Should We Salvage the Scaffolding Metaphor?

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Abstract

In response to the six commentaries on my analysis of the value of the scaffolding metaphor, I attempt to highlight common themes and revisit arguments for and against the utility of the metaphor.

The six commentaries on my paper (this issue) concerning the history of the scaffolding metaphor and its contributions to the field of learning disabilities represent a set of thoughtful and provocative essays. As a group, the essays provide a range of opinions with respect to the central issue of this special series, namely, the value of the scaffolding metaphor as a fruitful stimulus for theory and research on the nature of learning and instruction. Although the exact arguments differ, all of the papers raise at least some concerns about the continuing value of the metaphor, concerns that I generally share but do not necessarily see as fatal. There is also a striking similarity in the views expressed concerning the central issues to consider in developing effective instructional interventions for children with learning disabilities. In my comments, I hope to highlight these shared views and to reconsider the value of the scaffolding metaphor in light of this perspective. I will also make some suggestions regarding where we should go from here in our efforts to maximize learning opportunities for children with learning disabilities, with or without the scaffolding metaphor.

Points of Agreement Concerning the Nature of Learning and the Dynamics of Effective Instruction

One striking aspect of the six commentaries is that, despite the different theoretical backgrounds represented by the various authors, there is a good deal of agreement regarding the dynamics involved in meaningful learning. This agreement centers on the conception of learning as an active, integrative process. For example, Butler (this issue) uses the term *strategic learning* to refer to "a complex and recursive cycle of cognitive activities, including analyzing tasks, selecting, adapting, or even inventing strategies, monitoring performance, and shifting approaches as required." Biemiller and Meichenbaum (this issue) emphasize that effective learning involves not only task mastery but also "self-direction." Reid (this issue) emphasizes "the important role that learners play in their own learning." Donahue and Lopez-Reyna (this issue) characterize learning as involving an "active search for meaning." Palincsar (this issue) sees learning as involving "inquiry." And finally, Scruggs and Mastropieri (this issue) distinguish two types of learning, one involved in "the mastery of important human conventions" or "fluent responding in a skill area," and one involved in the mastery of new conceptual understandings. In the former case, they seem to equate learning with "direct practice," but, in the latter, they emphasize an "inquiry-driven, reflective, interactive approach."

Common to all of these perspectives is a view of children's learning as both active and integrative. Related to this view is a conception of instruction that emphasizes the value of engaging the learner in joint meaning-making. Here again there is a good deal of commonality across the various contributors to this special series. Donahue and Lopez-Reyna emphasize the "titration" of assistance, the need to "create environments that capitalize on children's goals and motivations," and the encouragement of a transfer of responsibility. In her discussion, Palincsar links instruction to notions of "negotiated meaning," "enculturation," and "guided inquiry"; Reid emphasizes "dynamic, dialogic interactions." For the instilling of conceptual understanding, Scruggs and Mastropieri advocate an "inquiry-driven, reflective, interactive approach" to instruction; Biemiller and Meichenbaum emphasize a combination of direct teaching and the fostering of self-directed learning via the transfer of responsibility for constructing new strategies. Butler emphasizes "flexibly calibrated" support via "interactive dialogues" and joint problem-solving.

Although these issues were not a major focus of my own paper, I hope it was clear in my discussion of the appropriateness of the scaffolding metaphor that I share many of the views regarding learning and instruction embodied in the six commentaries. Although I find Piaget's image of the child as scientist overly individualistic and rational, I would certainly emphasize, as do Butler and Palincsar, that children are engaged in continual, integrative meaning-making. I would also agree with Donahue and Lopez-Reyna and with Reid that much of chil-

dren's learning is sparked, and even guided, by their ongoing interactions with significant others.

Although there is remarkable agreement among the series participants regarding the nature of learning and instruction, we differ in our respective views concerning the value of the metaphor of scaffolding in capturing these themes. I argued in my paper that the metaphor grew out of a social constructivist theoretical tradition—a tradition that shares the view of learning and instruction common across the various contributors to this series. I also attempted to demonstrate in my paper, however, that the metaphor has not always been used in ways that are consistent with its heritage, and that we need therefore to be careful in how we apply it. Finally, I argued that, despite its limitations, the scaffolding metaphor can still be useful to the field—*if* we are mindful of its origins and work to refine its meaning, particularly through an increased emphasis on communicational dynamics (Stone, 1993, this issue). Although I came away from a reading of these six commentaries with an even sharper awareness of the metaphor's limitations, I still believe that it will be a useful rallying point for at least the near future, and I hope in the following pages to articulate my reasons for this continued interest in the metaphor.

Does the Scaffolding Metaphor Capture the Key Dynamics of Learning and Instruction?

