JURNAL
AKADEMIK

EFFECTS OF SCAFFOLDING IN AIDING STUDENT'S UNDERSTANDING OF A TEXT

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Abstract

Understanding a text is no doubt stressed by teachers or instructors in every school and institution of higher learning. However, in order to yield positive results, scaffolds need to be provided by teachers to help guide their students to a better understanding of a text. The term 'scaffold' refers to visible and audible support which is both adjustable and temporary given by a teacher to a learner to help him initially so that later he can function in his 'zone of proximal development' (operate independently). This case study aims to find out how scaffolds provided by the teacher help a student to understand a text. This study indicates positive effects of the use of scaffolds in assisting student's comprehension of a text.

1.0 INTRODUCTION

Often we hear of teachers reporting that their students do not understand a reading text assigned to them. The main reason for their failure is that normally the text is dumped unto the students and they are left to tackle it by themselves. What teachers need to realize instead is that they should provide scaffolds to enhance students' comprehension. Thus, the research question addressed in this study is: How do scaffolds provided during teacher-student interaction aid in student's performance of a reading task?

The researcher believes that with the appropriate scaffolds provided, the teacher can help her student to function in his 'Zone of Proximal Development' (Vygotsky, 1978). This means that initially the student can do the text given to him with the help from the teacher and that later he would be able to perform on his own after he has internalized the reading strategies.

This study is based on three main theories, that is Schema Theory (Adams and Collins, 1979; Rumelhart, 1980 as cited in Spiro et al., 1983); Scaffold Model of Pearson and Gallagher (1983); and Vygotsky's 'Zone of Proximal Development' (Vygotsky, 1978). According to Pearson and Gallagher (1983), scaffolds provided by the teacher during the teacher-student interaction session for a reading task will gradually collapse as the student eventually can do the task by himself.

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Consequently, after having discovered new ideas, learners can 'go beyond the information given' (Bruner, 1978 as cited in Cazden, 1988:108).

During the teacher-student interaction, teachers can project 'open-ended questions' to enable learners to express their ideas freely. Kam-yin Wu (1993:51) has defined 'open-ended question' as a question to which a number of different answers would be acceptable. Besides, Ranney (1992:44) has the opinion that 'open-ended' interviews can uncover relevant attitudes and norms of speaking.

The Schema Theory stresses that reading comprehension is an interactive process between the text and the reader's prior background knowledge (Adams and Collins, 1979; Rumelhart, 1980 as cited in Spiro et al., 1983).

Another researcher, Johnson (1982) says that 'a text on a familiar topic is better recalled by ESL readers than a similar text on an unfamiliar topic'. Carrell (1983:560) also emphasizes that in order to understand a text, 'the appropriate schemata must exist and must be activated during text processing'. This implies that teachers need to provide support to enable students to project the appropriate schemata in order to understand a particular text.

Besides, Lemke, J.L. (1986) speaks of 'recontextualization' to help students to understand a text better. According to Cazden (1988:116), 'contextualization of ideas' can be done in two ways, that is, by giving examples that would help all readers, and by giving references to other texts. In Anderson's term (1977 as cited in Anderson et al., 1980), 'recontextualization' emphasizes the critical importance of the active construction of the 'contexts in the mind' of each student and help must be given by the teacher in the process. The implication is that teachers play an important role in recontextualizing words or phrases to help students comprehend the meaning of words or phrases.

In addition, rephrasing or reformulating questions is another strategy which teachers can use to help learners to use contextual clues to build ideas around a text. According to French and MacLure (1981) as cited in Cazden (1988:109), 'reformulating' refers to 'the strategy in which the teacher rephrases or reformulates questions when the student's initial answer is wrong'.

2.0 METHODOLOGY

2.1 The Subjects

This study involved two Form Four male students of the same age (16 years old). They were from the same class. Both the subjects received Chinese education

during their primary school years. Their mother-tongue was Cantonese. They were chosen for this study because their similar background would help to provide non-bias and reliable data.

