# Mapping scaffolding functions onto samples of classroom discourse

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**Abstract**

In this paper, we map teacher–student interactions onto the six functions of scaffolding according to Wood, Bruner, and Ross's (1976) framework: Recruitment, Reduction in Degrees of Freedom, Direction Maintenance, Marking Critical Features, Frustration Control, and Demonstration. The study was conducted in an international after-school program in Japan, focusing on daily English lessons. Through an analysis of diary entries and video recordings, we examine two classroom conversations involving students Naoki and Ami (pseudonyms). Our findings suggest that when teachers reflect on and analyze their own teaching, they can better identify gaps in their methods and improve their instructional techniques, ultimately benefiting both themselves and their students.

**Keywords**: Scaffolding, Teacher-student interaction, Classroom Examples, Conversation Analysis.

**Introduction**

Scaffolding is a concept introduced by Wood, Bruner, and Ross (1976), who used the concept to describe the ways in which parents and teachers support young children (aged 2–5) in carrying out tasks, in the case of their paper making shapes out of wooden blocks. Wood et al. (1976) did not explain why they used the term scaffolding but refer to it as something "that enables a child or novice to solve a problem, carry out a task or achieve a goal which would be beyond his unassisted efforts" (p. 90). Later commentators have explained that the scaffolding metaphor refers to the fact that the help offered is constructed for use as it is needed and removed

when it is no longer needed. From their observations of the kinds of support offered, Wood et al. (1976) adduced six functions for scaffolding: Recruitment, Reduction in Degrees of Freedom, Direction Maintenance, Marking Critical Features, Frustration Control, and Demonstration.

It should be noted that, later, researchers linked scaffolding to Russian psychologist Lev Vygotsky's notion of the zone of proximal development (Vygotsky, 1966/2016). For example, Palincsar (1986), explaining her model of "scaffolded instruction," defines the driving question as being: "How can educators best aid learners in the zone of proximal development, nudging them from one level of competence to the next and eventually to independent application of the instructed skill?" (p. 74). However, in this paper, we avoid linking the two concepts and work with Wood et al.'s framework as it was originally offered, since the link between them is somewhat controversial (e.g. Ableeva, 2010).

Although the idea of scaffolding is almost a half-century old by now and oft-cited, it is surprisingly difficult to find clearly written and detailed examples where the framework is applied systematically to language classroom discourse. Many teachers, though they have heard of scaffolding, may not know the six functions. Those teachers will also not know which functions they use in which situations, and whether there are any functions they do not use (but perhaps profitably could). In addition, without careful inspection of detailed examples of scaffolding, it is impossible to judge how useful the framework is and whether it requires any modifications.

In the English language teaching literature, we were able to find one study (McCormick & Donato, 2000), in which teacher discourse in a language classroom was analyzed in terms of the six functions. This paper focused on teacher questions only. McCormick and Donato (2000) found that "scaffolding is a viable framework for investigating teacher questions" (p. 196); they pointed out that "teacher questions function as symbolic linguistic tools to achieve goals" (p. 196).

In the present study, our goal is to analyze some teacher-fronted

discourse in a language classroom and see how well the teacher's support (not only questions) map onto the functions defined in the scaffolding framework and possibly glean lessons for the teacher regarding any under-exploited functions.

**Context of this study**

This study's context is an international afterschool program in Japan, focusing on daily English conversation. There are English teachers (native and non-native), bilingual teachers (English and Japanese), and other teachers. The first author (Lily) works as an English teacher there. Each day the teacher chooses a topic to talk about in the class, for example students' ages, their favorite things, the weather, and so on.

The present study focuses on a short period in December, 2023. The first author kept a diary in which she wrote diary entries describing in as much detail as possible what had occurred in her classes. Sometimes, her memory of the class was supported by video footage, but this was not possible for all classes. Later, we looked at the diary entries, and broke down Lily's conversations with students into scaffolding episodes, which we attempted to map onto Wood et al.'s (1976) framework.

In what follows, we will show two conversations with different students, Naoki and Ami. Naoki is a 7-year-old boy, and Ami is an 8-year-old girl (pseudonyms; ages at the time of data collection). These short conversations took place within the flow of a regular lesson (60–90 minutes) with multiple students.

