Reading 3: Helping Children to Make Knowledge Their Own

Gordon Wells

This extract presents some very positive examples of how language development can be fostered in the class through a shared discussion.

. The first example records a teacher introducing a poem about the frost to 5 year olds. Although the exchange is focused and the teacher has a clear objective the class is open enough to allow children to share their experiences with each other and so serves as a preparation to understand the poem.

The second example gives a description of a class for 6-7 year olds following the discovery of a bird's nest. The teacher supports and guides the conversation but she also shares the children's sense of discovery and excitement. The third example shows how a process of exploratory talk between the teacher and a 7-year-old boy enables the child to plan and then construct and last evaluate a model camera.

Wells refers both to the linguist, Edward Sapir and Lev Vygotsky to support the idea of how a child's latent knowledge is extended and developed through collaborative exploration in talk. This kind of dialogue is only possible when the teacher is able to listen attentively to what children are saying and shows a willingness to "negotiate meanings".

All these examples are a shift way from the teacher's role of transmitting established knowledge. Instead the teacher organizes the situation to guide and facilitate knowledge to be constructed by the learners on their own terms. Wells discusses what prevents this kind of shared exploration in the school context. He mentions the numbers in the classroom, the demands of an extensive and time bound curriculum, which tends to narrow down information and also the mechanistic way of teaching that assumes that children should learn the same things in the same way at the same time.

The concluding section examines how a class could be structured to foster this kind of learning .He suggests that listening critically to a recording of one' own teaching would reveal the lack of response and meaningful participation on the part of the children. However Wells stresses that it is important to see the language used as a dimension of the underlying ethos of the school; it may be a symptom but not the cause of the lack of communication.

Wells suggests the importance of maximizing involvement on the part of the children so that at least some activities should be initiated by them and that they should have a sense of 'ownership' of the process (i.e. " a continuous making and remaking of

meanings.... of the world in which one lives") and responsibility for the outcome. Practically this might affect the way materials, space and time are organized and responding to particular situations and the needs of particular children.

Check your understanding

- What are the positive characteristics that Wells draws our attention to in the different examples of exchanges between teacher and pupils?

For further reflection/discussion

- How could the organization of the classroom and materials be changed to foster the child's autonomy in learning/

Well, Gordon (1986), "Helping Children to Make Knowledge Their Own." *The Meaning Makers*. Portsmouth, New Hampshire: Heinemann. Pp. 103-124.

Six

HELPING CHILDREN TO MAKE KNOWLEDGE THEIR OWN

The previous chapter, with its rather disturbing results from the comparison of children's language experiences at home and at school, may have given the impression that classrooms are uniformly unsatisfactory in the opportunities they provide for learning through language. This is certainly not the case, as will be clear from the extracts to be considered below. In them, in their different ways, the teachers have found ways of enabling their children to engage in that collaborative meaning making which, as we have seen, is the basis of the most effective learning in the preschool years at home.

However, there are classrooms in which, despite the teachers' good intentions and obvious dedication, such opportunities rarely occur. In a later section, we shall attempt to find reasons for this mismatch between intentions and achievement and consider ways in which the two can be brought more into line. First, though, let us look at some examples of more successful interaction.

The first comes from an observation of Jacqueline, one of the children in the pilot study, during her first term in school. The teacher was preparing the children to listen to a poem about Jack Frost and wanted them to think about their experiences of frost.

Teacher: When I woke up this morning— I don't know— Who looked out of the window when they woke up this morning?

[*Some children raise their hands.*]
Only—only one, two, three—oh, four of you. Now who can put their hand up and tell me what they **saw** out of the window this morning? Jackie?

Jackie: Ice.

Teacher: Ice. Ice—Whereabouts was the ice? [*Another child answers but cannot be heard clearly.*]

Child: On the grass.

Jackie: On the grass and—and on our car.

Teacher: That's right. It's not—it's ice. But what do we call it? It's little tiny bits of ice.

Child 1: I call it—I call it Jack Frost.

Teacher: Frost really, isn't it? Frost. [*Waving her hands expressively*] What does it make the grass look like?

Jackie: White.

Teacher: White. All white, or was there some green as well?

Child 1: Some green.

Jackie: White and green.

Teacher: White and green.

Child 2: Mine—mine was all over the—

Teacher: The leaves were white. [*To Child 2*] Yours was all over the grass, was it?

Child 4: So was mine.

Teacher: So was yours?

Ian: I had—I had a taste of grass.

Teacher [*about to continue but then deciding to extend Ian's contribution*]: And—Did you? [*She holds up her finger to indicate that they should concentrate on Ian's contribution.*] Ian said he had a little taste of it. [*To Ian*] Did it taste of anything?
[*Ian does not answer.*]

Jackie: Yeh.

Teacher: What did it taste of?

Jackie: Tastes cold.

Teacher: Tastes cold. Who knows what ice is? [*Pressing fingers of both hands together*] It's something that's frozen. Ice is made up of something that's frozen.

Child 2: Well, I have that in my drink at home.

Jackie: Cold.

Teacher: That's right. You have it in your drink at home. And how does Mummy make it?

Children: By water.

Teacher: That's right! [*Pressing fingers together*] Ice is **water** that's frozen hard. That's why it wouldn't really taste of anything. You're right, Jackie, it would taste—? [*Jackie does not answer.*] Cold, wouldn't it? [*Touching her lip*] Cold. And you said you had it on your window. Is that right?

Child: And me.

Teacher: What does it do on the windows of the car?

Jackie: Didn't do nothing.

Teacher: It didn't do anything.

Child 5: You couldn't see out the back window.

Jackie: No.

Teacher: You couldn't see out of the window, no.

Jackie: It's very dangerous. Out of the back window you couldn't. 'Cos there is a wire at the back window.

Teacher: Oh, and it makes—It heats up the back window so the frost disappears?

Jackie: Yeh.

Teacher: Well, then. [*Picking up book*] This is a little poem about a man called Mister Jack Frost.