2.2 Pre-test

A pre-test was conducted (without the teacher's scaffolds) to determine the subjects' actual proficiency level. The pre-test consisted of a passage (about 380 words long) followed by six open-ended questions. After the subjects' answers were marked and graded based on a Scoring Criteria (Table 1) decided by six teachers teaching in secondary and tertiary levels, Student A was placed in the intermediate proficiency level category whereas Student B was in the elementary proficiency level category (Table 2).

The two subjects of a different proficiency level were chosen to enable the researcher to see the effects of using scaffolds in helping the weaker student's understanding of a text.

Table 1

Scoring Criteria for Pre-test

Score		Proficiency-level
Raw	Percentage	
13 - 16	76 - 100	Advance
9 - 12	51 - 75	Intermediate
5 - 8	26 - 50	Elementary
0 - 4	0 - 25	Weak

Table 2

Results of Pre-test

Subjects	Score		Proficiency-level
	Raw	Percentage	
Subject A	9.5	59	Intermediate
Subject B	5.0	31	Elementary

2.3   Actual Test

A text (Appendix A) for the actual test was chosen based on Krashen's Theory (i+1), meaning that the text chosen for the students should be one level higher than the students' actual proficiency level. This is to provide the students with a more challenging task and to find out how the scaffolds provided by the teacher during the teacher-student B interaction can help Subject B to work within his 'Zone of Proximal Development' and to reach his potential level. The text chosen was of a higher proficiency level as some of the vocabulary, phrases, sentence structures and the types of comprehension questions were more difficult for the students to handle by themselves. The text (taken from a reference book) with its topic related to 'drugs' was carefully chosen as it was familiar to the students. This acted as a basis for a deeper understanding of the text.

Ten questions which followed the actual test were set based on Bloom's taxonomy, that is, progressing from the lower level of recall and knowledge, to analysis and synthesis, and then to the highest level evaluation.

2.4   Procedures

The data were collected through conducting an actual 40-minute test. Both the subjects sat for the same test in separate rooms to prevent them from communicating with each other. This is to ensure true and valid data.

Subject B was provided with scaffolds during the teacher-student interaction (tape-recorded and transcribed), while Subject A was not given any scaffolds. The teacher used 'open-ended questions', rephrased questions, used visual aids, recontextualized words, used a dictionary and read aloud, to act as scaffolds to help Subject B understand the text.

2.5   Data Analysis

In the data analysis, the researcher examined the following:

a.   the transcript for clues of 'transfer' or 'internalization' and signs of scaffolds collapsing,

b.   'turns' for clues on how teacher talk was adopted by Student B, and

c.   the transcript for clues on 'phases' during the teacher-student interactions.

Besides, the written data of Subject A and B were marked, graded based on a Scoring Criteria (Table 3) and then compared to see whether the scaffolds provided by the teacher during the teacher-student B's interactions did aid in Subject B's understanding of the text.

