ZPD, SCAFFOLDING AND SYNTAX DEVELOPMENT

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Abstract

According to Vygotsky (1978), a learner has the potential to progress from their actual developmental level to their potential developmental level via scaffolding that occurs during interaction with superior others. This case study was conducted based on Vygotsky's (1978) theory of scaffolding within the zone of proximal development (ZPD). In line with this theory, this case study attempted to examine the role of scaffolding via informal interaction in second language (L2) development in terms of syntax development on a young L2 learner. A set of pictures was used as an instrument in this study. The pre-description of the selected pictures was obtained prior to the commencing of adult-child scaffolding sessions during which the child was presented with the model description. The child's delayed post description was acquired one week after the conclusion of the scaffolding sessions. The child's syntax development was measured by comparing the child's pre-, post-, and target description in terms of MLU, verb substitution and omission, comparison of incomplete sentence, comparison of latency to full sentence production, comparison of articles, verbs and nouns usage, and comparison of correlation coefficient of articles, verbs and nouns usage between model- and post-descriptions. The results suggest that scaffolding within ZPD has its share in L2 syntax development.

Keywords: Second language, ZPD, scaffolding, syntax development

Introduction

This study explored the role of scaffolding within the zone of proximal development (ZPD) in syntax development on an L2 child acquiring English as a second language (ESL). The study was developed based on Vygotsky's (1978) theory of scaffolding within ZPD. In second language (L2) learning, the issue of accuracy has always been one of the main concerns. Although errors should not be treated as taboos because they help learners to learn from making mistakes, however, grammatical competence is one of the ultimate goals of second language acquisition (SLA). Due to such language acquisition goal, syntactical aspect of SLA and learning should be given appropriate investigation and attention.

Literature Review

The socio-cultural theory in SLA perceives learning and development to be interactive and such interaction acts as mediation for language acquisition. Following the Vygotskyan's view, sociocultural theory contends that learning and development is the socio-genesis product of meaningful social interactions among the community members in the respective learning context. According to Vygotsky, a child's performance in completing a task with the assistance of others would exceed what he or she could do without assistance. Vygotsky labels this potential performance through the theory of scaffolding within the zone of proximal development (ZPD).

ZPD takes place during an interactive activity where a novice and an expert work together to complete the targeted task (e.g., Newman & Holtzman, 1993). The expert elicits the novice's existing knowledge regarding the task and provides new knowledge to the novice to enable the novice to move from his or her actual developmental level to his or her potential developmental level. When an expert provides the needed language information to a novice to enable the novice to progress in the process of task completion, this assistance is known as *scaffolding*. According to Ovando, Collier, and Combs (2003, p. 345), the provision of "contextual support for meaning through the use of simplified language, teacher modeling, visuals, and graphics, cooperative learning and hands-on learning," can all be considered as the different tools of scaffolding. Therefore, ZPD involves scaffolding embedded in interactions between a novice and an expert.

In using the ZPD as an activity to enhance language acquisition and learning, mediation would increase the effectiveness of ZPD. For instance, the use of visuals such as pictures, books, opportunities for interaction in the target language, directs and explicit instruction, as well as expert's assistance (e.g., Daniels, 2001; Donato & McCormick, 1994; Hammond, 2002) may serve as mediations. ZPD is closely connected to scaffolding because scaffolding operates within ZPD (e.g., Berk, 2001; Wells, 2001; McDevitt & Ormrod, 2002).

Since the current study used scaffolding via modeling, studies on language imitation involving modeling was also reviewed because modeling can be considered as a form of scaffolding. The findings of past studies on the role of scaffolding in ZPD on L2 syntax development somewhat vary. However, many of the studies have shown that language scaffolding in ZPD may enhance syntax development. Johnson (1985) reviewed a study that explored the role of scaffolding that leads to learners' reproduction in present perfect and present perfect progressive verb forms acquisition. She found three factors that influence the children's selective acquisition and paraphrasing of the perfect tense namely verb form, semantic sense of the perfect and duration of the lexical verb. Although the structure is different at the surface level, the production of paraphrased utterances which is semantically similar to the target or model utterance can therefore be considered as successful intake as a result of input provision via scaffolding.

Reger (1986) studied the roles of input scaffolding on Hungarian subjects. Three discourse-related formal aspects of model-novice pairs were analyzed longitudinally. The examination of the types of modification produced by the children showed a continuous chain of developmental trend which resulted in lexically coherent conversational replies. The children reproduced questions significantly more often than non-questions. The children use of multiword utterances indicates a convergence of language-specific discourse rule. Based on the data, Reger concluded that input provided via scaffolding contributed to grammatical learning suggesting such input provision as an effective tool for L2 grammar development.

On the contrary, Tager-Flusberg and Calkins (1990) who conducted a study on the role of input provision via scaffolding on the acquisition of grammar found adverse effect of structured language input. Imitated and spontaneous utterances were compared amongst autistic, Down's syndrome and normal children using naturalistic mother-child speech. The findings indicate that utterances reproduced from structured input contained shorter and less advanced grammar than spontaneous utterances. Based on this finding, Tager-Flusberg and Calkins concluded that structured input provision via scaffolding does not play a role in grammar development. Nonetheless, such conclusion might be premature if the utterances containing the targeted grammar items do not provide enough reinforcement for the children to transform the input into intake. Taking individual differences into account, a more longitudinal exposure to structured input via scaffolding and higher frequencies of the appearance of the targeted grammar item in adult's utterances might yield different results.

In another study, Farrar (1992) examined a one-hour verbal discourse between twelve mothers and their 23-month-old children. He found that the children had a higher tendency to reproduce correct grammatical morphemes presented directly and immediately after the occurrence of the error in comparison to incidental recast through modeling of a correct grammatical morpheme presented in three different types of maternal responses. The finding indicates that at certain ages children are able to imitate better when the provision of input via scaffolding is made explicit to them. This suggests that the effect of scaffolding on grammar acquisition may depend on children's age and the nature of the scaffolding of input.