As with the discussion of the four-poster bed in the previous chapter, the teacher here has a clear aim: to elicit the children's observations and experiences on the subject of frost and ice in preparation for the reading of the poem. But her initial question is much more open in the invitation it offers and, once Jackie's initial response has been refined in order to establish the general topic for discussion, she follows up the children's suggestions in ways that recognize their validity and, at the same time, uses them to build up a clearer understanding of the relationship between water, freezing, and ice. Although her repetition of the children's contributions to confirm their acceptability simultaneously emphasizes her control over the discussion and so, to some extent, belies the apparent openness of the initial question, her attitude throughout makes it clear that their out-of-school experience is relevant to the business of the classroom, and her ready acceptance gives them confidence to volunteer further suggestions.

The second example is taken from Connie and Harold Rosen's book, *The Language of Primary School Children*.[1] The conversation took place in a class of six- and seven-year-olds in a dockland area of London. By chance a bird had built its nest under the school roof and, day by day, everyone had watched the building of the nest and the hatching of the chicks.

The discussion lasts for a considerable period of time and so cannot be quoted in full. At the point where we pick it up, they have already talked about the number of birds in the nest, their appearance, and their feeding habits. Now the teacher attempts to direct their attention to a new matter: the siting of the nest and its relative immunity from certain kinds of danger.

Teacher: I am going to ask you a question. Here's something for you to think about. Do you think the bird was clever to choose that place to build a nest?

Children [*several answering*]: Yes. It was a good place, etc., etc.

Teacher: Why is it?

Child: Because the cats can't get at it . . . Because it is too edgery to go along . . . It's too narrow to go across, and because they've got small feet . . . Well, they wouldn't be able to get on . . . and they would just fall off.

Teacher: You don't think the cat could balance along there? And somebody said it's out of the rain, yes? What's another good reason why the bird would build a nest there?

Child: Not a very good reason . . . Because Mark—He was trying to get—He had a big—He had a big cage and he was climbing up to get the bird down.

Teacher: Well, I'm afraid we've got one or two boys who've done unkind things like that, but most children have been very nice. John?

John: Sometimes they build their nests under shelter to keep out the snow.

Teacher: They do. If they were going to build their nests in the winter time they would, wouldn't they? We haven't had any snow since that nest was built, have we? . . . Who else can think of a good thing about that nest? Why do you think the bird made the nest in that place? Tony?

Tony: In my garden . . . when I came home from school . . . when I looked out of the window . . . when I looked on the ground . . . there was a broken egg . . . And when I looked up in the gutter, the mother bird was up there . . . and the babies was sitting up in turn . . . em . . . One of the babies was . . . was chewing a worm.

Teacher: Well. Our nest is safe from cats and safe from rain and safe from . . . ?

Children [*together*]: Snow.

Teacher: Snow . . . and safe from . . . ?

Child: The sun.

Teacher: The sun, yes . . . and . . .

Child: When I was going swimming Terry Booker was playing out in the street . . . and he looked in the gutter and he saw this little baby sparrow . . . It wasn't one of them like in the nest . . . It was just growing its feathers . . . It'd fell out of the nest . . . and it had all green on his wing. He took it in and gave it some crumbs.

Teacher: To look after it.

Child: Mmmm.

Teacher: That was good . . . Michael?

Michael: You know, I saw the bird . . . flying out of its nest.

Teacher: You saw the bird, did you . . . falling out of its nest?

Michael: Flying!

Teacher: Oh, good! You mean our bird downstairs?

Michael: Mmmm.

Teacher: Yes . . . Well, I expect that was the mother bird going to fetch . . . Terry?

Terry: I had this bird . . . In the roof was this nest and this baby bird, he fell

out of it . . . And he was on this window sill . . . So my daddy put it back up . . . and it fell down . . . And the cat had it.

Teacher: Oh . . . what a shame. Another thing about this nest downstairs . . . it's also safe from . . . ?

Children [*variously*]: Wind. Dust. Children.

Teacher: People—children and people.

Gary: I got that.

Teacher: You did Gary . . . That was very sensible because nobody can climb up there, can they?

Child: No.

Here, more than in the previous extract, the children are contributing freely from their own experience. And as they narrate those experiences to others they are, perhaps for the first time, discovering their significance for themselves. These are the conditions that foster language development: when one has something important to say, and other people are interested in hearing it. It is then that language and thinking most fully interpenetrate in the struggle to make meanings that capture what one has observed and understood and communicate that understanding to others.

The success of the discussion above owes much to the teacher's support and guidance. Her questions help to maintain the focus of attention, but without imposing too tight a control over the direction it takes. She recognizes the relevance of the stories that the children tell for a consideration of the advantages of the site chosen for the nest and, sensitive to the affective and moral charge that their stories carry, she endorses their implicit evaluations of the events that they recount. As the Rosens comment: "The conversation is particularly revealing in showing what happens when teacher and children have shared an experience of this kind. The teacher is not merely instructor and one who knows all the answers before they begin the conversation, but has found something new not only in what occurred but also in the children's comments on it."[2]

A discussion with the whole class almost inevitably involves the majority of the children as listeners only. In the Jack Frost extract, for example, there were more than 20 children who remained silent throughout—though this does not mean, of course, that they were not participating actively as listeners. But if, as was suggested above, it is the art of formulating one's thoughts and feelings in order to communicate them to others that is the strongest spur to actively seeking to understand them, then opportunities need to be found for one-to-one or at least for small-group interaction.

The third example is of just such a situation, which arose in the course of the morning's activities in a class of seven-year-olds in an-

other London school. The class was being filmed over a number of weeks in order to provide material for a series of educational videotapes, and Colin had become so interested in the cameras that he had decided to make a model of one, which he had fashioned out of some pieces of balsa wood. He has just started to plan the construction of his tripod, and he has come to the teacher to discuss it.[3] (*Note*: number of dots refers to number of seconds of pause.)

Teacher: Excuse me, Colin, are you having a problem?

Colin: Just trying to . . think out . . something. Just trying to think out how high I want the pole.

Teacher [*to two girls with whom she had been talking*]: Could you work there a while? So I can help Colin. [*To Colin*] How tall do you need it?