Since there were several scaffolds used by the teacher, for the purpose of this study, the researcher only analysed the 'open-ended questions', reformulation of questions and recontextualization of words by the teacher during the teacher-student interaction.
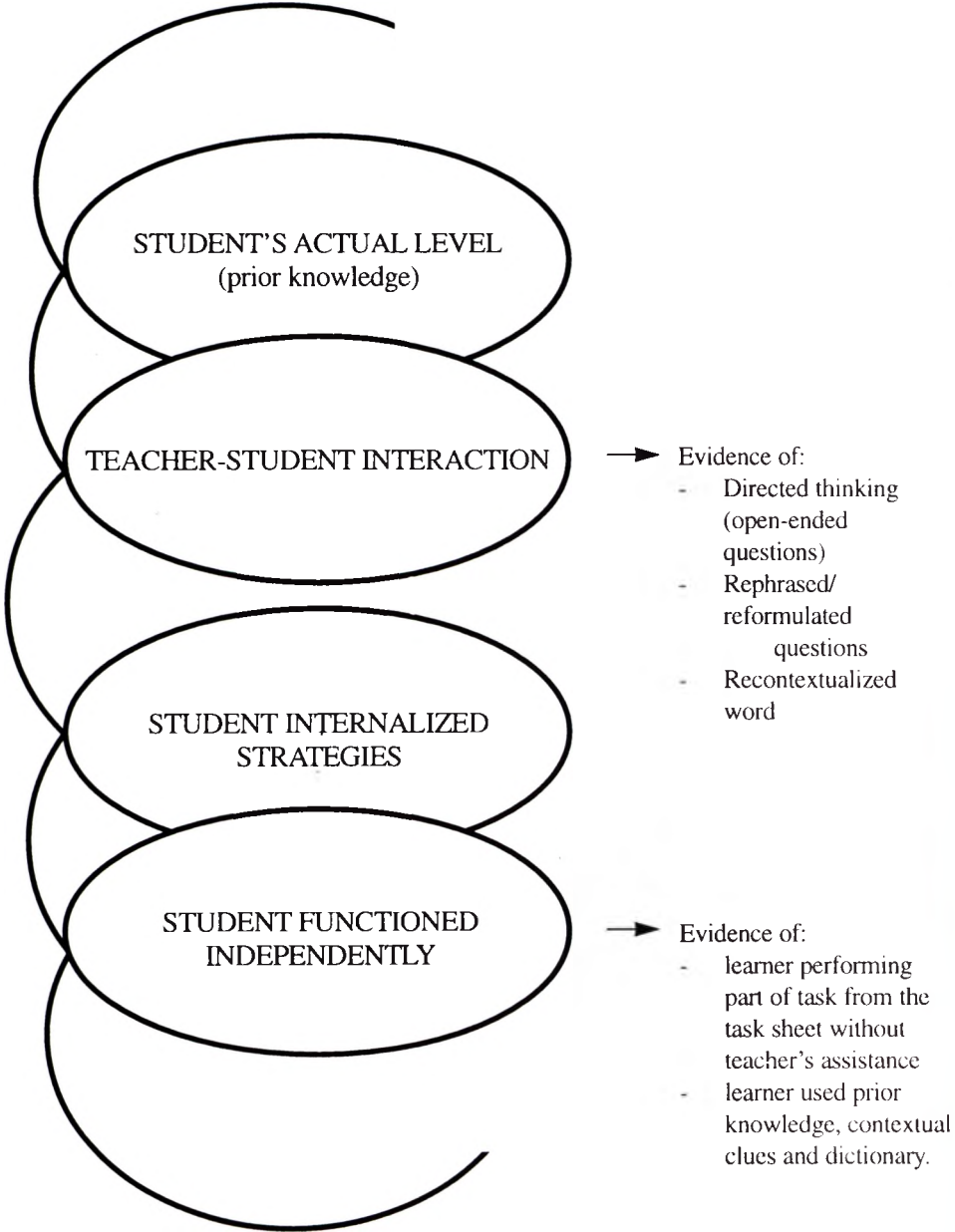
Table 3
Actual Test Scoring Criteria

Score		Proficiency-level
Raw	Percentage	
25 - 30	81 - 100	Advance
19 - 24	61 - 80	Intermediate High
13 - 18	41 - 60	Intermediate
7 - 12	21 - 40	Elementary
0 - 6	0 - 20	Poor

3.0   RESULTS

An analysis of the data shows that with the various scaffolds provided by the teacher, Subject B was able to improve and work within his 'zone of proximal development'. A spiral diagram showing the recursive pattern that developed as Subject B journeyed to work within his 'zone of proximal development' and his ability to take over the responsibility to perform on his own is presented in Figure I.

Figure I
Recursive Pattern of Student B's Journey with the Help of Scaffolds
Provided by the Teacher to Work Within His 'Zone of Proximal
Development'

STUDENT'S ACTUAL LEVEL
(prior knowledge)

TEACHER-STUDENT INTERACTION → Evidence of:
- Directed thinking (open-ended questions)
- Rephrased/ reformulated questions
- Recontextualized word

STUDENT INTERNALIZED STRATEGIES

STUDENT FUNCTIONED INDEPENDENTLY → Evidence of:
- learner performing part of task from the task sheet without teacher's assistance
- learner used prior knowledge, contextual clues and dictionary.