Although the various commentators share opinions regarding the essential nature of children's learning and the key features of effective instruction, they diverge considerably in their views regarding the value of the scaffolding metaphor as a means of capturing or developing these themes. Indeed, their views represent a continuum from concern that the metaphor is dangerously misleading (But-

ler) to the view that the metaphor continues to be a useful guide but decidedly needs fine-tuning (Palincsar and Reid). It is interesting to note that opinion regarding the continuing value of the scaffolding metaphor among the commentators varies directly as a function of whether the author(s) consider the metaphor in the abstract, divorced from its theoretical context and historical development. Those commentators who discuss the decontextualized metaphor (e.g., Scruggs and Mastropieri) are the most skeptical about its value, whereas those who imbue the metaphor with its historical trappings (e.g., Palincsar, Reid) are the most favorably disposed.

In their commentary, Scruggs and Mastropieri take the position that, "it may not be necessary to employ metaphors to characterize aspects of the teaching–learning process." I would certainly agree that it is not *necessary* to do so, at least at an explicit level. In the context of the present series, however, the crucial question is whether it is *useful* to do so. Obviously, Scruggs and Mastropieri do not think so. Their point is basically that many scholars in the field have been able to converge on a common understanding of the crucial dynamics of effective instruction without resorting to metaphor. Scruggs and Mastropieri go one step further, however, by arguing that even if one values metaphors in scientific discourse, the scaffolding metaphor may not be apt enough in detail to be truly generative of new insights. This is the heart of the matter. It is interesting in this regard that none of the contributors to this series (myself included) actually argues for the utility of the metaphor in this strong sense. On the contrary, other authors join Scruggs and Mastropieri in pointing out limitations in the parallelism between the use of scaffolds in building and the process by which adults guide children's learning (e.g., Butler, Donahue and Lopez-Reyna). In the classic arguments in the philosophy of science, metaphors are supposed to aid in the creation of new insights by vir-

tue of their parallelism to the phenomenon under investigation. If this is not the case for the scaffolding metaphor, then perhaps we should indeed abandon it. In fact, I am *not* optimistic that the scaffolding metaphor, in its literal trappings, will generate any new insights for us. In this narrow sense, it may indeed be a dead metaphor. However, I *do* think that it served a generative purpose in its earlier history and is therefore imbued with a rich meaning that evokes many key dynamics in learning and instruction.

In essence, I am arguing that there is value in traditional symbols in the process of evolving theoretical discourse. They provide a reminder of a shared understanding, and, more important, they provide a convenient shorthand label for such shared understanding, thereby facilitating higher order discussions (such as the present special series). Finally, although they may no longer serve to generate new insights for the initiated, it is still the case, as Palincsar points out, that they may serve powerfully to orient novices with their "descriptive power." In a similar vein, I would argue that the metaphor is evocative. It evokes most strongly the image of social guidance. Scaffolds are used by communities of experts, working together to construct complex entities, according to a set of culturally based plans. This is certainly part of what is involved in what Palincsar refers to as the "enculturation" of knowledge.

In its historical context, Bruner's introduction of this image (see Stone, this issue) served an important purpose: It provided a powerful counterpoint to both Piagetian individual constructivism and the emerging model of isolated information-processing systems. But historical significance in and of itself is not sufficient reason to keep a metaphor active. In my own analysis of the metaphor, I argue for the need to reinvigorate the metaphor if we are to keep it.

Thus, although I recognize the point being made by those who argue that the scaffolding metaphor is sterile or un-

productive, I am not overly concerned about it. The more serious concern in my mind is the charge that the metaphor is misleading. Butler makes this point most directly. She argues that the metaphor of scaffolding evokes an image of a passive child (the building) whose knowledge is being shaped by adults according to a fixed "blueprint." She is concerned that the metaphor evokes an image of children's knowledge as merely a mirror of adult knowledge. In essence, Butler is concerned that there is no provision in the scaffolding metaphor for the child's construction of novel ways of knowing or doing.

A related position regarding the scaffolding metaphor evident in some commentaries is that the metaphor has been systematically distorted, via what Piaget might have called nonaccommodative assimilation, into the largely behaviorist orientation of the field of special education. This view is voiced most clearly by Donahue and Lopez-Reyna and by Reid. I certainly agree that such distortion has been a problem, as I attempted to document in my original article—indeed, that concern is at the base of my proposal for enriching the metaphor.

Other concerns about the literal aptness of the metaphor are raised by Scruggs and Mastropieri, who point out that a scaffold supports the workers, not the building. A literal interpretation of the metaphor raises many concerns, as I acknowledged above. But, as I also pointed out in my original discussion, the history of the scaffolding metaphor is such that we have moved beyond any literal analogy to a construction scaffold. I am still optimistic that we can contextualize, enrich, and invigorate the metaphor and thereby make productive use of it in guiding our future thinking. My own suggestions for one way to accomplish such re-invigoration were detailed in my original article.