The role of scaffolding in the acquisition of grammar was also studied by Gupta (1992). The participants were 6- to 8-year-old hearing impaired children. Grammatical Analysis of Elicited Language-Simple Sentence Level Test (GAEL), which is designed to evaluate hearing impaired children's use of grammatical aspects of spoken and/or sign English was administered. The children were asked to repeat exactly the tester's utterances. The participants' verbal responses to the component of the GAEL were transcribed and analyzed. The findings show that the children's imitated speech was equally long and with similar grammar as the non-imitated spontaneous speech. It was concluded that children produce unique language structures to assimilate adults' structures by incorporating their inter-language system in the assimilation process. Nonetheless elicited response can also be conducted in a natural interaction in which the model provides language scaffolding during a meaningful conversation-like process. Apart from the abovementioned studies, there are many other studies that have shown positive effects of scaffolding on L2 development (e.g., Balighizadeh, Memar, & Memar, 2010; Deguerrero, & Villamil, 2000; Lakkaraju, Gasser, & Swarup, 2008; Rome-Flanders, Cronk, & Gourde, 1995; Yu, 2004).

Existing studies in Malaysia on the roles of scaffolding in L2 development had been primarily conducted for older learners especially at the tertiary level (e.g., Rafek-Galea & Nair, 2008; Stapa & Rajamoney, 2009; Vethamani & Nair, 2007). To date, within the Malaysian setting, studies on scaffolding in L2 development on pre-school children are almost non-existence and if such studies had been conducted, perhaps those studies are not published in the mainstream publications. Hence, the present study attempted to unravel the role of scaffolding in L2 syntax development for a young learner within the Malaysian setting. The findings of this study may have implications for young L2 learners, not only in the Malaysian setting, but also in other non-English speaking countries or non-rich L2 environments.

Methodology

The purpose of the study was to find out if how scaffolding within a child's ZPD via interaction with a superior others could assist in L2 syntax development. This case study is a delayed post-test experimental study. The child who participated in this study was a 4 ½ years old L2 learner and this study was conducted in a non-rich L2 environment. The experimenter served as the language model to the child in this study. A picture book comprising 23 narrative picture series in the form of multi-colored drawings was used as the instrument for this study. This book was used because it comprises a large number of illustrations. The use of numerous pictures allows a wide variety of syntax to be provided to the child and thus, the child's reproduction could be inferred as intake instead of products of memorization.

The syntax used in the model descriptions was designed to be age-appropriate to ensure that the input was comprehensible (Krashen, 1982) and suitable to be nurtured within the child's ZPD. A reliability procedure was conducted for the 23 illustrations by two experts in English as a second language (ESL) to ensure that the complexity of the syntax used to describe the pictures was age-appropriate for the participant in this study. The experts were provided with the illustrations and the corresponding model description. Using a 5-point Likert scale (Strongly Disagree to Strongly Agree), based on their professional judgment, the experts were asked to rate the extent to which each model description represents the corresponding illustration and appropriateness of syntax complexity for the participant's age. The content description reliability index was 0.72 and interrater reliability index for age-appropriate syntax complexity was 0.83.

Procedure

The study involved a three-phase sequence. The first phase occurred before the treatment commenced. During this initial stage of the experiment, the child was shown a picture book. The pre-description task was conducted in three sessions on three consecutive days. Each time, the experimenter sat with the child in a quiet room and started showing the pictures one by one in sequence as they were presented in the book. The experimenter elicited the pre-description of approximately ten pictures in each pre-describing session by asking the same instructive questions ("Tell me about this picture?"). These data provided the experimenter with the child's actual developmental level data concerning his ability in describing the pictures on his own without any assistance from the expert (Vygotsky, 1978).

On the fourth day immediately after the pre-description data collection, the second phase of the study commenced in which the experimenter began to talk about the pictures with the child. The experimenter's input was controlled to conform to the model description. The scaffolding sessions were spread out in three weeks and were conducted on variable days instead of on consecutive days, however, with the same procedure and exact pre-determined model of language in describing the illustrations. Each session lasted about twenty minutes. During each scaffolding session, the child negotiated meaning by asking questions, to confirm or clarify around the model's description of the pictures or illustrations. The scaffolding session for each narrative picture was conducted twice within the treatment period. At the end of the fourth week, the experimenter stopped the treatment sessions and deliberately allowed one week gap before the post-description data were acquired. This was to see if the child was able to retain the input after the treatment gap.

The third phase of the study was the delayed post-test stage. At the end of the fifth week, the experimenter once again sat with the child in the same quiet room and posted the same instructive questions to the child as in the pre-description session ("Tell me about this picture?"). The child described the same picture book in three post-describing sessions. However, during these sessions, the experimenter provided some facilitation when the child halted for a long time in describing some of the illustrations. This was to enable the child to continue the description process. The facilitating questions, phrases and words were such as, "What are they doing?"; "After that…."; "Then….." The pre- and post-describing sessions were tape recorded throughout. The child seemed to be oblivious to the tape recording for both sessions. He was so engrossed in the pictures and seemed to be in an enthusiastic mode while describing the pictures throughout the pre- and post-description sessions.

Data Analysis

The child's syntax development was measured by comparing the child's pre-, post-, and target description in terms of mean length of utterance (MLU), verb substitution and omission, comparison of incomplete sentence, comparison of latency to full sentence production, comparison of articles, verbs and nouns usage, as well as comparison of correlation coefficient of articles, verbs and nouns usage.

Mean Length of Utterance (MLU) Analysis

In order to find out whether or not there is syntactical development as a result of scaffolding within ZPD, the Mean Length of Utterance (MLU) calculation was conducted.

The MLU calculation requires that all utterances are intelligible. Even if one word in that utterance is not understood, the utterance has to be excluded from the calculation. Prior to the calculation, the morphemes in each utterance must be counted. Next, add the number of morpheme for all the utterances and divide this total with the number of utterances included in the MLU calculation. Table 1 presents the considerations for morpheme counts.

