almost instantly into a very different kind of thing. I am also led to the idea of a paradigm shift in the development of science that has been described by Thomas Kuhn as a radical shift to a different world view sometimes sparked by anomalies within the original paradigm.

My response to what Alex says takes me beyond what is given, not through explicit reasoning but through a kind of resonance in which the structure of his narrative account connects for me with similar structures in events that I have read about or experienced. It is precisely through this kind of resonance that the children seem to be building on each other's ideas. One child sees a forest of green leaves emerging from the shapes in the curtain, another sees the radiator on the wall as the spinal bone of an animal, a third sees her rocking horse as a 'shaking pot', and so they share and build the idea of different worlds and the factors that influence how these different worlds form and dissolve. Alex's very

clear statement of a powerful idea does not come on its own but is a product of this dialogue. It is probably as new for him as for the others in the group.

Creative play with words and ideas assumes an orientation of mutual trust and support where each participant knows that what he or she says will be accepted. In studies of exploratory talk around reasoning test problems, which is the topic of the next section, children frequently rejected the suggestions of others saying something like: 'No, I don't agree because of x, y, z '. In the example above it would be unlikely that anyone would reply to Alex's claim that you can see the radiator as a big bone by saying 'No, I don't agree because . . .'. Instead the participants try to make the best sense they can of a different perspective, and this effort seems to open up a space of reflection in which ideas can resonate together.

Metaphors to solve a reasoning test problems

In several studies colleagues and I have assessed the impact of teaching exploratory talk by giving children standard reasoning test problems to solve together in groups, before our teaching intervention to promote the use of Exploratory Talk, and again afterwards. In analysing children's talk solving Raven's test problems we focused on the evidence of the role of explicit reasoning, looking, for example, for instances of the use of logical connectors such as 'because'. However we also found that problems were solved not through explicit reasoning so much as through the generation of perspicuous representations that were based on physical metaphors. I will give a short example from the transcript data and then explain more what I mean.

Here is a short extract of the group's talk after a series of 'Thinking Together' lessons promoting the use of Exploratory Talk. (An analysis of the full transcript has been published in Wegerif and Mercer, 2000 so I will not repeat this here.)

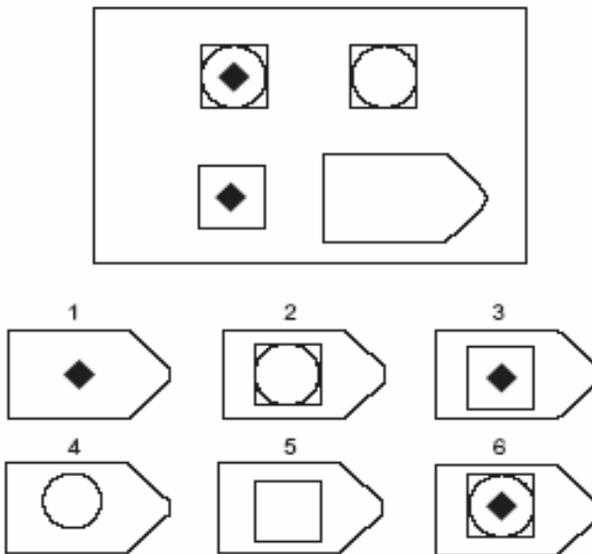


Figure 1 Raven's Reasoning Test Problem¹

Transcript Extract 4: Taking the circle out

- Trisha:** Look that's got a triangle, that's got a square, look that's got a square with a diamond with a circle in, that's got a square with a diamond in and that's got a square with a circle in so that's got to be a square
- George:** I don't understand this at all
- Trisha:** Because look on that they've taken the circle out yes? So on that you are going to take the circle out because they have taken the circle out of that one
- George:** On this they have taken the circle out and on this they have taken the diamond out and on this they have put them both in, so it should be a blank square because look it goes circle square
- Susan:** It's got to be a blank square. Yeh it is.

Trisha's initial statement in this extract comes after a long discussion in which different members of the group have tried out different alternatives and all have paused for periods of several seconds staring at the problem with concentrated expressions. Trisha appears to have understood the nature of the problem but does not express it very clearly. George admits to being baffled and Trisha responds by trying to generate an explanation that he will understand. She does this by using the phrase 'taking the circle out'. This is a physical metaphor for the relationship between parts of the pattern on the page. George grasps this immediately and repeats it for himself. Susan also now appears to understand the pattern. The relationship between the pictures in the reasoning problem is not explicitly present in the picture, it cannot be pointed at by Trisha, it can only be seen by George and Susan once it has been made visible through a shared metaphor. This use of language to model relationships and processes through the use of physical metaphors was often found in the talk of children solving reasoning problems. Expressions such as 'getting fatter', 'that and that make that' or 'that turns around' or 'add that to that and you get that' were common.