Colin [*using a meter rule and a smaller ruler, trying to read off the height of the tripod he is planning to make*]: One meter and—

Teacher: Can you imagine for a minute that you're taking a photograph? How—how high would be comfortable?

Colin: Er, this—this is what I done—trying to find that out. I put this [the model camera] like that and held it and just pretend that I was looking through, and I thought I'd have it about that high 'cos that includes the camera on top and that's how—how far I want it—one meter and [*counting on small ruler while teacher talks to another child*] thirteen—One meter and thirteen centimeters.

Teacher: Is that going to be the height of your tripod?

Colin: Yes, of the pole.

Teacher: Is each—is each pole going to be that height?

Colin: I'm go—I'm only going to have three. Um—yes. I mean—The other two are going to be a bit longer.

Teacher: Can you show me how you're going to do your plan? [*They go to Colin's table.*]

Colin: I've got—

Teacher: Sit yourself down . . You sit down.

Colin: I've got a lump of wood—

Teacher: Pardon?

Colin: I've got some wood—and [*indicating plan*] that's what it's going to look like. It's going to have those bits of, er—so I can put, um, something around it to hold the camera on, and—I'm going to try and get something that can—a round shape that could slide around inside the hole, that could hold on to, um, legs, which is going to be rather hard.

Teacher: Have you looked in the camera book to see if it shows a diagram that would help you?

Colin: Er—I have looked in one * * * .

Teacher: Did you notice that there was another one there today?

Colin: No. Yes, there is.

Teacher: Perhaps in a moment you'd like to look at that—that might be helpful.

Colin: Yes.

Teacher: What else will you need?

Colin: Um. Yes. A sharp tool that I can make the ends of them rather sharp so they can dig in the ground—or I could have blunt ones that just stand out to keep it steady.

Teacher: And how will you set your tripod up?

Colin [laughing]: It's going to always be set up. Just all I'm going to have to do is just take it outside or something—like that.

Teacher: How do you think that's going to improve your photography?

Colin: It's going to keep it much stiller and . . the pictures—the pictures will be much better 'cos they won't go blurry through movement.

With the teacher as listener and occasional prompter, Colin is helped here to think through the requirements of the task he has set himself, using language to consider alternative courses of action and to evaluate their consequences before he actually undertakes the activity. This example also shows how, in order to carry out his task more effectively, he is led quite naturally to consult reference books and to represent his proposed solution in another symbolic form—that of the plan he is drawing.

At this point it is interesting to recall the four principles that were suggested in chapter 3 (p. 50) for helping children to learn through participation in conversation. Colin's teacher illustrates how each one of them applies equally validly to conversation in a deliberately educational context:

- She takes Colin's perceived problem seriously.
- She listens carefully to make sure that she understands his intentions.
- Her questions and suggestions are based on *his* intentions and are designed to help him to extend his thinking about them.
- Although they are quite challenging, these questions and suggestions are couched in terms that Colin is able to understand—as he shows by his full and informative responses.

Having helped Colin to resolve his problem and suggested that he might look at the other reference book (a suggestion that he takes up), the teacher leaves him to work with his friend, Alan, while she attends to the needs of the other children. Later in the day, she returns to see how they have been getting on. (*Note:* number of dots refers to number of seconds of pause.)

Teacher: All right. How've you got on since I was here?

Colin: We wrote about it. I'm doing stages and we've done stages.

Alan: We've got to use another page.

Teacher: What do you mean, "stages"?

Colin: We're going to do one bit and then another bit and then another bit,

just like a two-stage rocket—like a rocket. It's got stages. It doesn't just have one great big lump. When it—say—when it's used one bit it lets it go—and that's—

Teacher [pointing to diagram]: What kind of stages are they, though?

Colin: Stages of, oh—things you've got to do.

Teacher: I see. And you're going to do your stages, are you?

Colin: Yeh.

Teacher: Would you like to tell me how it's going to work with your camera [the tripod]? [*Turning to Alan*] Have you seen his model? [*Alan nods. Then, to Colin*] You show us.

Alan: It turns round—that thing.

Colin: It goes—I'm going to lay this on the top of my tripod—

Teacher: Yes.

Colin: —which will keep it steady. Near the edge so I can go like that [*demonstrating*]. And then that'll practically be it.

Alan: He should draw a sort of square on there, so that—you know—they'll think it's—

Colin: I'm going to cut that out.

Teacher: What would that be for then, Alan?

Alan: The—the thing to look through.

Colin: Viewfinder.

Teacher [to Alan]: Did you do that on your clay one? Would you like to show me?

Alan: I didn't cut it out. I only done the lines.

Teacher [to Colin]: Look at that. It's nice, isn't it? Have you seen his model?

Colin: Yeh.

Alan [pointing to his model]: The clicker's coming off.

Colin: I could always make another one—out of plasticene [a modeling substance] or something. Can I make another model of mine, a camera model out of plasticene, maybe?

Teacher: That would be nice. Would you like first of all to just show me the front of yours? Explain to me what you've been doing.

Colin: Here I've got the dials. The other picture dials are coming off. I've got to try and get those.

Teacher: They're not very clear, are they?

Colin: No.

Teacher: Can you explain to me—can you explain to me what they are?

Alan: They're the weather things and the numbers on the thing—

Colin: I've forgotten now, but I'm going to do much better, after.

Alan: Yes. He can draw a picture of—round—

Teacher: Do you remember in your seed diagram you drew little sketches?

Colin: Umm.

Teacher: Could that be helpful when you're drawing on your dial?

Colin: I could always take this off and turn it inside out. Look, I didn't glue it on or anything. But it can come off.

Teacher: I should think you'll think of a way of doing that clearer, won't you? This is lovely.

Colin: Yes. * * *.

Teacher: Well, if you look at the real camera and look at the sorts of pictures they've got on that—

Colin: That's—I copied from it.

Teacher: Did you?

Colin: Yeh.

Alan: Yeh. They've got clouds, dark clouds and light—

Colin: It's got hazy, thunder, and seaside. Guess what the difference between seaside and just a normal bright sun is. Because seaside you get the water reflecting up light so it's got its own dial, and you put it on seaside whenever you're taking a picture near water.