Table 1 Morpheme Count Guidelines[1]

DO NOT COUNT	DO COUNT
1. Do not count words which are false starts, reformulations, or repetitions unless the repetition is for emphasis. (e.g. "[then] then [she go] she went to the movie too" is counted as 7 morphemes; "Yes! Yes! Yes!" is counted as 3)	1. The –s plural marker (e.g. cat/s, apple/s). Count it even when used on irregular plurals (e.g. mouse/s). Exception: plurals never occurring in the singular (e.g. pants, shoes, clothes) count as just one morpheme.
2. Compound words, reduplications, and proper names count as single words. (e.g. railroad, choo-choo, Big Bird)	2. The –ed past tense marker (walk/ed, count/ed). The –ed morpheme is counted even when used improperly (go/ed, drink/ed).
3. Irregular past tense verbs and irregular plurals count as one morpheme. (e.g. took, went, geese, men)	3. The –ing progressive tense marker (walk/ ing, count/ing).
4. Diminutives (e.g. doggie, horsie, dollie) and catenatives (e.g. gonna, wanna, hafta) count as one morpheme. It is assumed that the child understands these catenatives as single units, as opposed to understanding they are short for "going to," "want to," "have to," etc.	4. The –s third person present tense marker (e.g. He like/s candy. Sue walk/s faster than Sara.) Exception: "does" counts as one morpheme. Possessive –'s marker (e.g. mom's, boy's)
5. Do not count fillers (e.g., um, well, oh).	5. Contractions (e.g. she's, he'll, they're, what's, she'd, we've, can't, aren't). Exceptions: "let's," "don't", and "won't" are assumed to be understood as single units, rather than as a contraction of two words, so are just counted as one morpheme.

Table 2: Sample of MLU Calculation

Number of Utterance	Child's utterance	Number of morphemes	Explanation
1	I like you.	3	
2	This here.	2	
3	Go over there now.	4	
4	Mummy's happy.	3	Mummmy = 1 morpheme 's (is) = 1 morpheme
5	Puppy goed .	3	goed = 2 morphemes
6	xx wagon.	-	utterance excluded because of unintelligible word
7	I hafta be there.	4	hafta = 1 morpheme because 'hafta' is intelligible
8	Danny loves books.	5	loves = 2 morphemes books = 2 morphemes
9	(She go) she go bye-bye.	3	bye-bye = 1 morpheme "she go" is repeated, only counted once
10	The mice are running.	5	mice = 1 morpheme running = 2 morphemes
	TOTAL	32	

32 total morphemes divided by 9 utterances (since utterance 6 was excluded) = a mean (average) of 3.6 morphemes per utterance, or an MLU of 3.6.

Findings

Based on the guidelines of morpheme counts as presented in Table 1 and Table 2 as well as the MLU calculation using Cazden's (1965), the target MLU, the child's post-description MLU as well relative MLU were calculated in order to find out the effects of language scaffolding on the child's sentence length and complexity.

[1] http://web.clas.ufl.edu/users/bwjohn/4004/Materials/MLU.htm

Table 3: MLU for Target Description, Post-Description and Relative MLU

Illustration	Target MLU	Child's Post-Description MLU	Relative MLU
1	7.0	7.5	1.10
2	10.0	6.0	0.60
3	8.0	7.0	0.88
4	7.0	5.0	0.71
5	6.3	5.0	0.79
6	7.0	5.8	0.83
7	9.0	9.0	1.00
8	11.0	8.0	0.73
9	7.3	7.0	0.99
10	9.7	7.0	0.72
11	13.0	9.0	0.69
12	8.0	5.7	0.71
13	7.0	5.3	0.76
14	10.0	6.3	0.63
15	8.0	15.0	1.88
16	7.0	7.5	1.07
17	9.0	12.0	1.33
18	7.7	11.0	1.43
19	7.7	5.0	0.65
20	8.0	7.5	0.94
21	9.7	10.0	1.03
22	10.5	8.3	0.79
23	7.8	8.4	1.08

Table 3 presents the child's MLU for every illustration. The target MLUs represent the MLU of the model descriptions. The child's MLUs were based on his post-descriptions of the illustrations. The relative MLUs present data on the actual amount of similarities between the child's post-descriptions and the model descriptions. The relative MLUs also indicate the percentage of the child's syntactical development in comparison to the target MLUs.

Based on the data in Table 11, the child's MLUs for illustrations 2, 3, 4, 5, 6, 8, 9, 10, 11, 12, 13, 14, 19, 20, and 22 in the post-descriptions are much lower than the target MLUs.
However, the child's MLUs for illustrations 15, 16, 17, 18, 21 and 23 indicated that the child's MLUs are higher than the target MLUs.

The relative MLUs indicate that the child was able to produce more than 60 percent of the target MLUs. The relative MLU for illustration 1 that is 1.00 was due to the child's elaborated description, his own perceptual addition, which was actually not part of the model descriptions. The reason caused the child's relative MLU to be higher than the target MLU for illustration 7. Table 3 also shows that the relative MLUs for illustrations 1, 15. 16, 17, 18, 21 and 23 exceed the target MLUs.

The relative MLU for illustration 1 exceeds the target MLU was due to the repetition of the phrase 'The girl play swing' as shown below, instead of the child using pronoun 'them' as used in the model description.

Illustration 1

The Child's Pre-Description Script	Model Description Script	The Child's Post-Description Script
The boy ride this one and this one.	A boy and a girl are playing on swings. A dog is watching them	The girl and the boy ride the swing. The dog look at the girl play swing

For illustration 15, the relative MLU, which was 1.88, was due to the child's usage of conjunction 'and', which resulted in the child producing only one sentence, whereas for the same description, the adult used several sentences. This collapsing of sentences affected the child's post-description MLU. The child ended up producing only one sentence. Since the number of sentences is a vital determiner in MLU calculation, the collapsing of sentences using the conjunction 'and' inflated the child's MLU for this illustration. Moreover, the child's utterances were such that one third of the model description was deleted causing the model utterances and sentences to be higher than the child's number of utterances and sentences. This was also the reason for the lower target MLU in comparison to the child's MLU. The following is the transcribed scripts for illustration 15.

Illustration 15

Model Description Script	The Child's Post-Description Script
The boy is on an apple tree. The boy is passing an apple to the girl. The girl puts the apple into the basket.	The boy climb on the tree and take red apple and give to the girl and put in plastic, the red plastic.

The same situation as in illustration 15 caused the child's MLUs to be higher than the target MLUs for illustrations 16, 18, and 21. The child's MLU for Illustration 7 was of the same value as the target MLU although his post-description was not an exact replication of the model description.

Illustration 7

Model Description Script	The Child's Post-Description Script
The boy and the girl see train coming. Train want to take the girl and the boy.	The girl and the boy are watching a train.

