

Reading 7

'Scaffolding' learning in the classroom

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This reading provides an example of how teachers and researchers can use the idea of 'scaffolding' (or Vygotsky's ideas of mediation) to analyse the nature of teaching in classrooms.

The writers first explain how they understand the concept of 'scaffolding'. They then present two transcripts of interactions between teachers and learners, and analyse whether these meet their criteria for 'scaffolding'.

Read through the article carefully. Attempt to analyse the learning sequences yourself before reading the analyses. In other words, apply your knowledge! If you feel totally lost, reread the Bennett and Dunne, and the Vygotsky articles. Then try to do the analyses again.

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Notes

What do we mean by 'scaffolding'?

Recent interest in talk and learning in the classroom has encouraged a new metaphorical use for the term 'scaffolding'. This term is increasingly used to describe certain kinds of support which learners receive in their interaction with parents, teachers, and other 'mentors' as they move towards new skills, concepts, or levels of understanding. It is a term which helps to portray the temporary, but *essential* nature of the mentor's assistance as the learner advances in knowledge and understanding.

Reading

*This edited article is from Maybin, Mercer, and Stierer, "Scaffolding" Learning in the Classroom' in K. Norman (ed.), **Thinking Voices** (London, Hodder & Stoughton, 1992).*

The term 'scaffolding' was originally used by Bruner as a metaphor for depicting the form and quality of the effective intervention by a 'learned' person in the learning of another person:

'If the child is enabled to advance by being under the tutelage of an adult or a more competent peer, then the tutor or the aiding peer serves the learner as a vicarious form of consciousness until such time as the learner is able to master his own action through his own consciousness and control. When the child achieves that conscious control over a new function or conceptual system, it is then that he is able to use it as a tool. Up to that point the tutor in effect performs the critical function of 'scaffolding' the learning task to make it possible for the child, in Vygotsky's words, to internalize external knowledge and convert it into a tool for conscious control.' (Bruner, 1985, pp. 24-25)

Bruner relates the term 'scaffolding' to Vygotsky's concept of 'the zone of proximal development' which Vygotsky describes as:

'the difference between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers.' (Vygotsky, 1978, p. 86)

Bruner uses the metaphor of 'scaffolding' to represent the *special quality* of this 'guidance' or 'collaboration'. Though its source is child psychology, the metaphor has become adopted in 'language in education' circles because of its emphasis on the *role of language* – and especially spoken language – in children's learning.

The appeal of, and problems with, 'scaffolding'

Along with many others who are interested in the role of talk in the process of teaching and learning, we find the metaphor of 'scaffolding' tremendously appealing *in principle* and at the same time elusive *in practice*.

The appeal of the concept among teachers derives from the fact that it directs attention to the quality of their participation in the learning process. It emphasizes that good teaching strategies are necessarily based on, and responsive to, the state of understanding achieved by particular learners. Teachers appreciate a model of the learning process which can accommodate the teacher as *active participant* (as opposed to, for example, a custodian of simulating environments, or a facilitator) and which offers teachers a possible conceptual escape from the tired debate

about 'traditional versus progressive' pedagogies.

At the same time, however, teachers have recognized that the scaffolding concept remains at an abstract level and is not easily translated into a practical classroom context. The familiar difficulty of aligning theory and practice without distorting either of them is especially problematic in this case, since the concept was originally developed by researchers investigating the linguistic and cognitive development of very young children, usually observed in one-to-one conversations with a parent or adult caregiver.

Teacher-pupil relationships, and the discourse within them, are unlikely to be characterized by the same degree of emotional intimacy and intuitive understanding as parent-child relationships. One-to-one interactions in classrooms tend to be more truncated than interactions between parents and their children. Parents' utterances within such interactions tend to respond directly to, and to extend, the communicative intent of their children, whereas teachers' interventions may be more consciously informed by curriculum-related learning objectives. Moreover, discourse between a teacher and an individual pupil is usually contextualized by other discourse, whereby the pupil relates to the teacher as part of a group or whole class.

Teacher-pupil discourse will inevitably be influenced by the institutional norms of schools and the peculiar power relations within classrooms.

What the notion of scaffolding offers, then, is a way of conceptualizing the process whereby one person in the role of 'teacher' mediates the progress of another person, the 'learner', by reducing the scope for failure in the task the learner is attempting.

What kind of 'help' does 'scaffolding' offer?

'Scaffolding' is clearly a form of 'help'; but what kind of help is it? What are the specific features which distinguish scaffolding from other forms of assistance?

We begin with the working hypothesis that it is not just any assistance which might help a learner accomplish a task. Instead we look for help that will enable learners to accomplish a task which they would **not have been able to manage on their own** [...]; help that will bring learners closer to a state of competence which will enable them eventually to complete such a task on their own.