**The two conversations**

Lily's descriptions of the students in her diary include the following remarks:

Naoki: [2023/12/8] a playful and intelligent second-grader; has recently started taking an Eiken class. While he has a good vocabulary and can understand the teacher, he struggles to construct full sentences and often pro-

vides single-word answers to questions. Therefore, he requires assistance in forming complete sentences.

Adding more detail to Naoki's description at the time of writing this paper, Lily explains that he is "difficult to control and each day he is getting more naughty…it is difficult to make eye contact with him, and difficult to get him to focus on a specific thing, and he is always moving around."

Ami: [2023/12/15] Because Ami is in the second grade and has been in class for one year, she understands the questions. I try to help her find the correct answer by asking questions and giving her clues.

[2023/12/8] Ami is becoming familiar with the questions and is trying to help her friends.

The two children can be said to be quite different, but we will see in what follows that much of the scaffolding that occurs fits into the same framework.

The conversation with Naoki took place on December 8th, 2023, while the conversation with Ami took place one week later, on December 15th, 2023.

**Conversation with Naoki**

Here is the conversation that we would like to analyze.

T: How old are you, Naoki?

N: Mmm?

T: Hmm, let's try to figure it out together. Look at my fingers. How many fingers am I holding up?

N: Nana (in Japanese)

T: That's right! Can you say 'nana' in English?

Ami: Seven

N: Seven

T Yes, well done, Ami! Naoki, now let's try to put it into a full sentence. Say, 'I am …..'

N: Mmmm [Naoki hesitates.]

T: You're doing great, Naoki! Let's try this together. 'I am _____'.

N: I am seven.

T: Good job! And what comes after '7'?

N: Years old.

T: Exactly! So, put it all together: I am 7 years old.

N: I am seven years old.

T: Fantastic! You got it, Naoki. 'I am 7 years old.' Well done!

We will now show parts of the conversation exemplifying scaffolding in the form of Table 1, with our analysis of the exchanges in terms of Wood et al.'s (1976) six functions. We have added an additional column containing Lily's understanding of the functions in more everyday language, since in our view the terminology may not be immediately accessible to all educators. Wood et al.'s (1976) terms are accompanied by quotations from the explanations of the functions in that paper (p. 98).

**Table 1:**

*Analysis of a Conversation with Naoki*

| Examples | Functions | Teacher's understanding of the functions |
|---|---|---|
| T: How old are you, Naoki? | **Recruitment:** "… enlist the problem solver's interest in and adherence to the requirements of the task." | Engagement and Initiation: The teacher initiates the interaction by asking Naoki a question about his age. This recruits Naoki's attention and engagement in the task. |

| T: Let's try to figure it out together. Look at my fingers. How many fingers am I holding up? | **Reduction in Degrees of Freedom:** "…simplifying the task by reducing the number of constituent acts required to reach [a] solution." | Task Simplification and Guidance: The teacher breaks down the task of constructing a full sentence about Naoki's age into manageable steps. First, the teacher prompts Naoki to identify the number of fingers, then to say the number in English, and finally to construct a full sentence. |
|---|---|---|
| T: That's right! Can you say 'nana' in English? N: Seven  T: Now let's try to put it into a full sentence. Say, 'I am …..' | **Direction Maintenance:** "...The tutor has the role of keeping them in pursuit of a particular objective. Partly it involves keeping the child 'in the field' and partly a deployment of zest and sympathy to keep him motivated." | Focus and Guidance: Throughout the interaction, the teacher maintains the focus and direction of the task, guiding Naoki through each step of forming a complete sentence about his age. |
| T: And what comes after '7'? N: Years old. T: Exactly! So, put it all together: I am 7 years old. | **Marking Critical Features:** "**…**A tutor by a variety of means marks or accentuates certain features of the task that are relevant. His marking provides information about the discrepancy between what the child has produced and what he would recognize as a correct production." | Highlighting Key Elements: The teacher highlights critical features of the task, such as the importance of using complete sentences and including the phrase "years old" when stating one's age. |

| | | |
|---|---|---|
| T: You're doing great, Naoki! Let's try this together. | **Frustration Control:** "Problem solving should be less dangerous or stressful with a tutor than without." | Encouragement and Support: The teacher provides encouragement and support to Naoki when he hesitates or struggles to form complete sentences. By scaffolding the task and offering assistance, the teacher helps prevent Naoki from becoming frustrated and supports his confidence in completing the task. |
| T: Put it all together: I am 7 years old. | **Demonstration:** "Demonstrating or "modeling"... often involves an 'idealization' of the act to be performed and it may involve completion or even explication of a solution already partially executed by the tutee himself." | Modeling Behavior: The teacher models the process of forming a complete sentence about age by providing examples and prompts for Naoki to follow. Through this demonstration Naoki is able to make a full sentence in English. |