Teacher: Do you think there's anywhere near here that we might need to put it on the seaside dial?

Colin [*pointing*]: The pond up there.

Teacher: Do you think there would be enough light reflected off it to have that effect?

Colin: I think there might.

Alan: Yeah, if he was in the shade.

Colin: And if you want, say, half—if you want half sun and half misty sun, you put it in between the dials . . and that gets it.

Teacher: You do?

Colin: Yeh.

Here the emphasis is on what has been done: reporting, explaining, and evaluating. As before, language provides the means for reflecting on action—not only actions that have been performed, but also those that might be performed, such as taking a photograph by the nearby pond. In this way, Colin is helped to establish connections between different aspects of his experience, using the power of language as a system of symbols to represent objects and events that are absent or no more than hypothetical possibilities.

Language always has this potential, of course, but most of the time we don't exploit it. As Edward Sapir, the American linguist and anthropologist, put it when making exactly this point, "It is somewhat as though a dynamo capable of generating enough power to run an elevator were operated almost exclusively to operate an electric doorbell."[4] One way of helping children to harness the dynamo of language to power their own thinking is through such exploratory talk. Lev Vygotsky refers to this sort of collaborative exploration at the limits of the child's ability as working in "the zone of proximal development," suggesting that this is one of the most important contributions that a teacher can make to a child's development. What the child is able to do today in conversation with a supportive adult, he or she will to-

morrow be able to manage alone in that interior dialogue that he called "inner speech."[5]

Some might argue that such positive conversations are only possible in classrooms with the most able children. And there is little doubt that Colin is an able child; he is certainly very fluent for his age. Indeed, if one were to make any criticism of the teacher's contributions it would be that they weren't challenging enough. Given his interest in photography and his obvious understanding of some of the principles involved, she might well have suggested that he try to make a real camera, of the simple pinhole variety. This could have led to some very interesting practical observations of the images produced and to attempts, both through experiment and discussion, to explain them.

But less able children also benefit from the opportunity to try out their ideas in conversation that is purposeful, yet collaborative and nonthreatening. In the previous extract, Alan was clearly gaining both in confidence and in fluency from working with Colin and from being included by the teacher in the discussion of their model cameras. The same is happening for Matthew in the following extract, recorded earlier the same morning, when the teacher included Amanda and Maxine as she discussed the clay model of a diver that Matthew was making. [*Note:* number of dots refers to number of seconds of pause.]

Amanda: Mrs. M., if he put this bit in the belt and this bit in the back with the oxygen, it might look like a real diver.

Matthew: That's what I'm going to do.

Teacher: Do you think it looks like a real diver at the moment?

Matthew: No.

Amanda: No.

Maxine: Not much. It hasn't got the equipment on it.

Amanda: Yes, but if you put the feet too small, it could easily fall down.

Teacher: How do you know about a real diver, Matthew?

Matthew: I read a lot about it.

Maxine: Why? Have you got a book about divers?

Matthew: Two. Two great big annuals of divers at home and I read 'em . . . every night 'fore I go to bed. But I'm in—I'm in the middle book one and in book two it tells you about deep-sea divers. In book one it tells you about frogmen.

Maxine: How to make it?

Matthew: Not how to make 'em.

Teacher: What's the difference between frogmen and deep-sea divers?

Matthew: 'Cos deep-sea divers aren't like frogmen—deep-sea divers haven't got flippers and—

Teacher [*turning to answer a child in another part of the room, then turning back to Matthew*]: Sorry!

Matthew: —and they have different kinds of—Frogmen don't have helmets, but deep-sea divers do. [*Pause, while teacher answers another child.*] So frogmen are quite different, 'cos they haven't got helmets.

Perhaps what is most striking about this teacher is the quality of her listening. It is noticeable, in the above text, that even when she has to break off for a moment to respond to another child, she keeps her arm around Matthew, thereby signaling to him that it is only a temporary interruption; and, on both occasions, when she turns back, Matthew continues where he had left off.

By listening attentively in this way, giving the children her full attention, she indicates that what they have to say is important—that they have expertise that is of value. When she asks questions, it is in order to be further informed, not to check that the child's answer is in conformity with her knowledge about the topic. And by inviting other children to listen and ask questions in the same way, she builds up in each child a feeling of self-respect and confidence in what he or she knows and can do and, at the same time, a feeling of respect for others as well.

Most of this teacher's time is spent with individual children or with very small groups, helping them to plan their activities and to evaluate the outcomes in the sort of interactions illustrated above. From time to time, however, she brings a group together in order to introduce a new topic, such as the following example. Here, her purpose is to teach the children how to use reference books—consulting tables of contents, using indexes, and so forth. To this end, she has assembled on the table a variety of twigs gathered from trees on the neighboring common and has prepared some reference books, including one entitled *Trees and Leaves.* The children begin by examining the twigs.

Yelshea: Miss, why has—why has it gone all furry? Most plants that I see—wild plants—are not furry. But is there anything that's meant to—why it's meant to be furry?

Teacher: What do you other children—[*to Richard*] what do you think?

Richard: 'Cos, er—it—er—protects it.

Colin: It's a warm coat . . that keeps it warm if it opens up too early.

Yelshea: It could be, because I can see the green—little bit of green inside and—I see green there . . sort of protecting it.

Donna: Like my plant—

Teacher: I beg your pardon?

Donna: It's like my plant. Mine's all furry.

Teacher: Which plant is this?

Donna: I don't know which—which one I've planted, though. Er—might have been the oak one.

Teacher: Why do you think that needs protecting?

Colin: Protecting from the cold so it doesn't die.

Yelshea: No, or protecting from the sticky bud. It might get up and stick all around it.

Teacher: Do you know how we—how we could find out about why it needs protecting?

Yelshea: I know. Just watch it.

Richard: From a book.

Colin: Just study and . . . find out.

Teacher: Which book would you look in, Richard?

Richard [*turning to get one from the shelf*]: I'd look in, um, this book.

