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# A multiple case study on the effects of temperamental traits in Chinese preschoolers learning English

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## Abstract

**Aims:** The current study tests Clarke's (1999) findings on phases and variations of the English development of young second-language learners in a Chinese English as a Foreign Language setting and explores the cause of these variations under the following questions: 1) What verbal and non-verbal behavior can be observed in Chinese preschoolers in an English-learning classroom? 2) What variation can be observed among the children in such a class? 3) To what extent can the observed variation be interpreted on the basis of the children's temperament?

**Methodology:** Four Chinese children have been followed longitudinally in China and their developmental pattern and variation were compared with what has been found in Clarke's study. The variation has been related to children's different temperamental scores.

**Data and Analysis:** The four three-year-old English learners in China were videoed and audio-recorded in class for five months. Their class data were transcribed with CLAN software and analyzed with SPSS software. Their temperamental information was provided by the parents by filling in the New York Longitudinal Study questionnaire. The temperamental traits were analyzed with the software MentalList 2.

**Findings:** During the initial five months, the four Chinese preschoolers' English-learning behavior developed from non-verbal reactions, such as non-verbal repetitions to verbal reactions, such as English responses, generally being in line with the first two phases outlined by Clarke. Children varied significantly in terms of time of entry into the verbal phase, in the extent of interaction with teachers and peers and in learning style.

Temperamental traits such as adaptability and mood were found to be related to differences in development. A higher level of adaptation, a higher level of activity, more initial reactions and a positive mood were found to be related with more verbal and non-verbal repetitions and responses. A lower level of activity and fewer initial reactions were shown to be related to a smaller amount of verbal and non-verbal production. Finally, a negative mood and a higher threshold of responsiveness seem to have led to the teacher misreading a child's needs and thus hampered that child's motivation and incidental learning.

**Originality:** Temperamental traits have been introduced into child foreign language development and successfully shown to capture the difference of children's learning behaviors.

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**Implications:** Data on temperamental characteristics might enable the teachers to get to know the young learners more quickly and better and thus support their teaching and facilitate their teaching handover.

### **Keywords**

Early foreign language development, temperament, phase, variation

## **Introduction**

Over 200 million Chinese students, about 20% of the world total number of learners of English, are learning English at school (Jiang, 2003). Their starting age of learning English has decreased from eight or seven years of age to three or four at the moment, due to the national stimulation of English education, the improvement of living standards and a parental mindset along the lines of “the earlier, the better” and “we must not lose at the starting line”. However, very little is known about these young English learners, even though this new population is increasing exponentially and private English institutes as well as bilingual kindergartens have mushroomed all over China (Zhou & McBride-Chang, 2009). Most previous studies were targeted at children in formal education, mainly those in primary school between six and ten years old, but “hardly any studies are available on the private sector” with children of younger ages (Nikolov & Mihaljević Djigunović, 2011). However, the private sector is becoming increasingly important in China and provides service for millions of families. According to the Education and Training Industry Report released by Deloitte in 2010 (“Chinese Children’s English Training Markets”, 2013), Chinese parents invested more than 14 billion RMB yuans (about 2.3 billion US dollars) in their children’s English learning at private language institutes that year and this market is growing at an annual rate of 12%. It is estimated that by 2013, the English training market for Chinese children will exceed 20 billion RMB yuans. Thus, there is an urgent need for research on these children.

The young foreign language (FL) learners’ initial classroom experience should be given special attention, since it might affect their learning motivation and outcomes later in life (Nikolov, 2001). They should also be treated as unique individuals, not as a group in which all members are assumed to be similar to each other. However, that “the young learners are alike” is still a wide misconception in the field of early language learning (Mihaljević Djigunović, 2009). It is high time to acknowledge the individual diversity while still exploring patterns, and to look at the variation that young English learners show during their onset period of English development. By acknowledging the diversity, children might be able to get a better start and in turn develop a positive attitude towards learning English. The present paper focuses on the onset period of English learning of four three-year-old Chinese children in a private language institute. It explores the pattern and variation of their verbal and non-verbal behavior, and tries to relate their behavior to differences in temperamental traits.

## **Background**

### *Developmental phases in young English as a Second Language learners*

A framework for developmental patterns of young second or FL learners would be a useful tool for teachers to gain insight into the linguistic development of young language learners and provide them with adequate support in time. The framework might be different for an English as a Second Language (ESL) setting and for an English as a Foreign Language (EFL) setting. ESL refers to

situations in which learners and students of English are immigrants whose first language (L1) is not English, but who live in an English-speaking country and might need to learn English to communicate in daily life. EFL refers to settings in which learners need to learn English for their studies or their career, outside of the English-speaking country. In ESL contexts, studies have shown that preschoolers' English development includes not only the development of vocabulary and grammar but also the development of other verbal and non-verbal communicative aspects, such as initiating interactions with peers and sustaining attention from the teacher (Clarke, 1996). Clarke (1996) and Hester (1989) propose a framework of progress of young ESL learners from age three to six, taking into account both grammatical development and language-related behaviors. They generally divide the young ESL learners' oral English development within the first three years into four stages: new to English (stage 1), becoming familiar with English (stage 2), becoming a confident user of English (stage 3) and demonstrating competency as a speaker of English (stage 4).