## Conversation with Ami

Here is the conversation with Ami that we would like to analyze. As mentioned earlier, Ami has been studying for longer, and the types of support she needs and their effects on her are rather different:

> T: Who is your favorite teacher?
>
> A: Lily.
>
> T: Lily? You need to answer in a full sentence.
>
> A: My favorite [silent, thinking]
>
> T: Yes, Ami… [giving her time]
>
> A: My favorite Lily.
>
> T: My favorite …….
>
> A: [Silent]

T: OK, Ami, who is Lily?

A: Hmmm?

T: Lily is a doctor, teacher, student… who is Lily?

A: Teacher

T: Great! Now, my favorite ……..

A: Teacher, my favorite teacher Lily.

T: My favorite teacher is Lily.

A: My favorite teacher is Lily.

As with the conversation with Naoki, we will now show in table form the parts of the conversation that exemplify scaffolding. For readers' convenience, we will repeat the quotations from the Wood et al. (1976) paper explaining the functions.

**Table 2:**

*Analysis of a Conversation with Ami.*

| Examples | Functions | Teacher's understanding of the functions |
|---|---|---|
| T: Who is your favorite teacher? A: Lily. | **Recruitment**: "… enlist the problem solver's interest in and adherence to the requirements of the task." | Engagement and Initiation: The teacher initiates the conversation by asking Ami about her favorite teacher. This encourages Ami to participate and engage in the discussion. |
| T: Lily? You need to answer in a full sentence." A: "My favorite (silent, thinking) T: Yes, Ami. A: My favorite Lily. | **Reduction in Degrees of Freedom**: "…simplifying the task by reducing the number of constituent acts required to reach [a] solution. | Task Simplification and Guidance: The teacher guides Ami by prompting her to answer in full sentences. By narrowing the options for Ami's response, the teacher helps her focus on providing a complete answer. |

| | | |
|---|---|---|
| T: OK, Ami, who is Lily?<br>A: Hmmm?<br>T: Lily is a doctor/teacher/student, who is Lily?<br>A: Teacher<br>T: Great! Now, my favorite… | **Direction Maintenance**:<br>"...The tutor has the role of keeping them in pursuit of a particular objective. Partly it involves keeping the child 'in the field' and partly a deployment of zest and sympathy to keep him motivated." | Focus and Guidance:<br>The teacher provides guidance to Ami by asking leading questions and providing prompts to help her formulate her response. For example, when Ami pauses while thinking, the teacher encourages her with prompts like "OK, Ami" and "hmmm?". This helps keep the conversation on track and supports Ami in finding the correct answer. |
| T: My favorite…<br>A: My favorite teacher  Lily. | **Marking Critical Features:**<br>"**…**A tutor by a variety of means marks or accentuates certain features of the task that are relevant. His marking provides information about the discrepancy between what the child has produced and what he would recognize as a correct production." | Highlighting Key Elements:<br>The teacher emphasizes the importance of answering in full sentences by correcting Ami's initial response and prompting her to provide a complete answer. This helps reinforce the desired behavior and language structure. |
| T: Yes, Ami<br>OK, Ami. Great! | **Frustration Control:**<br>"Problem solving should be less dangerous or stressful with a tutor than without." | Encouragement and Support:<br>The teacher remains patient and provides guidance when Ami hesitates or expresses confusion. |

| T: My favorite teacher **is** Lily. | **Demonstration**: "Demonstrating or "modeling"... often involves an 'idealization' of the act to be performed and it may involve completion or even explication of a solution already partially executed by the tutee himself." | Modeling Behavior: The teacher models the correct form of the answer by repeating it and providing Ami with prompts to guide her response. |
|---|---|---|

**Themes**

After analyzing the interaction between Naoki and Ami within the framework proposed by Wood et al. (1976), several prominent themes emerge. These include: guidance and support, progression, focusing on a specific objective, feedback and reinforcement, language acquisition, and progression.