Teacher: Yes. It's not over there. I know which one you mean.

Richard: That big book [*Trees and Leaves*].

Teacher: This one?

Richard: Yes.

Teacher: You have a little look through that while Nicola says what she was going to say.

Nicola: Miss, you know this bit here? It looks like—You know them sweet lollies and things? Well it looks like that. And this bit here, it's different from the other bit. Or is it another plant? [*She fingers the leaf of the horse chestnut.*] Because look . .

Teacher: Bring it closer to yourself.

Colin: I think it's the same—it's the same plant, except the sticky bud is still underneath it . . if you can see it. All round this side. You can see it, can't you?
[*The teacher speaks to another child who has just entered the room.*]

Richard [*indicating a picture in the book*]: Is this the sticky bud? Is this the one? This one here?

Teacher: Hang on. [*Taking book*] Can I show you this book, which Richard's seen before?

Colin [*reading*]: *Trees and Leaves.*

Yelshea: Trees and Leaves.

Richard: Miss, was that it what I just showed you—sticky bud?

Teacher: Yes. I know that you've looked in this book. I saw you looking the other day.

Donna: * * * * .

Colin: Is it—is it wild? Is it a wild book or just a plain book that you usually see?

Teacher: What do you mean?

Yelshea: Sort of . . like wild plants . . and stuff like in the common.

Colin: Does it have just normal everyday trees, or does it have great big wild trees?

Teacher [*handing book to Colin*]: Well, would you like to see?

Yelshea: Um, would it, um, be like the things in the common there? If they found out about that and wild things and all things that grow in different places.

Nicola: Miss, those * look like * *

Teacher: Do you know where you'd look in the book to find out whether it tells you about trees that you'd find on the common? Where—where would you look in the book?

Donna: On the tree page.

Yelshea: Miss . . the wildlife, wildlife.

Teacher: Shall I show you? If you look in this book with Richard.

Colin: That's got the contents.

Teacher: Yes. Right in the front it's got what's called the "contents."

Colin: Which has got a list of everything that's in it. It's got little pages or little—or a few pages about whatever it says, like—
[*Several children speak at the same time.*]

Donna: The fruit ones.

Colin [*reading*]: "What to look for on a tree." That's one.

Teacher: If you wanted to find out about these horse chestnuts, Nicola, what would you look for in the Contents? What would you look for? [*She passes the book to Nicola.*] Have a little read through it and see if you can find the part that will help you.

And so the lesson continues: the children using the book to enrich their observation, and their observation to elucidate the text of the book. As the children themselves observed earlier, in answer to the teacher's question "Do you know how we can find out about . . . ?", direct observation and consultation of reference material are complementary ways of obtaining information, each illuminating the other.

However, what is understood in either case depends on what the observer/reader brings to the situation. Prior knowledge is often insufficient or inappropriate, as was the case with Colin's somewhat idiosyncratic classification of trees into the two classes "wild" and "everyday" (or the other boy's suggestion of sour milk as an example of the suspension of solids in a liquid, in the previous chapter). When the teacher is supportive and the topic is treated in an exploratory fashion, as in the example above, children are willing to volunteer their suggestions or ask questions and so reveal to the teacher the framework they are using to interpret the new information. The teacher can then take this into account by building on it or clarifying it, as appropriate.

A teacher's manner of interacting with the children is thus at the heart of his or her style of teaching, for it is the collaborative approach—a willingness to negotiate meanings—that encourages children to explore their understanding of a topic and gives them the confidence to try out their ideas without the fear of being wrong. Risk-taking is necessary in any enterprise that aims to move beyond the status quo, and this is particularly true of learning in school, where errors as well as successes can be productive.

Central to this style of teaching is the recognition that knowledge

cannot be transmitted to students in a prepackaged form in the hope that it will be assimilated in the form in which it is transmitted. Knowledge has to be constructed afresh by each individual knower, through an interaction between the evidence (which is obtained through observation, listening, reading, and the use of reference materials of all kinds) and what the learner can bring to bear on it. The teacher arranges the situations—or encourages those that the children themselves have set up—and so has considerable control over the evidence that the learners encounter. But teachers cannot control the interpretations the children will make. On the other hand, teachers can provide guidance by drawing attention to additional evidence, clarifying misunderstandings, and asking questions that point the learner in directions for further exploration. To be most beneficial, however, these strategies need to be embedded in a style of interaction that, like the one used for helping children to learn to talk, is supportive and collaborative.

When presented with these arguments, most teachers express their agreement with them, for they are confirmed by their own experience. Nevertheless, in many cases—as our observations showed—their practice is not guided by the principles that they claim to espouse. In the remainder of this chapter, we shall explore some of the reasons for this mismatch between theory and practice and consider some practical suggestions for bringing the two more closely into line.

■ SCHOOLS AS ENVIRONMENTS FOR LEARNING

The first and most obvious cause of the impoverished interaction that so often occurs between teachers and pupils is the number of children involved—30 or more in the average class, with only a single adult. All of these children have to be kept profitably occupied on tasks that stimulate their interest and promote their learning. The demands on teachers in terms of management, safety, and control are therefore enormous, so it is not surprising to find that there is little sustained interaction.[6] Added to this, at the outset, is the inexperience of children entering school for the first time. They have to learn to behave according to the norms of the classroom, wait while others take their conversational turns, and discuss the shared topic rather than changing the subject at will. The classroom thus suffers from organizational problems that can militate against children's spontaneity and restrict the opportunities for sustained adult-child interaction of the kind experienced in many homes. As a result, the more intellectually stimulating uses of language get submerged under the demands of the sheer number of children to be attended to and the tasks that have to be done in each day.