Our use of the word 'task' here is not meant to imply that 'scaffolding' is **only** applicable if pupils are doing a certain kind of well-defined problem solving activity. We do, however, wish to retain the idea (covered in Bruner's original usage) that 'scaffolding' is help given in the pursuit of a specific learning activity, one which has finite goals. In other words, we would not find it acceptable to make broad claims such as: 'Teacher X scaffolded

pupil Y's progress in mathematics, though we might not object to the claim: 'Teacher X scaffolded pupil Y's work on a *specific* maths project'.

Whether this distinction (between 'scaffolding' and *other* forms of help) is easy to apply in practice is an open question. To know whether or not some help counts as 'scaffolding', we would need to have at the very least some evidence of a teacher wishing to enable a child to develop a specific skill, grasp a particular concept, or achieve a particular level of understanding. It might also be reasonable to expect some evidence, usually in the *quality of the talk* between learner and mentor, that the mentor had 'tuned in' to the learner's present state of ability or understanding.

A more stringent criterion, but one which we would treat tentatively at this stage, would be to require some evidence of a learner successfully accomplishing the task with the teacher's help. We could speculate that an even more stringent interpretation would be to require some evidence of a learner having achieved some *greater level of independent competence* as a result of competence, or an improved level of understanding, in dealing independently with some subsequent problem.

Some of these issues might be clarified by looking at examples of teaching and learning. We will consider two recorded sequences, one from a primary classroom and one from a secondary classroom, and begin by looking at a fairly straightforward example of what might be categorized as 'scaffolding'.

Some examples of 'scaffolding' in classrooms

Sequence 1: Learning to categorize seashells

This sequence took place in a primary school classroom where two eleven-year-old boys were engaged in an activity intended to develop their understanding of how *scientific classification schemes work*, by getting them to classify a collection of seashells into distinct categories on the basis of their physical features.

The kind of hierarchical scheme they were expected to generate was that which in botany is called a 'key'. A botanic key (often found in the appendix to books on wild flowers, trees, or other natural vegetation) enables the user to identify any plant specimen found in the world by answering a set of specific questions to which only yes/no answers can be given, for example:

- 'Has it got leaves?';
- 'Are its leaves arranged in pairs?';
- 'Do its leaves have serrated edges?' and so on.

The boys therefore had to write a series of questions that would enable

Do you notice how these writers use ideas from both Piaget and Vygotsky in their explanations about networks of knowledge, conceptual understanding etc.? If you don't, you might want to reread the article by Piaget in particular (page 14).

other pupils to identify any specific shell in the collection.

As an educational activity, this task operates on more than one level. The notions of ‘procedural’ and ‘principled’ kinds of understanding (Edwards and Mercer, 1987) are perhaps useful here.

- At a *procedural* level, the boys are meant to develop and practise their skill at sorting a set of objects of subtly different shapes and sizes.
- At a rather more abstract level, they are meant to generate a series of yes/no questions to identify shells in the collection.
- At the most *principled* level, they are meant to grasp the essential logic and heuristic value of scientific systems of classification.

At the point at which the sequence begins, they are a bit ‘stuck’ and so have appealed to their teacher for help.

DAVID: I can’t think of one to separate these two. I’ve got to separate some of these.

TEACHER: What’s an obvious difference between them?

DAVID: They are cones.

GRAHAM: ****

TEACHER: All right. That would ... So you would separate those two, but it wouldn’t be a question that applies to those. Is there *one* difference between those two that is also a way you could group *those*?

(The teacher points to different shells on the table)

DAVID: Well, that’s pointed ...

TEACHER: Um ...

DAVID: ... and that one isn’t.

TEACHER: I think, perhaps, that you are limiting your thoughts to *shape* at the moment. Think about some other things ... some other variables that you could look at.

GRAHAM: Colour.

TEACHER: Try colour.

GRAHAM: Is it that sort of colour. Is it dark? That is dark.

TEACHER: You are going to have problems. People would say, well, compare if someone said to you, ‘Which is the dark one of those two?’ ... you would immediately point to that one. Now, this is where the difficulties arise, isn’t it? ... Because there is no doubt which is the dark one there.

BOTH: Yeah.

TEACHER: And at the first glance at the whole group there’s no doubt

Please note that **** refers to unintelligible speech. In other words, the researcher recording this interaction wasn’t able to hear what was said at these points. This dialogue first appeared in a 1991 Open University video that formed part of a *Computers in Learning* course. It was filmed in a British Grade 7 class.

which is the dark one there, but if that was the only shell you had, and someone said to you, 'Is that a dark shell?'; what would be your answer?