Based on the Scoring Criteria in Table 3, it is found that in the actual test, Subject B has improved and is now in the intermediate high proficiency level category (with a score of 23.5 marks[78%] - Appendix B). However, Subject A who was not provided with any scaffolds did not improve in his actual test as he still stayed in his intermediate proficiency level (with a score of 13.5 marks[45%]). It is indeed interesting to note that the scaffolds provided by the teacher during the teacher-student B's interaction as explained below were responsible in aiding Subject B's understanding of the text.

An analysis of this study shows that the use of 'open-ended questions' by the teacher is useful in aiding Student B's comprehension of the text. For example, the projection of an 'open-ended question' by the teacher as shown in Turn (65) below has directed the student's thinking to make sense of the text. This enabled the student to bring in his prior knowledge to compare and contrast 'prison life' with 'normal life'. This can be detected from the student's answer in Turn (66) as shown below:

T(64) S: ... Then, ur ... what is the meaning of the sentences 'Freedom can sometimes be a difficult thing to handle. Strange as it may sound, I could not fit in?' I don't understand.

(65) T: Okay. Tell me what is the difference between prison life and our normal life?

(66) S: In prison, ... hard. Not free ... ur ... to do things like we can. Prisoners have to ... ur ... like in T.V. ... obey orders. In our normal life, we are free to do anything ... just anything.

From the excerpts above, the student seemed to be able to grasp the meaning of the concept 'freedom' (from Turn 64) as he was able to break it down to its root word 'free' (in Turn 66). With the ability to build up ideas with the teacher's guidance and to use his prior knowledge, the student was able to make sense of the text and then operate on his own to answer question number 4 in the task sheet later (Appendix B). Student B also went a step further in Turn (68) as shown below, whereby he showed signs of breaking away from the teacher's scaffold as he managed to get the meaning of the sentences (in Turn 64 as shown above) by himself. This is evident when the teacher projected a question in Turn (67) below:

T(67) T: Therefore, 'freedom' in line 22 refers to 'freedom in prison' or freedom outside prison'?

(68) S: Outside prison. I think, he means he cannot take it ... ur ... go into the society because he feels not wanted anymore. I think so.

(69) T: You're right. Good. When he was out of prison, he couldn't adjust himself to the society. ...

It is found that in Turn (68), Student B not only chose one of the options but also went further to elaborate without the teacher's assistance and thereby answered for himself the meaning of the sentences he asked earlier in Turn (64). The teacher accepted his explanations with a praise and rephrased his answers regardless of linguistic limitations of her student.

Besides, the results in this study also reveal that the teacher rephrased or reformulated questions to enable the student to develop the skill of using contextual clues to build up ideas in order to understand the meaning of a phrase. This is illustrated in the following excerpt:

    T(76)   S: What is 'worthwhile skill'?

    (77)   T: 'Skill' is a type of ability that a person is born with or an ability that a person has acquired. So, what skill has this writer acquired?

    (78)   S: Painting ... painting portraits.

It is clear from the above excerpt in Turn (77) that the teacher did not give the direct answer to the student's question in Turn (76). The teacher just defined the meaning of 'skill' in Turn (77) and took off from there to rephrase the question in Turn (77): '... So, what skill has this writer acquired?' This strategy used has directed the student to use contextual clues to get the answer which is shown in his utterance in Turn (78).

To add to this, what is even more interesting is that the teacher did not cease there but after helping Student B to develop the skill of using contextual clues, the teacher brought him to a higher level by reformulating the question in Turn (79): 'Is painting portraits a good skill to acquire?' Here, positive result is yielded as the student not only answered his teacher's question but also showed signs of breaking away from the teacher's scaffold as he was able to give his own reasoning as well. Hence, he answered in Turn (80): 'Yes. Can earn money'. His answer was accepted by the teacher who rephrased it to become (Turn 81): 'In other words, it's beneficial. ...' This indicates that by taking off from a particular point to rephrase or reformulate a question, the student found it easier to comprehend. This enabled the student to use contextual clues to build up ideas in the text. After he had internalized these reading strategies, he managed to take over the teacher's role to perform on his own. As such, he was able to give his own reasoning.