A second contributory factor seems, more and more, to be the curriculum itself—or, rather, the increasing emphasis on standardization in the interests of accountability with respect to the mastery of the "basic skills." Clearly, it is highly desirable that every pupil should become both literate and numerate and be conversant with certain facts about his or her social and physical environment. But these skills are only of value when they are integrated with the purposes and interests that the pupil brings from outside the classroom. As Barnes puts it, to be useful, school knowledge must be converted into action knowledge.[7]

Too often, though, the concern with the curriculum takes little account of what individual pupils bring to the tasks that they are required to engage in. Instead, curriculum planners concentrate on breaking down what has to be learned into smaller and smaller, relatively self-contained steps, so that they can be arranged into linear sequences for the purposes of instruction. This has led to an exaggerated belief in the efficacy of finely graded, structured programs of work. The problem with this approach, however, is that, while certain types of learning *can* be promoted in this way, it is certainly not the case that children only learn—or even learn most effectively—when all the tasks in which they engage are imposed on them by others in the interests of ensuring a uniform progression through a predetermined sequence. Furthermore, it takes little account of the fact that learning takes place in individual children, each of whom has different interests and abilities; and that, in any class, children proceed at different rates, learning quickly and effectively when they are personally motivated and emotionally stable but more slowly and with greater difficulty when the task seems irrelevant or their personal motivation is low. This is not in any way to suggest that children should not be encouraged to engage in tasks that stretch them, that demand effort and application. But it is to suggest that the commitment that such tasks demand is only likely to be forthcoming if children perceive these tasks to be meaningful and relevant to them.

A further disadvantage of centrally controlled curriculum planning is that the curriculum becomes fragmented into isolated bodies of subject matter, and children are discouraged from making connections between the various topics and types of learning in which they are engaged. In addition, under the pressures that are induced by the perceived need to "cover the curriculum" that is imposed from above, teachers are likely to adopt a didactic style of teaching in which the roles of teacher and pupil are sharply differentiated, with the result that opportunities are seriously reduced for the sort of open-ended, exploratory interaction that encourages children to take some share in the responsibility for planning and pursuing their own learning.

But perhaps the most serious impediment to a more collaborative

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relationship between teacher and pupil is the mechanistic model of education that is implicit in so much of the discussion about accountability. To talk of the curriculum, or of individual units of work, in terms of "input" and "output" is not only inappropriate in its implicit assimilation of education to the organizational principles and ethics of industrial mass production,[8] but it is also misguided in its simple assumption that well-prepared "input" is all that is needed to guarantee effective learning.

It is not simply that, as has already been stressed, children bring different aptitudes and experiences to each learning task—important though it is to recognize this diversity—but that the learning itself involves an *active reconstruction* of the knowledge or skill that is presented, on the basis of the learner's existing internal model of the world. The process is therefore essentially *interactional* in nature, both within the learner and between the learner and the teacher, and calls for the *negotiation* of meaning, not its unidirectional transmission.

To recognize this essential characteristic of learning is to see in a new light the significance of that well-known precept "Start where the child is." All too often this is interpreted in practice to mean "Administer a test or some other form of assessment in order to decide which ability group to place the child in or which reading primer or worksheet to give him or her." But this is not discovering where the child is—what his or her mental model of the world is like or what his or her current needs and interests are. Instead, it is discovering into which of the places that are prepared in advance the child can most easily be slotted. Really to discover where a child is and, hence, how we can most helpfully contribute to his or her further learning, it is necessary to listen to what he or she has to say—to try to understand the world as he or she sees it. Only then can the teacher's contribution have that quality of contingent responsiveness that we have seen from the preschool years to be essential in helping the child to develop his or her understanding.

The pressure of numbers, the constraints of accountability, and the prevailing mechanistic model of education, then, all tend to reduce the opportunities for a collaborative style of teaching. But perhaps the most insidious influence of all is our own previous experience. Most of us have had many years of being talked *at*, first as pupils and students and, later, during our professional education, both pre-service and in-service. As as result, we have probably unconsciously absorbed the belief that a teacher is only doing his or her job properly when he or she is talking—telling, commanding, questioning, or evaluating. And, in many cases, that is what we see when we look to our colleagues for a model of successful teaching. Despite the lip service that is paid to the "student-centered"conception of education, actual practice tends on the whole to be "teacher-centered," based on a predetermined cur-

riculum at every level from kindergarten to university. It is not surprising, therefore, if, under pressure, teachers tend to fall back on the traditional transmission model of education without realizing how poorly it enables them to fulfill their best intentions.

How, then, can this situation be changed? How can teachers bring their practice more closely into line with the theories to which they probably already subscribe?

There is no simple panacea, of course. But there are a number of changes—some of which every teacher is in a position to make—that are likely to lead towards the style of teaching that has here been described as collaborative.

■ TOWARDS A COLLABORATIVE STYLE OF LEARNING AND TEACHING

For many teachers, the first question is, quite naturally: "Will it work?" Of course, the only convincing answer is that of experience—and personal experience, at that. However, there is already the testimony of individual teachers, teaching in many different school systems in countries all over the world. They all say that, having taken the plunge and tried the collaborative style, they would never want to return to their old ways of doing things.

But for those who are still undecided, hesitating because of the risks that they perceive to be involved, there is a simple step that will probably be sufficient to convince them that some sort of change is necessary: they could record themselves at work. Before making the recording, they should set down in writing what they hope will be achieved, in particular what types of learning the children will engage in and how their own behavior will contribute. Then, afterwards, they should listen to the tape, noting how far these aims were achieved and, where they were not, asking what were the probable reasons. More specific questions that one might ask are: What are the most frequently occurring patterns of teacher-pupil exchange? Who initiates the interaction, and in which contexts? What sorts of questions are asked, by whom, and for what purpose? Most teachers who undertake this form of self-assessment find that they talk too much, repeat themselves unnecessarily, and give children too little time to respond; they also ask too many questions that restrict children's participation to providing minimal answers requiring only the lowest level of intellectual activity.

If, after making and listening critically to such a recording, it seems desirable to attempt to change, then there are a number of aspects of the total classroom situation that are worth thinking about. First, there is the interactive style itself. Most teachers find that they vary their strategies from one context to another, so it is worth trying to identify

those contexts which allow them most readily to engage in genuine collaborative interaction. These can then be developed and the same strategies extended to other contexts. A general principle that almost all teachers find to be rewarding—although initially extremely difficult—is to talk less and to listen more, in particular allowing pupils a longer time to think out what they want to say and giving them time to say it without interruption. It may also be worth thinking about the sorts of questions the teacher asks and about ways of encouraging pupils to ask more questions themselves.