DAVID: Yeah.

TEACHER: You would probably say, 'Yes.' Graham, you might say, 'No.' I mean, I think I would probably say, 'No, it isn't a dark shell.' But, I mean, I'm sure that if you went round the class you would find that half the class would probably say that was dark and half would say it was light. So it might not be a good question. Simply because people's judgement of what light and dark is varies. But, I mean, don't put that thought out of your mind. But that ... that's the sort of question you need to ask yourself, you know, when you're making, when you are asking the question, 'Is there only one definite answer?'

DAVID: Maybe, 'Has it got more than two colours?' That's got brown, black, and white. That would split those into that.

GRAHAM: **** Yeah. ****

DAVID: ****

TEACHER: What are you trying to say?

GRAHAM: Is it ... ?

DAVID: Has it got two, more than two colours?

TEACHER: All right. Delete the line and rewrite the question.

Note Before you read the analysis of sequence 1 on the next page, try and do your own analysis first. How does the above dialogue demonstrate 'scaffold' learning? Use the ideas the authors develop in the early part of this article (and in other readings you have done) to inform your analysis.

Analysis of sequence 1

In this sequence, the teacher helps the pupils to make progress on a task in which they are already engaged and in which they have got 'stuck'. He tries to draw out ideas *from the boys* (for example, the variable of 'colour') which he knows will take them along *productive paths* to a solution.

He gives them some *feedback* on their suggestions, *pointing out weaknesses* where they exist. He tries to help them *adopt a suitably detached or 'decentred' perspective* on the problem by pointing out that relative terms (like 'dark') won't work in the circumstances in which other people will use their 'key'.

On this occasion, we see that the pupils at the end of the sequence have, with his help, discovered a way of distinguishing the shells in question. Our criterion of seeing pupils *achieve a task* they had been unable to do on their own, *with help*, has then been satisfied.

Our most stringent criterion, which requires evidence that the pupils are subsequently more competent at *independent problem solving*, is not met by anything contained within this short sequence.

However, a subsequent video recording of their activities shows that Daniel and Graham went on to complete a satisfactory classification of the shells and generate a suitable series of questions. If we are prepared to take a longer timescale into account, then, this criterion too may be satisfied (depending upon what 'level' of learning outcome we are prepared to accept for this task).

We would therefore conclude that sequence 1 is a piece of 'scaffolded' learning.

Sequence 2: Developing a language autobiography

This next sequence comes from a secondary school classroom. It involves a conversation between one pupil and her teacher.

Samantha comes from a class of fifteen-year-olds who have been researching and writing about their own language development. She has discussed what she sees as key points in her own language history with friends in the class, and has written one-and-a-half pages for the first draft of her language autobiography. She is now showing this to her teacher.

The draft is a rather rambling piece of narrative about various events in Samantha's life. Her teacher wants to help her to focus the content of the writing more clearly on issues of language, and to develop the structure of the piece so that it conforms to the style required for 'narrative' and 'descriptive' writing for the GCSE.

The GCSE is the British school-leaving equivalent of our matric (Grade 12) exam. This dialogue first appeared in a 1992 Open University video used in a *Curriculum and Learning* course. It was filmed in a British girls' school.

Two short extracts from their conversation are transcribed below:

TEACHER: Right, Samantha could you, erm, tell me how far you've got and what problems you've had? Have you gone any further than ten?

SAMANTHA: Yeah, eleven, and, like, when I just come, like, left Beechside, my previous school, come to this school and where I met Angela again from where I met her up the hospital and that and ... erm, then I met her friend, Sharon, now we're friends again.

TEACHER: And what language bit are you talking about there when you're meeting up with your new friends, with your old friends?

SAMANTHA: Well, I knew Angela from like when my nan used to go up the hospital and that and have check-ups, but I didn't know Sharon until I come to this school and until Angela introduced me to her, that was when I was eleven.

TEACHER: So it's part of your language biography you've described there, your meeting up with those friends again? What points are you going to make after that? You're going to be looking at your vocabulary or looking at the way you talk with friends?

SAMANTHA: Yeah, in a way, in a way I acted in some of my lessons and that and how I acted against, erm, like books when I first come to this school 'cos I didn't really like them. *(Pause)* I'm not sure if I've got enough from nought to one.

TEACHER: Right, OK. Can you just read the start there, and I'll listen to how it sounds, OK?

SAMANTHA: What to that bit?

TEACHER: Well, is that where your first paragraph's gonna come to an end?

SAMANTHA: Yeah. I think so, 'cos there's, like, what I'm talking about how, what about my mum and dad and that and my family and I go onto how I, how I learnt to speak and that.

TEACHER: Right, OK. So test that out, see what it sounds like.