Despite the differences in the child's utterances and the model description, there were some significant approximations in surface structure between the child's post-description and the target description. The following are the examples to illustrate this situation.

Illustration 3

Model Description Script	The Child's Post-Description Script
The boy and the girl are at the beach. The boy is climbing onto the back of the boat.	The boy and the girl at the beach. The boy climb on the boat.

Illustration 8

Model Description Script	The Child's Post-Description Script
The boy and the girl are playing with a toy train.	The girl and the boy play toy train.

Illustration 13

Model Description Script	The Child's Post-Description Script
Father is driving the car. The girl is sitting in front. The boy is sitting at the back of the car.	The boy sit at the back. The girl sit in front. The Daddy drive the car.

The term 'approximation' in surface structure is used because the child's descriptions contain different grammatical structure. The child generalized the use of the base form of words with the absence of appropriate linking verbs and suffixes regardless of the model exposed to him. Therefore, the data exhibit the child's ability for only approximate reproduction of the model utterances. The same situation exhibited in the cases of illustration 11, 16, and 19. To further clarify the difference between the verbs modeled by the adult and the verbs used by the child in his post-description, Table 4 was generated.

Table 4 presents verbs substitution and omission in the child's post-descriptions. As earlier mentioned, this table gives a clear picture of the child's similar pattern in the use of base word for the verbs in his descriptions. From this table, it is explicit that the model descriptions contain substantial use of present continuous tense. Considering that none of the child's utterances contain this structure, it could be reasonably concluded that the child was not able to acquire the present continuous tense structure despite the scaffolding by the expert. In fact the child substituted the verbs in the model descriptions with the verbs that he perceived to be synonymous. Table 12 also shows that the child focused more on contentives whereas functors or linking verbs were mostly omitted. As previously mentioned, the omission of functors caused the child's MLU in his post-descriptions to be lower than the target MLU.

The child's lower MLUs were due to the deletion of certain parts of the model descriptions as well as the omission of functors such as auxiliary verbs. The child's use of base form of verbs in most of his utterances affected his post-description MLU calculation. This measure indicates very little, if any, similarities between the child's sentence structure and sentence structure in the model description. However, according to Whitehurst and Vasta (1973) based on the phenomenon derived from Carol et. al.s' (1969) as well as Rosenthal's and Whitebook's (1970) studies, a child's language maybe reflective of the target input without being an exact copy of any complete utterance of the model. Thus, what the child in this study demonstrated could be inferred as evidence of syntactic development as a product of scaffolding in ZPD.

Table 4: Verbs Substitution and Omission

Illustration	Model Verb	Child's Verb in Post-Description
1	are playing is watching	ride look
2	are playing	ride
3	is climbing	climb
4	is talking is pointing is barking	(not appear in child's utterance) (not appear in child's utterance) bark
5	is laughing is getting is trying	laughing want want
6	is passing (not used in model) (not used in model)	give want finish
7	are watching (not used in model) (not used in model)	see coming want
8	are playing	play
9	are watching	see
10	is holding is talking is taking	(not appear in child's utterance) (not appear in child's utterance) to take
11	is passing	give
12	is washing	wash
13	is driving is sitting	drive sit
14	stopped got is getting (to describe the girl's action in the illustration)	(not appear in child's utterance) get (the girl's action in the illustration not mentioned in the description)
15	is passing puts (not used in model)	give put climb
16	is eating is feeding is running	eat to give (infinitive was used) (not appear in child's utterance)
17	are picking	take
18	is attending to buy (infinitive was used)	(not appear in child's utterance) buy
19	are playing is jumping is trying fell	play jump to catch (infinitive was used) fall
20	are waiting are carrying	(not appear in child's utterance) carry
21	are holding want is holding	(not appear in child's utterance) want (exact use of verb) (not appear in child's)
22	is passing	give
23	are wearing are going are wishing is watching (not used in model) (not used in model)	(not appear in child's utterance) (not appear in child's utterance) (not appear in child's utterance) (not appear in child's utterance) said want

However, considering the number of illustrations and the amount of information, the range of linguistic structures and the complexity of the description exposed to the child within a short time frame, the child could be considered to have benefited from scaffolding in developing his L2. Nonetheless, this could also be an issue of language learning aptitude, second language emphasis in the child's home environment and the exposure that the child continuously received in the L2 on a daily basis such as from television programs in L2.

Should all these factors be taken into account, a more conclusive conjecture could be made regarding the child's actual potential to develop his L2 syntax via scaffolding in his ZPD.

Apart from analyzing the child's syntax development through MLU calculation and verbs substitution and omission, his syntax development was also analyzed by comparing the frequency of his incomplete sentence production in both the pre- and post-description scripts.

Table 5: Comparison of Incomplete Sentence Utterances

Illustration	Category*	Pre-Description	Post-Description
1	S	2	0
2	S	1	0
3	S	3	0
4	S	1	1
5	L	1	0
6	L	0	0
7	S	0	1
8	S	3	0
9	L	0	0
10	L	1	1
11	S	1	0
12	L	1	0
13	L	0	0
14	L	0	1
15	L	1	0
16	L	1	0
17	S	1	0
18	L	0	0
19	L	0	0
20	S	0	0
21	L	0	1
22	S	1	0
23	L	1	0
Total		**23**	**5**
Mean		**1.00**	**0.22**

*S-Illustration with Short Description L- S-Illustration with Long Description

The frequency of incomplete sentences was calculated in both the child's pre- and post-descriptions in order to see if there was any improvement in the latency to full sentence production by comparing the mean of incomplete sentence production in the child's pre- and post descriptions. These data also provide information on the possible improvement in the child's fluency in describing the illustrations in his post-descriptions.

In Table 5, each illustration was labeled as illustration with short description (S) or illustration with long description (L). The model descriptions were used in determining the category of the illustrations. An illustration would be categorized in the long description if it comprised of more than two sentences and those illustrations with fewer than two sentences were grouped as short description. The rationale of this grouping was to see whether or not the child's latency to full sentence production and fluency in describing the illustrations were influenced by sentence length and complexity.