But to focus on language alone may be self-defeating, in the same way that a millipede would probably not be helped by being advised to think about how it was moving one of its legs. More important is for teachers to think about where they are going and which route is likely to be most satisfactory. That means reconsidering what it means to be a teacher in the light of what is known about how children learn and about how others, both adults and other children, can facilitate that learning.

From observations outside school, we know that children are innately predisposed to make sense of their experience, to pose problems for themselves, and actively to search for and achieve solutions. There is every reason to believe, therefore, that, given the opportunity, they will continue to bring these characteristics to bear inside the school as well, provided that the tasks that they engage in are ones that they have been able to make their own. All of us—adults and children alike—function most effectively when we are working on a task or problem to which we have a personal commitment, either because the goal is one that we are determined to achieve (balancing the family budget, repairing a machine) or because the activity is one that we find intrinsically satisfying (writing a poem, building a model), or both. In these circumstances, as the extracts concerning Colin and his model camera show, discussion with someone more skilled or knowledgeable takes on real purpose and significance, as progress to date is reviewed and alternative plans for further work are considered in terms of their feasibility and appropriateness. This is perhaps the teacher's most vital contribution: as a master providing guidance to an apprentice, who utilizes that guidance in the pursuit of his or her chosen goal, the value of which is appreciated by both of them.

For children to achieve this active involvement in their own learning, it is important to find ways of enabling them to share in the responsibility for deciding what tasks to undertake and how to set about them. This does not mean that the teacher should abnegate responsibility or tolerate a free-for-all in which children do exactly as they choose when they choose. Few children can work productively without the support of an understood framework and clear ideas about what is expected of them, and most teachers would not feel that they

were adequately fulfilling their responsibilities if they did not provide both guidelines and a clear sense of direction. What is required, therefore, is some form of negotiation in which both pupils' and teachers' suggestions are given serious consideration.

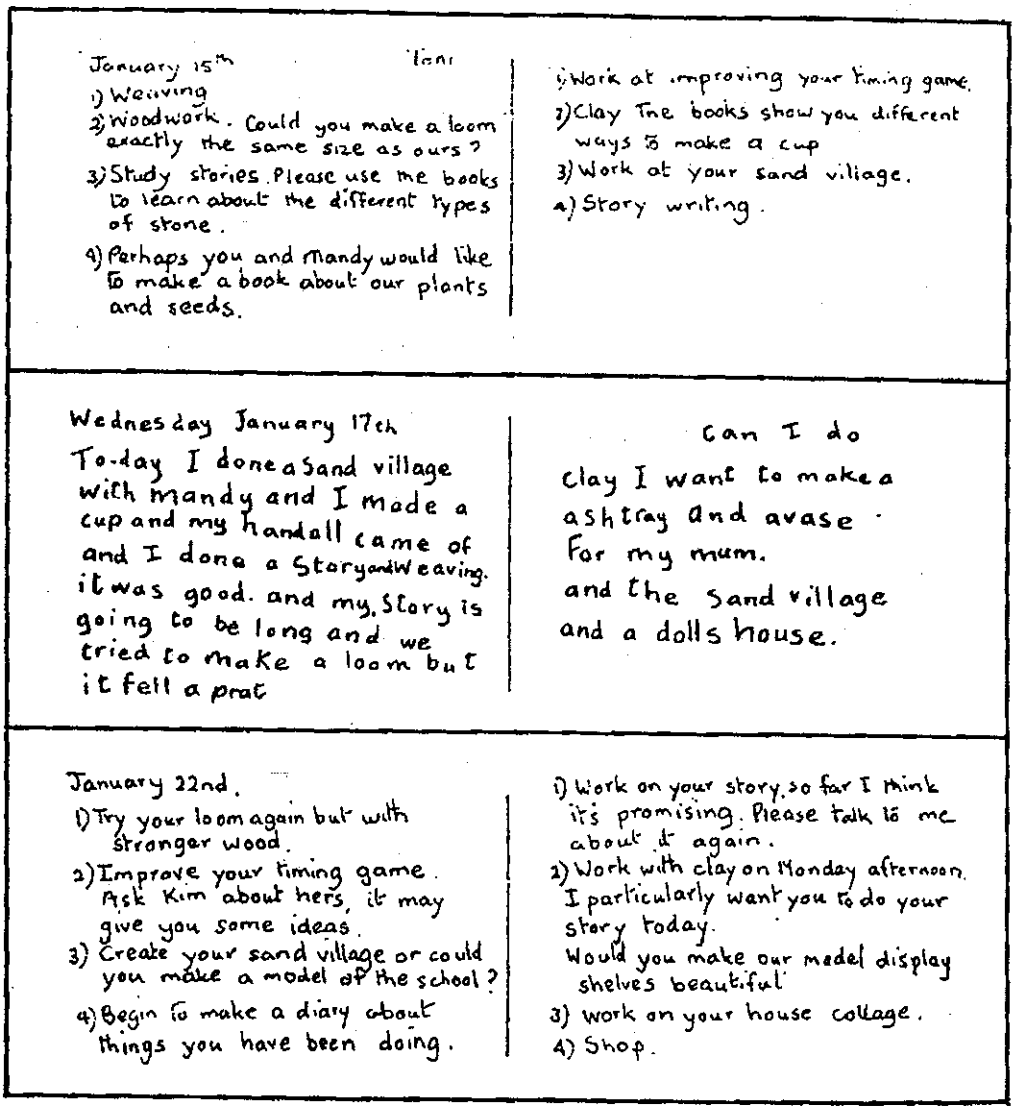
Colin's teacher had devised what were called "choice books," in which the agenda of tasks to be completed was negotiated between the teacher and each individual pupil once each week. At the beginning of the school year, when the children were new to the class, the agenda consisted largely of activities suggested by the teacher. But, as the year progressed, the children began to add their own suggestions and, perhaps more important, to note when they had not yet completed a task satisfactorily or where they needed to make another attempt or gain further information or skill. Figure 6-1 shows a page from such a choice book.