Although we *could* salvage the metaphor, *should* we? Are there better metaphors for capturing the dynamics of learning and instruction discussed

above? I mentioned two alternatives in my original paper: apprenticeship and assisted performance. The authors of the various commentaries offer several other suggestions. I counted three such alternatives, leaving aside the metaphor of the "dance," which is mentioned only in passing by Biemiller and Meichenbaum but could conceivably be developed. Butler provides the most detailed alternative. For her, a more apt metaphor is that of "construction." The child's acquisition of new knowledge is depicted as a construction worker (the child) making use of the materials provided by his or her culture to craft new buildings. Butler moves to this image in order to avoid the implication inherent in the scaffolding metaphor that the adult is shaping the child in accordance with a set "blueprint." Her image does accomplish this end (which is laudable); however, it is at the cost of cultural continuity, for she has left the child with no building plan at all. As a reformed Piagetian, I can't help but feel that this is a step away from social constructivism. At the risk of invoking yet another metaphor, I can't resist pointing out that in making such a change we would only be jumping out of the frying pan and into the fire.

The second alternative metaphor given an extended development is that of the "flying buttress," proposed by Donahue and Lopez-Reyna. The evokers of this metaphor claim to present it with tongue in cheek, but there is a serious message here. As they point out, unlike a scaffold, which is physically separate from the building—dismantled when no longer needed, and leaving no apparent traces—a flying buttress is actually incorporated into the building structure. It serves simultaneously as a support and as an integral part of the structure itself. This image is clearly reminiscent of Vygotsky's conception of the "internalization" (or, in current parlance, the "appropriation") of societal guidance (Rogoff, 1990).

Although their invocation of the flying buttress metaphor serves to make

an important point about a limitation of the scaffolding metaphor, I don't think that Donahue and Lopez-Reyna intended it as a serious alternative. Indeed, on other dimensions, it does not seem to be as useful. Most important, perhaps, the connotation of transfer of responsibility is lost because there is no longer any sense that the support provided is temporary. Clearly, this is a trade-off.

Reid introduces a third metaphor into the collective discussion, that of the newcomer entering into a play in progress. Like the scaffolding metaphor, we owe this metaphor to Bruner (1990). In introducing this metaphor, Reid does not propose it as an alternative to the scaffolding metaphor per se. Instead, she treats it as a metaphor for the broader cultural context within which the participants in any specific instance of scaffolding are operating. As I have already made clear, I am not philosophically opposed to mixing metaphors, so I don't mind having the construction take place at the theater. However, there is reason for caution here as well.

The major contribution of the play metaphor seems to be that it makes explicit an image of the broader cultural context, which is only implicit in the scaffolding metaphor, and as such it serves a useful role. In this sense, it is somewhat parallel to Rogoff's (1990, 1993) metaphor of apprenticeship. Both metaphors serve the important function of contextualizing the interpersonal dynamics evoked by the scaffolding metaphor. It is interesting, however, that the juxtaposition of these two "meta-metaphors" exposes both the value and the limits of each. Rogoff's metaphor invokes a practical, goal-oriented view of society. Bruner's metaphor suggests a more humanistic society, one that is often "at play." Both images are clearly important, and either alone is limiting.

The issue here, however, is not what is the most apt characterization for the broader sociocultural context, but the much narrower problem of how best to characterize the adult guidance

of children's learning. Rogoff weds the broader and narrower issues nicely in her linked metaphors of apprenticeship and guided participation, and there are clear virtues to this conception as an alternative to the scaffolding metaphor. However, as I have already argued, I continue to see some heuristic value in the metaphor of scaffolding.

With respect to the other alternative metaphors discussed above, I see some value in each. On balance, however, I don't see any of them as presenting a powerful alternative to the scaffolding metaphor. At the risk of sounding like an inveterate traditionalist, I must say that I prefer to keep what we have and work to enrich it.

Where Do We Go From Here?

In arguing that we keep the scaffolding metaphor, I am *not* arguing for the status quo, as I hope I made clear in my earlier discussion. We must be on guard against the potential shortcomings of the metaphor, both those of omission and those of potential misguidance. We must also look beyond the metaphor at the broader issues of learning and instruction, especially in the particular case of children with learning disabilities.

Broader Applications of the Metaphor

In their discussion of the metaphor, even those commentators who were the most optimistic about the potential value of the metaphor pointed out ways in which it could or should be enriched. Taken together, these points are quite valuable, and they warrant careful thought.