**Guidance and Support**

The teacher guides Naoki and Ami by providing them with clarity and direction, which is evident in the function of recruitment during both interactions. When the teacher initiates a conversation by asking, "How old are you, Naoki?" and "Who is your favorite teacher, Ami?" the teacher emphasizes the need for full sentences in their responses, offering clarity and direction. Moreover, the teacher supports them by offering assistance and encouragement to cope with challenges. For example, during Naoki's interaction, the teacher says, "Let's figure it out together," demonstrating support and willingness to help. Similarly, the teacher encourages Ami by providing her with time to think before responding.

**Focusing on a specific objective**

The interactions with both Naoki and Ami focus on specific

objectives, as evidenced by the function of Direction Maintenance. For instance, with Naoki, the teacher guides him towards a particular objective by saying, "That's right! Can you say 'nana' in English?" Naoki responds with "seven." The teacher then redirects him by saying, "Now let's try to put it into a full sentence. Say, 'I am …..'" Here, Naoki's conversation centers on constructing a sentence about his age, aligning with the specific objective of practicing sentence formation and language proficiency.

Similarly, when engaging with Ami, the teacher prompts her to identify her favorite teacher in a full sentence: T: OK, Ami, who is Lily?

In this case, Ami's conversation centers on the specific objective of identifying her favorite teacher in a full sentence.

## Feedback and Reinforcement

During the interaction, the teacher provides Naoki and Ami with feedback and positive reinforcement, demonstrating the function of Marking Critical features and Frustration Control. For example, with Naoki: T: "That's right!" T: "Exactly!"

Here, the teacher provides Naoki with positive reinforcement when he correctly identifies the number of fingers and constructs a full sentence, marking these critical features and acknowledging his success. This positive reinforcement helps to reinforce Naoki's learning and encourages him to continue participating actively.

Similarly, with Ami: T: "Lily? You need to answer in a full sentence."

In this instance, the teacher offers corrective feedback and reinforcement to Ami when she hesitates or provides an incomplete response. By emphasizing the need for a full sentence, the teacher guides Ami towards the correct response and helps to control any potential frustration she may experience.

## Progression through sequences

In the above, we have isolated the various scaffolding functions

in order to exemplify them. It is important also to see how the functions appear in a sequence in actual conversations, building on each other to take the learner to a very different place from where s/he started. Both conversations above indeed follow a progression. With Naoki, the progression begins with a simple task of identifying the number of fingers, then advances to constructing a full sentence, such as "I am seven years old." Similarly, with Ami, the progression starts with identifying her favorite teacher and evolves into constructing a full sentence, like "My favorite teacher is Lily."

This progression reflects the scaffolding interaction provided by the teacher, guiding Naoki and Ami from simpler tasks to more complex ones. The teacher helps them build upon their existing knowledge and skills, ultimately leading to the accomplishment of more sophisticated language tasks.

Let us see how this unfolds in both the conversation with Naoki and the conversation with Ami.

**Conversation with Naoki**

**Initial Question**

T: How old are you, Naoki?

N: Mm?

> Naoki shows initial uncertainty, setting the stage for guided learning.

**Engagement with Visual Aid**

T: Hmm, let's try to figure it out together. Look at my fingers. How many fingers am I holding up?

N: Nana (Japanese nana)

> Naoki uses visual aids to identify the number, showing a step forward in the learning process.

**Translation**

T: That's right! Can you say 'nana' in English?

Ami: Seven

N: Seven

> Naoki successfully translates the number with peer and teacher support, moving closer to forming a full sentence.

**Sentence Construction**

T: Yes, well done, Ami! Naoki, now let's try to put it into a full sentence. Say, 'I am …..'

N: Mmmm [Naoki hesitates] T: You're doing great, Naoki! Let's try this together. 'I am ____.'

N: I am seven.

> Naoki begins to form a sentence with the teacher's encouragement.

**Completing the Sentence**

T: Good job! And what comes after '7'?

N: Years old.

T: Exactly! So, put it all together: I am 7 years old.

N: I am seven years old.

T: Fantastic! You got it, Naoki. 'I am 7 years old.' Well done!

> Naoki constructs and completes the full sentence, showing significant learning progress.

**Conversation with Ami**

**Initial Question**

T: Who is your favorite teacher?