The data in Table 5 show that the child's mean for frequency of incomplete sentences in the pre-descriptions was significantly higher than the mean for frequency of incomplete sentences in the post-descriptions. Table 5 also indicates that the child produced incomplete sentences when describing both categories of illustrations. However, most incomplete sentences production occurred when the child described illustrations with long descriptions. The child produced three incomplete sentences under long description illustration category and two incomplete sentences under short description illustration category in the post-description scripts. On the contrary, the child produced 13 incomplete sentences under short description illustration category and 10 incomplete sentences when describing the long description illustrations.

In order to further study the role of scaffolding, the child's latency to full sentence production and fluency was analyzed by comparing the child's frequency of repetitive phrasal utterances in his pre-descriptions and post-descriptions were counted and tabulated. The same rationale was used in categorizing the illustrations.

Table 6: Overall Comparison of Repetitive Phrasal Utterance

Illustration	Category*	Pre-Description	Post-Description
1	S	1	0
2	S	1	0
3	S	4	2
4	S	5	1
5	L	10	1
6	L	2	6
7	S	2	2
8	S	1	3
9	L	2	2
10	L	1	2
11	S	2	0
12	L	6	1
13	L	1	1
14	L	0	1
15	L	3	0
16	L	1	0
17	S	2	0
18	L	6	2
19	L	6	0
20	S	6	2
21	L	5	4
22	S	1	3
23	L	1	3
Total		**69**	**36**
Overall Mean		**3.0**	**1.6**

*S-Illustration with Short Description L- S-Illustration with Long Description

Table 6 shows that the total frequency of phrasal utterances in the child's post-description scripts went down approximately 50% in comparison to the total frequency of phrasal utterances in the pre-description scripts. The highest frequency of phrasal repetition in the pre-description scripts was when the child described illustration 5 and the highest frequency of phrasal repetition in the pre-description scripts was when the child described illustration 6. In contrast to the finding for incomplete sentences occurrence as presented in Table 5, the highest frequency of phrasal utterance in both pre- and post-description occurred when the child was describing illustrations with long description. The mean frequency for phrasal utterance in the post-description scripts (1.6) was significantly lower than the mean frequency for phrasal utterance in the pre-description scripts (3.0). On average, the child repeated himself once in describing each illustration in the post-description. In fact, the child did not produce any repetitive phrasal utterances when describing eight illustrations (1, 2, 11, 13, 15, 16, 17, and 19) in the post-description.

Table 7: Group Comparison of Repetitive Phrasal Utterance

Category of Description	Short Description	Long Description
Pre-Description (Total=10)	26	43
Mean	2.6	4.3
Post-Description (Total=13)	13	23
Mean	1.0	1.8

Table 7 shows that the mean of short description pictures for the child's post-description (1.0) is significantly lower than the mean for the pre-description (2.6). For the long descriptions, the mean of his post-descriptions was approximately 60% lower than the mean of his pre-descriptions.

In the attempt to further see the contribution of scaffolding in ZPD to syntax development, the frequency of article usage, verb usage, and noun usage in the model description and the child's pre- and post-description was analyzed. These analyses were conducted considering that the nature of the description of the illustrations used in this study involve substantial use of articles, verbs and nouns. The correlation coefficient was calculated to see if there was any relationship between syntax development and scaffolding. The mean for frequency of article, verb and noun was calculated based on the model description as well as the child's pre- and post-description. The model description mean frequency for each grammatical item serves as the basis in determining the child's syntax development in terms of these three grammar points when his pre- and post-description were compared. To provide a better understanding on mean comparison, the relative mean frequency was calculated and compared in the same manner in comparing the mean frequency.

The analysis presented in Table 8 was also conducted in order to see if Vygotsky's (1978) zone of proximal development (ZPD) and scaffolding theory is reflected in the data to show the role of scaffolding as the mediation in ZPD through adult's assistance. In addition, the average deviation was also calculated to see the extent to which the child had deviated from the model descriptions.

Table 8: Comparison of Articles, Verbs and Noun Usage

	Child's Pre-Description			**Model Description**			**Child's Post-Description**		
	f Ase	*f* Vse	*f* Nse	*f* Am	*f* Vm	*f* Nm	*f* Ast	*f* Vst	*f* Nst
mean	3.762	3.429	4.048	4.259	4.060	5.524	4.167	3.905	4.246
%mean	0.883	0.845	0.733				0.978	0.962	0.769
r	0.256	0.356	0.424				0.345	0.436	0.496
AD*	1.286	0.333	1.143				0.905	0.429	0.762

*****AD-Average Deviation

The data in Table 8 indicate that the mean for *f* Ast (4.167) is much closer to the mean of *f* Am (4.259). In terms of relative mean, the child's relative mean for *f* Ast is 0.978 whereas his *f*Ase relative mean is 0.883. This indicates a significantly higher relative frequency of article mean in the child's post-description. The child's *f* Vst mean is also significantly higher than his *f* Vse resulting in a higher relative mean for *f* Vst (0.962) in comparison to his *f* Vse mean (0.845). The child's *f* Nst mean is also significantly closer to the *f*Nm compared to his *f*Nse mean. The relative *f*Nst mean is 0.767, a higher approximation to *f*Nm whereas approximation of *f*Nse is only 0.733.

Table 9: Comparison of Correlation Coefficient for Articles, Verbs and Nouns for Pre- and Post-Description

Article		**Verb**		**Noun**	
Pre-	**Post-**	**Pre-**	**Post-**	**Pre-**	**Post-**
0.256	0.345	0.356	0.426	0.424	0.496

The correlation coefficient *r*, which is represented in Table 9 for *f*Ast (0.345), *f*Vst (0.436) and *f*Nst (0.496), are all significantly higher than the correlation coefficient for *f*Ase (0.256), *f*Vse (0.356) and *f*Nse (0.424). The average deviation of *f*Ast (0.905) and *f*Nst (0.762) is significantly lower than the average deviation of *f*Ase (1.286) and *f*Nse (1.143). The average deviation of *f*Vst (0.429) is however, higher than the average deviation of *f*Vse (0.333). Therefore, the data show that the child's correlation coefficient (*r*) in the post-description for articles, verbs and nouns usage are much higher than the child's correlation coefficient (*r*) in the pre-description for the same variables.