(Samantha reads)

TEACHER: Why are you so worried about putting that at the beginning, why would I think, do you think, that that is a good start?

SAMANTHA: I dunno, I think it's a bit of a mouthful in some ways.

TEACHER: Why is it important to, why have you decided to put all that

in there about your mum and dad, what's that say about you?

SAMANTHA: It's sort of tell 'em why I'm a bit sort of cockney accent and that and shows, 'em, like what sort of background I've sort of had off of my parents.

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Once again, do your own analysis of sequence 2 before you read the analysis below.

Note

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Analysis of sequence 2

This seems to be the sort of context in which the notion of scaffolding would apply.

Samantha feels she is stuck with her piece of writing, and her teacher has specific teaching aims which he hopes to get across in the course of their conversation. The vicarious mental scaffold which he is attempting to hold for her includes the *language agenda* which needs to be made more explicit in her piece, and also the *ground rules which apply to GCSE writing*. He continually tries to relate what she has already written to these two sets of criteria.

It is a one-to-one encounter, and the teacher tunes in very sensitively to Samantha's own ideas, trying to draw her on from these towards a content and structure which he knows will make for a more effective piece of writing. Notice, however, that Samantha persistently sidesteps her teacher's questions, answering them in a way which remains firmly within the boundaries of *her own agenda*.

For example, when he asks her 'And what language bit are you talking about there when you're meeting up with your new friends, with your old friends?', Samantha answers by explaining when she met Angela, how she got to know Sharon and so on.

On the *discourse* level, this looks like a piece of attempted scaffolding which has failed.

However, in order to understand the nature of what is happening here, we need to look closely at the *context*. The teacher has a number of reasons for not giving Samantha more explicit directions about what to include, what to expand on, and how to structure her piece.

- First, since personal language development is so closely tied up with emerging personal and social identity, he has to be particularly sensitive in helping her to achieve a balance in the content of her writing between accounts of incidents in her life and drawing out relevant language issues.
- Secondly, he knows Samantha is very resistant to criticisms of her writing, and, if she becomes discouraged, will probably give up and do no

further work to the draft. His own teaching style is to show clearly that he values his pupils' ideas and then to direct them to the kinds of decisions and choices they need to make in order to develop and refine those ideas in a way which will conform to the appropriate ground rules. It is up to the pupils themselves to decide precisely how they will use their teacher's advice in redrafting their work.

In the event, this proved to be one of the best and most extended pieces of writing Samantha produced for her GCSE folder, although none of her pieces obtained a very high grade. She *did* write in parts of the autobiography about incidents in her life that had affected her deeply, without relating these to anything about language, and at these points the structure became more rambling. *But* she included enough appropriate content matter and structured her writing clearly enough overall, to produce a piece of work that was considerably stronger than her previous assignments.

Thus the written outcome from this example does seem to suggest that her teacher successfully scaffolded Samantha's learning in this instance, in spite of the lack of evidence for this in the transcript example. She could not have produced such a finished draft without her teacher's help. The fact that the work carried out, and the decisions taken, were very much Samantha's own would suggest that the notion of scaffolding should not be seen as giving all the power to the teacher. It is clear that pupils can take an active, creative role within the process and exert some influence over the nature and direction of the scaffolding.

If your analysis is very different from that of these teachers, or you don't understand why they make the points they do, reread the sequences and the articles in which Vygotsky's ideas of mediation are discussed. See, then, whether your ideas are more similar to those of these writers. If not, can you dispute their analysis convincingly?

Conclusion

We have tried to show in these two short analyses how the 'scaffolding' concept can be used as an analytical tool to help gain a greater understanding of teaching and learning. There are distinctive dimensions of the teaching and learning process, and each of them needs to be scrutinized separately in order to determine the essential features of the scaffolding phenomenon. That is to say, we must take account of the features of:

- the *talk* (for example, the kinds of questions asked by the teacher);
- the *learning task* (for example, skills, concepts, understanding);
- the *teacher's intentions* (for example, to respond to the learner's confusion, to introduce a new learning task);
- the *learner's intentions* (for example, to use the teacher as a resource);
- the *context* (for example, the quality of the mentor-learner relationship, the social and physical setting, the implicit understandings of teacher and learner about the activity);
- the *outcome* (for example, practical demonstration of new learning, tangible products, something in the talk).

These six dimensions have provided us with an analytical framework for examining classroom interaction. They have also enabled us to explore the practical implications of the scaffolding concept – for the way we promote talk in the classroom and for the way we interact with individuals and groups.

Nevertheless, much investigation and refinement remains to be done before we may confidently identify the essential features of scaffolding in a classroom setting, and distinguish it from other successful forms of teaching and learning.