A: Lily.

> Ami identifies her favorite teacher, starting the conversation with a simple answer.

**Prompt for Full Sentence**

T: Lily? You need to answer in a full sentence.

A: My favorite (silent, thinking)

T: Yes, Ami (giving her time).

> Ami begins to construct a sentence but struggles, indicating the need for more support.

**Encouragement**

A: My favorite Lily.

T: My favorite …….

A: [Silence]

> Ami tries to form a sentence and shows increasing progress despite hesitation.

**Clarification**

T: OK, Ami, who is Lily?

A: Hmmm?

T: Lily is a doctor/teacher/student? Who is Lily?

A: Teacher

> The teacher provides additional prompts, helping Ami clarify her thoughts and understand the task.

**Constructing the Sentence**

T: Great! Now, my favorite ……

A: Teacher, my favorite teacher Lily.

T: My favorite teacher is Lily.

A: My favorite teacher is Lily.

> Ami successfully constructs a full sentence with the teacher's guidance, demonstrating her learning progress.

We can propose a general structure for progression sequences in this kind of lesson, consisting of Initial Question, Prompt for Full Sentence, Encouragement, and Sentence Construction, with some optional other steps, such as Visual Aid, Peer Interaction and Translation.

**Conclusion**

In this paper, we have shown two short conversational exchanges between a teacher and a child that took part within English classes, and mapped the various kinds of support offered by the teacher onto the scaffolding functions introduced in the seminal paper by Wood et al. (1976), further expressing the functions in terms that are more accessible to the teacher (and that we anticipate may be more accessible to other teachers, too).

We believe that our analysis attests to the continuing usefulness of Wood et al.'s (1976) framework, although that does not preclude the possibility of improving it. One advantage of applying frameworks of this kind to classroom discourse is that it provides an opportunity for a teacher to reflect more deeply on their own teaching. For example, after recording and analyzing her interaction with Naoki, Lily reflected on her use of Frus-

tration Control. Here are extracts from her diary entry of December 10th, 2023, two days after the conversation with Naoki featured here:

> In this interaction, while [I offer] encouragement to Naoki, it might not fully address his specific struggles in constructing sentences. Although generic praise like 'You're doing great, Naoki!' can be uplifting, it may not directly acknowledge or target Naoki's difficulty in forming complete sentences. Consequently, Naoki may continue to feel frustrated or uncertain about his language abilities, potentially leading to disengagement or lack of confidence in his learning process.
>
> Therefore, there is a need for more targeted support and feedback tailored to Naoki's needs to effectively address any frustration he may experience. Additionally, providing students with more time for thinking can alleviate pressure and create a more supportive learning environment.
>
> For example, [I] could say, "I see you're taking your time with this. Let's break it down step by step. First, let's think about how old you are. Can you say 'I am'?" and give time to Naoki. This approach not only acknowledges Naoki's struggle but also offers support by breaking down the task into smaller steps. By providing specific guidance and reassurance, [I can] help address Naoki's frustration and encourage him to continue with the task.

We also reproduce here the sketch that Lily drew in her diary that day (Figure 1).

**Figure 1:**

*Lily's Ideas Regarding Frustration Control*
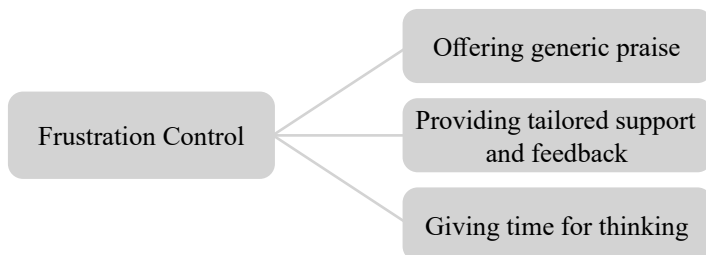


By engaging in this kind of reflection consistently over a long period of time, teachers may become more aware of the functions that they are exploiting fully and those that are underused in their teaching.

As mentioned at the beginning of the paper, there is a lack of research applying Wood et al.'s (1976) scaffolding functions to concrete examples of classroom discourse. Thus, the potential of that research in guiding current and future teachers may be underrealized. It is to be hoped that more research along these lines (with both Wood et al.'s framework and other alternative frameworks) will be conducted.

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