Another type of scaffold used by the teacher in this study is 'recontextualization' to enable Student B to get the meaning of a particular word. For instance, the teacher recontextualized the word 'determination' in another context as can be seen in Turn (49) below:

T(47)   T: Do you understand the meaning of the word 'determination'?

(48)   S: I'm not sure.

(49)   T: Let me give you an example. John failed his English Language subject examination last Semester, but this semester he is doing well for that Subject due to his determination in doing a lot of practice.

(50)   S: Ur ... courage? Is it courage?

(51)   T: Good. Courage. ...

It is noted that after the teacher had recontextualized the word 'determination' in Turn (49), the student could form a new context in his mind and get its meaning because the new context in which the word was used was familiar to him. This is evidenced in Turn (50) in which he tried to confirm his answer which was later positively accepted with a word of praise by the teacher in Turn (51). Thus, this points to the truth that recontextualization of a word can help students to understand more clearly its meaning, provided that the new context in which the word is used is familiar to the students.

Furthermore, a deeper analysis of the transcript shows a more obvious breaking down of the teacher's scaffolds towards the end of the teacher-student B's interaction when Subject B took over the task to answer the questions which followed the text on his own.

4.0   DISCUSSIONS

The results of this study seem to answer Vygotsky's theory that by providing scaffolds during the teacher-student interaction, Subject B could be pushed to operate in his 'zone of proximal development' (Vygotsky, 1978). On the other hand, Subject A who was not provided with scaffolds did not show any improvement. Besides, the findings in this study also show that Schema theory (Carrell, 1983) is applicable here as the scaffolds such as 'open-ended questions' (Ranney, 1992), 'reformulating questions' (French and MacLure, 1981 as cited in Cazden, 1988) and recontextualization (Lemke, 1986) can help Subject B to use his prior knowledge and contextual clues to build up ideas to understand the text. In other words, there is an interactive process between the text and the reader's prior background knowledge (Carrell, 1983: 553).

This study further reveals an interesting finding which coincides with the Scaffold Model of Pearson and Gallagher (1983). The scaffolds provided by the teacher during the teacher-student B interaction gradually collapsed after the student

had internalized the necessary skills. He then proceeded to answer the task sheet by himself. The most interesting finding is that even in the middle of the teacher-student B interaction session, there were signs of the teacher's scaffolds collapsing as the student could operate on his own by giving his own reasoning through the use of contextual clues and his prior knowledge.

Moreover, this study also reflects the truth of Johnson's (1982) findings that a familiar topic chosen for the text is better recalled by the student and thereby enhancing his comprehension of the text at hand.

5.0　IMPLICATIONS

This study has several implications. First, it implies that teachers need to consider carefully before projecting questions to their students. They need to understand the questions themselves in order to make sense to their students. They need to consider whether the questions asked are directing the students' thought towards the teachers' expectation or that the questions allow the students to express their ideas freely. In this aspect, this study suggests the use of 'open-ended questions' so that students will be willing to express their ideas freely. Besides, 'open-ended questions' can help to direct students' thinking to use their prior knowledge to build ideas around the text to understand it better.

Second, while selecting a text for students, teachers should choose a text with the topic with which the students are familiar. This will enhance their ability to comprehend the text as they can apply the appropriate schemata (prior knowledge) to the text.

Third, while helping a weak student to understand a text, the teacher should be very patient and should use the appropriate scaffold at the right time to help the student to work within his 'zone of proximal development'.

Another implication is that teachers can rephrase or reformulate questions and recontextualize words or phrases to frame students' thoughts and make them easier for students to understand. This will enable students to use contextual clues to get at the meaning of words or phrases. However, teachers need to bear in mind that the new context used must be familiar to the students.