Discussion

Second language learners are often challenged to grammatically structure the language output (Swain, 1985). Nonetheless, the findings in this study suggest that scaffolding in ZPD leads to modified and more accurate language input. Since the child was able to reproduce more grammatically accurate and semantically parallel to the model descriptions, such development could be attributed to the role of input provision via scaffolding in ZPD. Although Van Patten (1988) argued that beginning L2 learners often have difficulties in attending to both meaning and forms simultaneously, the child in this study was able to attend to meaning and form via the use of scaffolding in his ZPD. It is acknowledged that the child's post-descriptions were lacking in complete syntactical structure as modeled by the adult. Nonetheless, Kuczaj and Maratsos (1975) considered the child's production as assimilatory to adult's if the child replaces the model sentences in relation to the child's available linguistic features. Moreover, when children begin to combine words, this combination tends to be telegraphic (e.g., Tamis-LeMonda, 2000; Brown, Bellugi & Fraser, 1963; Weiten, 2008) and so grammatically incomplete (Fraser, Bellugi & Brown, 1963).

In this study, the child's telegraphic and ungrammatical utterances were mostly due to the omission of vital functors, which were primarily the auxiliary verbs, even though, the complexity of model utterances could be an additional factor hindering the child's ability to imitate the suggested structure completely. In addition, specifically hypothesized that because children have such small memory span, function words may be dropped because they carry little information and tend to be unstressed in speech (e.g., Kelly, 1993; van der Lely & Howard, 1993). Thus, to make effective use of their limited memory span, the child did not attempt to store this unstressed, low information words which children often delete in their reproduction of model sentence (e.g., Shea & Curtain, 2006; Freedle, Keeney & Smith, 1970). Such condition could be the case in this particular study. Although by leaving out the auxiliary verbs, the child's utterances could be considered as ungrammatical. However, children sometimes use a set of rules, which deviates from complete grammaticality to generate their sentences (e.g., Cook, 1997; Menyuk, 1963),. Thus, adult's utterances could provide models of grammatical utterances, which the child could integrate into his linguistic system. Such integration would unconsciously replace the ungrammatical rules in the child's internal language system or inter-language.

In line with the above condition, the child in this study used primarily the base form of word as shown in Table 4. Based on this situation, the child's syntactic structure could be described as still being at the phrase-structure level whereby parts of speech were used to formulate simple-active-declarative sentences such as 'The girl play swing'. Chomsky (1964) called these types of sentences as terminal strings or sentences in transitional state and yet, they form the basis for the child's production of other sentences (e.g., Chomsky, 1964; Ritchie & Bhatia, 2009). Even after the scaffolding by adult with grammatical utterances, the child in this study still produced the same type of phrase-structure level utterances in his post-description scripts. Such situation is evidence that reproduction of structure, although modeled by sophisticated adult, may be limited to the child's present grammar (e.g., Cook, 1985; Odom, Liebert & Hill, 1968). For example, when the child used the phrase '(The dog look at) the girl play swing' in describing illustration 1 instead of using 'them' for the underlined utterance, he might be cognitively filtering the pronoun due to the child's different perception of the dog's action. Thus, this pronoun was not internalized as part of his sentence structure. In line with Piaget's (1962) notion, a child's egocentric interpretation resulted in an additional element in his description due to his figurative aspects of thought.

The difference in adult's and child's sentence structure could also occur due to the internal conflict in the child's mind in deciding whether or not to follow model structure or to go along with the rules which the child hypothesized. The child's decision to follow his hypothesized language rules resulted in the child's structural reproduction to be different than the adult's form (Rodd & Braine, 1970). Also, based on the findings of Rodd and Braine's study, an extrapolated view could be that, the different form in the child's reproduction in comparison to the model descriptions could be explained as due to the child's judgment of grammaticality. Even though the adult's description was linguistically grammatical, the child might refuse to follow the suggested grammar, which according to the child's language system as being ungrammatical. This could reasonably explain the reason that there was no exact copying of adult's structure as well as substitution of adult's nouns with the nouns that the child felt would be more appropriate.

The fact that the child obtained excessive MLU for some descriptions such as for illustration 23, could be due to his extended utterances to include some direct speech, which were not modeled by the adult. However, this type of reproduction shows tremendous syntax development. The child seemed to have the capacity to manipulate the model structure, which provided him some syntactical resources to the extent that he was able to use direct speech appropriately without any modeling from the adult. This leads to a reasonable assumption that scaffolding enables the development of linguistic structure to go beyond the structure presented by adult. This development could also be seen through the emergence of the correct usage of the phrase 'as well' in the child's post-description. This resulted in the increase of the degree of complexity in the child's sentence. Nevertheless, the child's relative MLUs show his ability to obtain 60% of the target MLUs. This means that the child's sentence complexity was about 60% of the adult's sentence complexity. Perhaps, modeling through reinforcement could further improve the child's ability to produce sentences with a degree of complexity that is comparable to adult's utterances. In this study, the child's attempt to reproduce adult-like descriptions could still be considered as an active process of assimilating and reorganizing the adult's descriptions and reproducing these descriptions in accord with his current grammatical competence.

Considering the child's age, as an L2 learner, he seemed to be still in the process of developing his L2 sentence structure. The general similarity between the child's post-descriptions and the model descriptions indicate that the child made an attempt to assimilate the model utterances. However, because his sentence structure is limited to his current L2 grammatical skills, the assimilation attempt of exact grammar was unsuccessful. The following example might give a clearer explanation of this situation.

Table 10: Approximate Successive Adult-Like Reproduction

Model Description	**The Child's Post-Description**
Father **is driving** the car	The daddy **drive** the car
The girl **is sitting** in front	The girl **sit** in front
The boy **is sitting** at the back of the car.	The boy **sit** at the back.
The boy and the girl **are playing** with toy train.	The boy and the girl **play** toy train.

Table 10 shows that even though a child cannot accurately reproduce long utterances, his post-description utterances in relation to his comprehension competence are still relevant to his current grammatical skills.

Latency to full sentence production and fluency is also vital in L2 development. The improvement in these two areas may contribute to better L2 proficiency. The analysis for production of incomplete sentences indicates that the child's production of incomplete sentences was significantly lower in the post-description (0.22) in comparison to the frequency of his incomplete sentence production in the pre-description (1.00).