However, not all teachers will feel comfortable with so much of the curriculum open for negotiation—at least, not initially. It is important to emphasize, therefore, that there is no one correct way to proceed. Indeed, different methods will probably work best for different teachers or for the same teachers with different classes of children. What is important is that, for at least a substantial part of the curriculum, there be genuine negotiation that enables pupils to feel that they have initiated some of their activities and have taken on others and made them their own. "Ownership" is the word that Donald Graves uses to make the same point about children's writing,[9] and it applies equally to other activities, right across the curriculum.

When children have a feeling of ownership and share the responsibility for the tasks that they engage in, teachers find that their relationships with the children change. Given responsibility, children behave responsibly and no longer have to be closely supervised every moment of the day. With an agreed agenda, they know what has to be achieved and spend their time productively, using resources appropriately, asking for the teacher's assistance only when other sources have proved inadequate, and moving on to a new task when the present one is completed. As a result, freed from the demands of managing resources, answering trivial questions about procedure, and continually monitoring classroom behavior, teachers are able to spend considerable periods of time with individual children, giving assistance when it is really needed and helping them to reflect on what they are doing and to see how to extend it in various directions.

This, then, is the goal, and these are some of the benefits that are likely to result. But how can it be achieved? Here again, there is no one formula for success, but classroom management—how time, space and other resources are allocated—is one important ingredient. Having the classroom divided into different areas appropriately organized for different activities is an essential preliminary, as is arranging re-

FIGURE 6-1 **A Page from a Child's Choice Book**



January 15th

1) Weaving
2) Woodwork. Could you make a loom exactly the same size as ours?
3) Study stories. Please use the books to learn about the different types of stone.
4) Perhaps you and Mandy would like to make a book about our plants and seeds.

1) Work at improving your timing game.
2) Clay The books show you different ways to make a cup
3) Work at your sand village.
4) Story writing.

Wednesday January 17th

To-day I done a Sand village with Mandy and I made a cup and my handall came of and I done a Story and Weaving. it was good. and my Story is going to be long and we tried to make a loom but it fell a prat

Can I do

Clay I want to make a ashtray and avase For my mum. and the Sand village and a dolls house.

January 22nd.

1) Try your loom again but with stronger wood.
2) Improve your timing game. Ask Kim about hers, it may give you some ideas.
3) Create your sand village or could you make a model of the school?
4) Begin to make a diary about things you have been doing.

1) Work on your story, so far I think it's promising. Please talk to me about it again.
2) Work with clay on Monday afternoon. I particularly want you to do your story today. Would you make our model display shelves beautiful
3) work on your house collage.
4) Shop.

Source: Reproduced from *Extending Literacy* (London: Centre for Language in Primary Education, Inner London Education Authority, 1980), p. 25.

sources—paper, glue, scissors, apparatus, reference books, etc.—so that children can gain access to them without disturbing each other or the teacher. Equally important is the organization of time. Children should have long periods of time to work on the same task, with as few interruptions as possible; and, as has already been implied, they should not all be expected to engage in the same activity at the same time. With individual agendas, there is little danger of this happening, but it will be necessary to ensure an equitable rotation of access to popular work areas and to scarce resources.

These are some of the organizational prerequisites. But perhaps the most difficult question is how to get started. From talking to teach-

ers who have successfully changed their method of working, it is clear that there are many different starting points, ranging from encouraging individual children to pursue a topic that has particularly interested them to proposing a very general theme that individual children are invited to explore in a variety of different ways. Some teachers have made such a theme the center of all curricular activity over a period of one or two weeks; others have developed a theme in the area of social or environmental studies while maintaining their normal pattern of work in the rest of the curriculum. Some teachers have used a work of literature—a story, song, or poem—as the starting point for a wide range of individual activities; one first-grade teacher used the book *Watership Down* in this way, and a teacher of 10-year-olds started with the Prologue to Chaucer's *Canterbury Tales*.

The advantage of a broad theme within which all—or a majority—of the children choose topics to pursue is that there is an overall coherence to the variety of their activities. This is reassuring to the teacher, as it reduces the feeling of being pulled in too many different directions at once. It also has advantages for the children, in that they can more readily work together in groups, collaborating with each other and learning from each other's efforts. Whole-class activities, too, such as visits, reading stories related to the theme, and—most important of all—sharing what each individual or group has created or discovered, have more significance when the theme is one in which all are equally involved.

To teach in this way—collaborating in the pupils' learning and negotiating the curriculum with them—is not easy, of course. It requires a considerable degree of flexibility and an ability and readiness to meet the demands for resources of information and materials that are called for by the interests that the children wish to pursue. It also demands a constant state of open receptiveness to children's ideas and a willingness to take them seriously, even when, from an adult point of view, they seem naive or immature. At the same time, it requires clear thinking and planning in relation to broad, long-term goals and imagination in finding specific themes, activities, and materials that will spark fresh interests and make connections between those that have already been developed.

Some teachers may feel that they are simply unable to meet such demands: that the breadth of their general knowledge is insufficient or that they lack some of the necessary skills. Such doubts are understandable and very real, but they are probably also unnecessary. To teach collaboratively, it is not necessary to know all the answers to pupils' questions or to be already competent in all the skills that an open curriculum may call for. Indeed, a teacher who is universally knowledgeable and competent may actually make it more difficult for pupils to gain confidence in their ability to learn on their own. Learning

is first and foremost a *process*—a continuous making and remaking of meanings in the lifelong enterprise of constructing a progressively more and more effective mental model of the world in which one lives. Learning is never complete. Furthermore, since this process is essentially interactive, it is more helpful for the apprentice learner to work with teachers who are themselves still actively engaged in learning and willing to engage with their pupils in doing so than it is to be instructed and evaluated by those who apparently no longer have the need to engage in such processes themselves.

It is important to emphasize, therefore, that there is no one correct way to proceed. The only really satisfactory solution is the one that each teacher works out for him- or herself, taking into account the particular children concerned, their parents, the school, and its resources and environment.[10]