The talk of Trisha and George is clearly exploratory talk. It contains explicit reasoning. But it is interesting that, in order to see the problem together, they need to construct a new shared metaphor. This act of creation links this talk to the talk of transcript Extract 2: fantabuloso. In one case a new word is created to complete a newspaper headline and in the other a new phrase is created to understand a problem. In both cases the new construction emerges out of an extended dialogue in which the participants are struggling to create shared understanding and find a solution to a shared problem.

Reflection

The first example given, that of Sharon, Gail and Nick, illustrates an almost random playful kind of creative word-play apparently as an end in itself. In the second example given, that of Anne and Katie, a similar kind of poetic resonance between words as that used by Sharon, Gail and Nick is put to use to help complete a written assignment. In the third example, from a 'Philosophy with Children' session, resonance between images and ideas helps children articulate and understand their experience of the construction and de-construction of

different worlds of experience. The final example, with George and Trisha, illustrates how the creative generation of a new metaphor was essential to a group finding a shared solution to a reasoning test problem. The argument I wish to make through these examples is that verbal creativity (creativity type 1 as mentioned earlier) is an underlying and essential ingredient of the co-construction of meaning in dialogues (creativity type 2) and that this includes the case of explicit verbal reasoning.

The creativity we can see in these extracts is not produced by any mechanism. We cannot reduce it to a chain of cause and effects. Derrida argues that creativity in language does not need to be explained (Derrida, 1967), it is the absence of creativity that needs to be explained. This position is supported by the empirical findings of corpus linguistics (Carter, 1999, 2004). On the other hand this uncaused creativity appears in a context. This is the context of dialogues between two or more people characterised by intersubjective orientations and shared ground rules. The exploratory orientation that is evident in the last three extracts is found in the context of ground rules that serve to keep people together around a shared focus while also keeping them apart, questioning and evaluating each other's utterances. This orientation towards shared inquiry appears not only to allow for creativity 1, creativity as 'imaginative analogy', but also to funnel it via various communicative acts, into creativity type 2, creativity 'resulting in a valued product'. In this way such dialogues serve to open up a space between people in which creativity spontaneously occurs and also to channel that creativity towards a shared purpose.

Dialogues can be more or less creative. Repeating established conventions in language, for example, is not creative. Transcript Extract 3 above suggests that a creative space can be opened up by turning language back upon itself in the form of open questions. Open questions asking 'what?' or 'why?', in the right social context, trigger a shift to an exploratory attitude. Reflection here means not assuming that we know the answer or that we know what things are but stepping back from certainty to allow things to present themselves in new ways (something Heidegger referred to as 'stepping back').

The talk in the last three transcript extracts given above, illustrates something I would like to call dialogical reason. This dialogical reason is not simply reducible to the potentially mechanisable process of explicit verbal reasoning. Dialogical reason is the broader concept of shared orientation, ground rules and utterances that helps people reach shared understandings and construct shared new knowledge.

Conclusion

Thinking about reason from a dialogical perspective shifts the focus of attention away from abstract cognitive structures and towards the way that people respond to each other in dialogues. Recent research by the Educational Dialogue Research Unit of the Open University has applied what I argue here is a dialogical model of reason consisting of an intersubjective orientation called 'exploratory' and a set of ground rules specifically designed to support collaboration in the classroom. This model has proved to be an effective support for teachers. Its implementation resulted in a significant improvement in the quality

of collaborative learning and reasoning according to a range of measures. However, while exploratory talk is a dialogical model of a kind of reason, the focus in its definition on explicit reasoning makes it a limited model. It is clearly a useful pedagogical device or 'scaffolding' but it should not be taken to limit the possibilities of reason. Through the analysis of transcripts of young children thinking together with a teacher, I have argued instead that dialogical reason is characterised by the creation of a space of reflection between participants in which resonance between ideas and images can occur as well as co-construction when participants build creatively on each other's proposals.

The example of 'exploratory talk' shows that specific dialogical models of reason can be a valuable tool in education. However, analysis of transcripts presented here suggests that the focus in the definition and ground rules of Exploratory Talk on explicit reasoning limits its usefulness to particular types of task. Different sets of ground rules could be produced to generate and support other valuable types of talk within education. While these would not all exhibit explicit reasoning they would all exhibit what I am calling here dialogical reason. The understanding of dialogical reason that I am proposing includes all dialogues, internal or external, where creativity is opened up by the reflective use of language and the inter-animation of different perspectives with the purpose of greater mutual understanding or the co-construction of shared knowledge.

Notes

1. ©J. C. Raven. This is a parallel item to the one that the children were working on especially produced for this paper.

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