This shows that the child's latency to full sentence production has tremendously improved. Such improvement may also increase the child's L2 fluency. This progress was also indicated by the decrease in the number of incomplete sentences under the short description illustration category from 13 to only 2 incomplete utterances in the post-description scripts. In addition, the number of incomplete sentences under the long description illustration category also dropped from 10 to 3. Based on these findings, the logical explanation would be to attribute such language improvement to the input provision via scaffolding by the adult. Even though the child still produced incomplete sentences in his post-description, this occurred primarily when the child was describing long description illustrations. This seems to conform to a normal pattern of difficulty in L2 production faced by L2 learners, particularly, those with limited resources in L2. Another contributing factor to the child's improvement in latency to full sentence production and fluency in his post-description could be due to the expansion in the language input provided by the adult. The expansion might serve as another form of scaffolding from which the child derived a more explicit and comprehensible language input for the child to imitate from. As a result, the child managed to produce more complete utterances in his post-descriptions. The availability of the opportunity to imitate from model utterances enhanced the child's confidence and certainty in his sentence production post the exposure to model language for the illustrations.

Therefore, language modeling from the adult filled in the gap of which the child's lack of language resources in the foreign language. Expanded language input by adults may assist in children's sentence expansion (e.g., Cazden, 1965; Pakulak & Neville, 2010). The child's latency to full sentence production and fluency which were further analyzed based on repetitive phrasal utterances showed that the frequency of this type of utterances decreased approximately 50% in the child's post-description in comparison to the production of the same type of utterances in the pre-description. Again, parallel to the pattern of the child's production of incomplete sentences, a similar pattern emerged when the child produced a higher number of phrasal utterances when describing long description illustration category in comparison to short description illustration category. This shows a consistency of the level of resources in the second language that the child had that made him more difficult in dealing with expanded language. Nonetheless, a significantly lower mean of phrasal utterance from 3.0 in the pre-description to 1.6 in the post-description is also an indication of explicit improvement in the child's latency to full sentence production and fluency. In fact, the provision of input via scaffolding helped the child to smoothly describe illustration 1, 2, 11, 13, 15, 16, 17 and 19 without any phrasal utterances in the post-description.

Since this study was guided by Vygotsky's (1978) theory regarding adult's function as a language model to children, scaffolding in ZPD has shown to be an effective vehicle for the child in this study to develop his L2. As indicated in the syntax analyses, the child's means for article, verb and noun usages in the post-description were much closer to the adult's means for the three grammatical items in comparison to the child's usages of these items in his pre-description. This increase in similarity between the child's and the adult's usages of these grammatical items could be translated into the child's attempt to assimilate the model utterances as closely as possible. Nonetheless, considering that such assimilation was in L2, the child's assimilation process can be inferred to occur from the external to the internal. The child in this study might be at the level at which he both evaluates the stimuli in terms of the rules of his grammar and reproduces what he primarily hears in accordance to these rules because his evaluation and production is still operating more externally. This condition is also reflected in the child's attempt to reproduce the adult's structures but he inevitably used his own verbs. In addition, the omission of the auxiliary verbs was a sign of his external stage language operation. However, considering that the child's correlation coefficient for the three grammatical points exhibit a stronger relationship to the adult's description in the child's post description, the findings support Vygotsky's (1978) theory regarding the role of scaffolding by adult in a learner's ZPD.

Conclusion

The findings of this study suggest that language scaffolding in ZPD could be used as a potential vehicle for L2 syntax development. Vygotsky (1978) stated that significant others place demand on children that requires them to encode, process, and retrieve information. Therefore, in this study, language input from the adult provided cognitive structure and organizational model of language to the child. Provided that there is sufficient comprehensible input and reinforcement, language scaffolding could serve as a bridging means for children to learn L2 more effectively and efficiently as supported by the data in this study. Hence, the role of scaffolding in ZPD for L2 syntax development should be recognized. Nonetheless, in line with Ellis's (1994) and Van Lier's (1996) contention that interactive talk is important for L2 acquisition among children, this study also gives rise to the importance of purposeful interaction in making language scaffolding an effective tool for language development among young L2 learners. Having to fulfill a meaningful and purposeful task would provide a functional and a more naturalistic context for learning and acquisition to take place.

However, in addition to scaffolding, the extent to which purpose serves as a pushing factor in enhancing language development with the use of scaffolding is still an area that needs further investigation.

References

Balighizadeh, S., Memar, H. T., & Memar, A. T. (2010). The effect of symmetrical versus asymmetrical scaffolding on English reading comprehension of EFL learners. *Studies in Literature and Language, 1*(7), 104-131.

Berk, L. (2002) *Child Development*. 5th Ed. Boston: Allyn and Bacon.

Brown, R., Bellugi, U. & Fraser, C. (1963). Control of grammar in imitation, comprehension, and production. *Journal of Verbal Learning and Verbal Behavior, 2*, 121–135.

Carroll, A. S., Corbett, I. F., Damerell, C. J. S., Middlemas, N., Newton,D., & Clegg, A. B. (1966). *Phys. Rev Letters, 16*, p. 288.

Cazden, C. (1965). *Environmental Assistance to the Child's Acquisition of Grammar*. Unpublished Dissertation, Harvard University, Cambridge, Massachusetts.

Chomsky, N. (1964). *Current Issues in Linguistic Theory*. *In Structure of Language*, J. A. Fodor & J.J. Katz (eds). New York: Prentice-Hall.

Cook, V. (1985). Chomsky's universal grammar and second language learning. *Applied Linguistics, 6*(1), 2-18.

Cook, V. (1997). Monolingual bias in second language acquisition research. *Revesta Canaria de Estudios Ingleses, 34*, 35-50.

De Guerrero, M. C. M., & Villamil, S. O. (2000). Activating the ZPD: Mutual Scaffolding in L2 Peer Revision. *Modern Language Journal, 84*(1), 51-68.

Donato, R., & McCormick, D. E. (1994). A sociocultural perspective on language learning strategies: the role of mediation. *The Modern Language Journal, 78*(4), 453-464.

Ellis, R. (1994). *The Study of Second Language Acquisition.* Oxford: Oxford University Press.

Farrar, M.J. (1992). Negative evidence and grammatical morpheme acquisition. *Developmental Psychology, 28(1),* 90-98.

Fraser, C., Bellugi, U., & Brown, R. (1963). Control of grammar in imitation comprehension, and production. *Journal of Verbal Learning Behavior, 2*,121-135.