Hence, with the aid of the teacher's scaffolds, the students can work within their 'zone of proximal development' and when they have internalized the reading strategies, they can perform on their own without the teacher's guidance.

6.0 CONCLUSION

It is high time that teachers realize that their support is of utmost importance in assisting students to function within their 'zone of proximal development'. Thus, it is hoped that this study will shed more light on the issue of using scaffolds to aid in students' understanding of a text. Since this is a case study which involved just two subjects, the results cannot be generalized to a greater population of students. The researcher hopes that research of this nature which deals with more samples will be conducted to see if similar results can be obtained. Perhaps future research can even answer the question: 'How effective are the scaffolds provided by the teacher in a big class?' The results of the present study also serve to alert and motivate teachers to rethink and revamp their traditional method of teaching reading passages, if necessary, so as to meet the needs of the students.

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Appendix A:

ACTUAL TEST PASSAGE

LETTER TO STEVEN

Dear Steven,

Crime does not pay. So, I've learnt - the hard way. Prison life was dreadful. Twice jailed for the same offence, I was even resigned to the fact that there was no life outside prison, at least not a life which anyone would want.

I recall your repeated warnings five years ago. I was too headstrong to abide   5
by your counsel. I ridiculed your friendship with my suspicious accusations. I knew that you tried but I failed you.

The regrets I have carried since then have been a great burden on my conscience. I seem to have paid my price. My addiction to 'dadah' cost me   10
our friendship and the loss of my family. They have broken ties with me, altogether. In fact, they have chosen to believe the worst of me - that I would always live a wretched life; on the street; committing crimes to survive. They have every reason to believe that, I suppose.

But now I'm back! I've settled down to a life outside prison, learning to take   15
responsibility for my life. I feel great relief that I am getting my life back together again. Surprisingly, my disillusion with my family has been my driving force; the source of my determination.

I owe you a lot, Steven. You let me into your home when nobody else would. You were willing to accept the cold truth - that ex-prisoners have no home.   20
You even helped me reorientate myself in society after the rigours and confines of the prison life that I led. You stood by me. But I relapsed into my old habit, didn't I? Freedom can sometimes be a difficult thing to handle. Strange as it may sound, I could not fit in. So, I betrayed you and myself.

Well, I'm now back on my feet. Things are not always smooth sailing but I intend to cope. In fact, I've led a clean life for the last couple of years. I've   25
found a fresh start in painting portraits. Sometimes, we never discover our hidden talents until it is too late. This has proved a worthwhile skill. I don't want to live behind bars for the rest of my life.
                                                                                  30

Thanks to you, my life has turned around fine.

                                                    Best Regards

APPENDIX B:

STUDENTS' TASK SHEET QUESTIONS AND SCORE FOR ACTUAL TEST

QUESTIONS		SCORES	
		Student A	**Student B**
1. Give the meaning of the following words and phrases: a) offence (1 mark) b) cold truth (1 mark) c) clean life (1 mark)		2	3
2. Give the synonym of the word 'wretched'. (1 mark)		1	0.5
3. What is meant by the statement 'Crime does not pay'? (2 marks)		0	1.5
4. In line 22 - 23, what does the writer mean by the statement "Freedom can sometimes be a difficult thing to handle"? (2 marks)		0.5	1.5
5. Based on the passage, describe Steven's character. (3 marks)		1.5	3
6. The writer thinks that he has paid his price. What evidence is there in the passage to suggest this? (3 marks)		3	3
7. Describe what happened to the writer after he left his friend's house five years ago. (4 marks)		0	3
8. From this passage, what do you think has motivated the writer to start a new life? (4 marks)		0	1.5
9. Imagine you are the writer. Would you have gone back to drug addiction after you've been imprisoned for the first time? Give 2 reasons. (4 marks)		3	3.5
10. Suppose you're Steven, do you think you'd have accepted the writer if he had gone back to you after his second imprisonment? Give 2 reasons. (4 marks)		2.5	3
	TOTAL:	**13.5**	**23.5**