The most important of these points relate to how broadly we conceive of "scaffolds." As I pointed out in my discussion of the history of the scaffolding metaphor, although Cazden (1988) argued for the value of conceiving of classroom participation structures as scaffolds, this less literal focus

on instructional scaffolds has not received much attention, particularly in the field of learning disabilities. Palincsar reminds us of the value of such a view of instructional routines. Reid also makes this point. Similarly, Reid points out that cultural artifacts and discourse structures can be considered as scaffolds. Finally, Palincsar argues that the forms of knowledge representation used by effective teachers (what she terms "pedagogical content knowledge") also serve as scaffolds.

These suggestions provide a welcome counterbalance to our rather narrow focus on graduated, or "titrated," adult directives. However, in enriching our understanding of scaffolding, it is important that we keep in mind two interrelated points. First, the term *scaffolding* serves as both a noun and a verb (*Oxford English Dictionary,* 1989). There are entities that serve as scaffolds, such as diagrams, and these entities serve an important role in instruction. However, what is most crucial is the process by which these entities are used to foster new understandings. In essence, one could argue that the core of the scaffolding metaphor rests squarely on viewing it as a *process*.

The second point, closely related to the first, is that as we broaden our conception of the components of scaffolding, we must be mindful of the need to make clear how these new components operate. What are the interpersonal, communicational dynamics by which classroom participation structures instill new ways of thinking, for example? I raise this question not to express skepticism—indeed, I would wholeheartedly endorse these proposals. Rather, I am reminding us of the danger of failing to attend carefully to the key mechanisms by which social support of various types instills new understandings. Without fleshing out these dynamics, we run the risk of emptying the scaffolding metaphor of any real force. Indeed, this danger is already evident in many current references to the metaphor, as I noted in my original discussion.

Beyond the Metaphor

The last point above brings us full circle to the broader issues with which I began. Although it is worthwhile to consider the pros and cons of using a metaphor such as scaffolding as a tool to aid our thinking about instruction and learning, our ultimate goal is a richer and more fruitful understanding of these important issues. The best way to do this is to focus not only on enriching the metaphor but also on the broader goal for which it is merely a tool: namely, the development of a comprehensive conception of how adults most effectively foster learning in children. Here, as I have already noted, there is much common ground among the contributors to this special series. The crucial question at this point is, How do we capitalize on the insights we share and move forward? Whether one works within the context of the scaffolding metaphor or not, there are some clear goals that we should keep in mind. In my own current thinking about this broader context, I see three issues as crucial if we are to improve instruction for children with learning disabilities. First, as I have argued before (Stone, 1989, this issue), we must make explicit in our theory of instruction the operative dynamics responsible for instructional effectiveness. It is well and good if we happen upon a particularly effective instructional implementation (see below), but both the wider dissemination and the improvement of that model depend on our having a clear understanding of what makes the instruction effective. We need to be certain that what we think is the source of its effectiveness is actually what is causing its success. One way to get a handle on this issue is to contrast more and less effective implementations of the same intervention. Some authors have used this strategy effectively (e.g., Duffy et al., 1987; Mariage, 1995).

A second and related point is that there is much to be learned from an objective analysis of successful implementations of existing instructional

models. All too often, we accept at face value the hypothesized components of a successful intervention. While such components may indeed be important, there may well be other factors at work, factors that are not identified in the investigator's theoretical model of instruction. In essence, I am calling for a more pluralistic examination of instructional implementations. One good model for such an enterprise is provided in a book edited by Green and Harker (1988), who invited prominent scholars of classroom discourse to conduct analyses of a single videotaped classroom lesson. The charge for each scholar was to provide an analysis, grounded in both theory and data, of what factors were at work in the lesson. The results are illuminating, and a similar enterprise would provide a rich case study for the field of learning disabilities.

A third issue to consider in refining our conception of effective instruction is the need to consider more systematically the child's role in successful instruction. Models of instruction (and especially those in the field of special education) all too often assume that children are passive recipients of information. Careful consideration of the interpersonal dynamics involved in instructional exchanges makes it clear that the child is playing an active role. This point is mentioned by several of the authors in this special series (e.g., Biemiller & Meichenbaum; Butler). To consider this issue fully, however, we will need to incorporate both a theory of instruction *and* a theory of the learner, especially the atypical learner, into a single model (Stone, 1996). This point is developed most fully by Donahue and Lopez-Reyna, who make a number of interesting and important points about the communicational challenges posed by scaffolded instruction for the child with learning disabilities.

Finally, before closing this discussion of instruction and the scaffolding metaphor, I would like to note a particular irony evident in the papers in this special series. Although the scaffolding metaphor began in the context of studies of parent–child interaction, and although much of the refinement of this metaphor in the field of developmental psychology took place in that context, none of the commentators chose to discuss this special instructional context. Although this bias is understandable given the central focus of the field of learning disabilities, it is important that we consider the broad spectrum of instructional contexts encountered by children with learning disabilities, including those in the home as well as those in the school (Stone & Conca, 1993). Doing so can only enrich our understanding of both the problems and the solutions.

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