Freedle, R.O., Keeney, T.J., Smith, N.D. (1970). Effects of mean depth and grammaticality on children's imitations of sentences. *JVLVB, 9*, 149-54.

Gupta, A. (1992). Role of imitation in language assessment tests. ERIC, ED 352695.

Hammond, J. (Ed.) (2002) *Scaffolding Teaching and Learning in Language and Literacy Education*. Newtown, Australia: PETA

Krashen, S. (1982). *Principles and Practice in Second Language Acquisition*. Oxford: Pergamon Press.

Kuczaj, S. & Maratsos, M. (1975). What children can say before they will. *Merrill-Palmer Quarterly, 21,* 89-111.

McDevitt, T.M. & Ormrod, J.E. (2002) *Child Development and Education*. Upper Saddle River, NJ: Merrill Prentice Hall.

Menyuk, P. (1963). A Preliminary evaluation of grammatical capacity in children. *Journal Verbal Learning Verbal Behavior. 2,* 429–439.

Newman, F. & Holtzman, L. (1993). *Lev Vygotsky: Revolutionary Scientist*. London: Routledge.

Odom, R. D., Liebert, R. M., & Hill, J. H. (1968). The effects of modeling cues, reward, and attentional set on the production of grammatical and ungrammatical syntactic construction. *Journal of Experimental Child Psychology, 6*, 131-140.

Daniels, H. (2001) *Vygotsky and Pedagogy*. NY: Routledge/Falmer.

Lakkaraju, K., Gasser, L., & Swarup, S. (2007). Language scaffolding as a condition for growth in linguistic complexity. In A. D. M. Smith and K. Smith and R. Ferrer-i-Cancho, editors, *Proceedings of the 7th International Conference on the Evolution of Language*, pages 187--194. World Scientific.

Ovando, C., Collier, V., & Combs, M. (2003). Bilingual and ESL classrooms: Teaching multicultural contexts (3rd ed.). Boston: McGraw-Hill.

Pakulak, E. & Neville, H. (2010). Biological bases of language development. *Encyclopedia on Early Childhood Development.* Center of Excellence for Early Childhood Development, University of Oregon. Retrieved from http://www.child-encyclopedia. com/documents/Pakulak-NevilleANGxp.pdf.

Piaget, J. (1962). *Play, Dreams, and Imitation in Childhood*. New York: Norton.

Rafek-Galea, S. & Nair, P. (2008). The use of scaffolding strategies among ESL learners in the comprehension of literary texts. *Indonesian Journal of English Language Teaching, 4*(2), 140-154.

Ritchie, W. C. & Bhatia, T. K. (eds.). (2009). *The new handbook of second language acquisition.* Emerald Group Publishing Limited: United Kingdom.

Rodd, L. & Braine, M. (1970). Children's imitations of syntactic constructions as a measure of linguistic competence. *JVLVB, 10,* 430-441.

Rome-Flanders, T., Cronk, C., & Gourde, C. (1995). Maternal scaffolding in mother-infant games and its relationship to language development: a longitudinal study. *First Language, 15*(45), 339-355.

Rosenthal T. L. & Whitebook, J. S. (1970). Incentives versus instruction in transmitting grammatical parameters with experimenter as a model. *Behavior Research and Therapy, 8,* 189-196.

Reger, Z. (1986). The functions of imitation in child language. *Applied Psycholinguistics, 7,* 323-352.

Shea, C., & Curtin, S. (2006). The Acquisition of L2 Positional Constraints by Adult Learners. Proceedings of the 8th Generative Approaches to Second Language Acquisition Conference (GASLA 2006)**:** The Banff Conference, Cascadilla Proceedings Project, Somerville, MA, USA.

Stapa, S. H. & Rajamoney, M. S. (2009). Support from a distance: Perception of Malaysian students on computer-mediated collaborative learning. *Turkish Online journal of Distance Education, 10*(4), Article 6. Retrieved from https://sremote.pitt. edu/tojde36 /articles/,DanaInfo=tojde.anadolu.edu.tr+article_6.htm.

Swain, M. (1985). Communicative competence: Some roles of comprehensible input and comprehensible output in its development. In S. Gass & C. Madden (Eds.), *Input in Second Language Acquisition,* pp. 235-256. New York: Newbury House.

Tager-Flusberg, H. & Calkins, S. (1990). Does imitation facilitate the acquisition of grammar? Evidence from a study of autistic, down's syndrome, and normal children. *Journal of Child Language, 17*(3), 591-606.

Tamis-LeMonda, C. S. (2000). Language acquisition. In L. Balter (Ed.), *Parenthood in America: An Encyclopedia, Vol. 1,* (pp. 342-345). ABC-CLIO Inc.: Santa Barbara, California.

Van der Lely, H. K. J. & Howard, D. (1993). Children with specific language impairment: Linguistic impairment or short-term memory deficit? *Journal of Speech and Hearing Research, 36,* 1193-1207.

Van Lier, L. (1996). *Interaction in the Language Curriculum: Awareness, Autonomy and Authenticity*. Harlow: Longman.

VanPatten**,** B**.** (1990). Attending to form and content in the input: An experiment in consciousness. *Studies in Second Language Acquisition, 12*(3), 287-301.

Vethamani, M. E. & Nair, P. (2007). Using analogy as a scaffolding tool for facilitating the comprehension of literary texts. *Malaysian Journal of ELT Research, 3,* 1-18.

Vygotsky, L. (1978). Interaction between learning and development (pp. 79-91). In *Mind in Society.* (Trans. M. Cole). Cambridge, MA: Harvard University.

Weiten, W. (2008). Language: *Psychology: Themes and variations.* Wadsworth Cengage Learning: Belmont, California.

Wells, G. (1999) *Dialogic Inquiry: Towards a Sociocultural Practice and Theory of Education.* New York: Cambridge University Press

Whitehurst, G. J., & Vasta, R. (1973). Is language acquired through imitation? *Journal of Psycholinguistic Research, 4,* 37-59.

Yu, G. (2004). Perception, Practice and Progress - Significance of scaffolding and zone of proximal development for second or foreign language teachers. *Asian EFL Journal, 6*(4). Retrieved from http://www.asian-efl-journal.com/december_04_GY.php.