The first three stages, especially the first two, may emerge as early as during children's initial period of English learning in an ESL setting. Zooming in on the first year of English development of four four-year-old Vietnamese preschoolers in Australia, Clarke (1999) further divided the first two stages and the beginning of the third stage into three phases. Phase here means "a definite change in the interlanguage that does not necessarily reflect newly developed abilities to structure the interlanguage system" (Clarke, 1999, p. 9). The main characteristics of each phase are as follows.

- Phase 1: The first phase is the period of initial exposure to English. Children might go through a silent period that varies in duration. They use English mainly to try and follow the interaction rather than to participate in interaction. Repetition and use of single words are frequent phenomena and children try to establish contact with teachers and peers by calling.
- Phase 2: In this phase, children start to actively use some accompanying language, such as greetings and routines, to initiate the interaction. They also rely less on repetition and formulaic language and use more types of single constituent constructions, especially noun phrases. Children can also smoothly switch between their L1 and English.
- Phase 3: In this phase, with more confidence in English, children start to use more complex English utterances as the crucial carrier of their communication person to person or within a group (Clarke, 1999, pp. 23–24).

### *Variation: Individual differences during the onset period of oral English development*

Within the general pattern, Clarke (1999) finds a significant variation in these young ESL learners' English development, such as the time of entry into English use, the duration of each phase, and the amount of interaction with teachers and peers in English. Take the first few weeks of English learning as an example. Some children are very extroverted and like to take risks. They try to start speaking English at the very beginning, repeating after their teacher and other children, responding non-verbally and interacting with the peers. In contrast, some children observe the teachers and peers quietly but use non-verbal responses or single words to keep pace with the teaching; while still others tend to retreat into silence and demonstrate no obvious body language (Clarke, 1999, 2009).

### *Temperamental traits and individual language learning*

How can this variation be explained? In recent years the interpretation of individual variation in early second-language (L2) learning processes and outcomes has mainly focused on the following

attributes: intelligence, aptitude, age, gender, attitudes and motivation, language anxiety, learning styles, strategies and willingness to communicate (Mihaljević Djigunović, 2009). However, young language learners are generally found to start learning an L2 with positive attitudes and to encounter little anxiety during the process. Most of the instruments to measure the attributes mentioned above are not sensitive enough to capture causes for the variation in language development and related behavior of children with the same age and with similar socio-economic status. Wong Fillmore (1976) and Toohey (2000) bring in another attribute: personality (e.g. outgoingness, assertiveness). In their case studies of immigrant children learning English between the ages of five and eight among L1-speaking peers, they associate personality with children's differences in interactions with peers, which in turn accounts for variations in their rate of acquisition. However, how the children's personality had been assessed was not mentioned in the two studies. The general categorization (introverted versus extroverted) was probably based on the classroom observation of the researchers and the impression of the teachers.

A good approach to tap into young children's personality is to assess their temperament. Temperament refers to the different perspectives of an individual's personality (e.g. extroversion and introversion) and is considered to be inherited and substantially stable (Kagan, 2005). "Individual differences in temperament have implications for development in infancy and childhood and they form the core of personality as it develops" (Rothbart, Ahadi, & Evans, 2000, p. 122). In recent years, temperament has been brought into young children's language research and a growing number of studies have revealed its relationships with children's early L1 language development (e.g. Salley & Dixon, 2007). Researchers have linked specific temperamental dimensions, such as attention span and positive emotionality to receptive and productive language skills, and they have done so repeatedly across multiple lab settings (e.g. Dixon & Smith, 2000; Karrass, 2002; Morales et al., 2000). The general finding has been that children who were characterized as having temperamental easiness (i.e. positive mood, long attention span) tend to be relatively advanced in their L1. More specifically, attention span, mood, adaptability and sensitivity are assumed to correlate with language productivity. These temperamental traits can influence language learning directly (e.g. in picking up a novel word immediately) or indirectly (e.g. by promoting or inhibiting social relationships) (Rieser-Danner, 2003).

However, research into the role of temperament focused on L1 development. So far there is little research on temperament and early FL development. The present study aims to elucidate the role of temperamental traits on the process of early L2 development, not on learning outcomes. Each child's amount and timing of language production, as well as the learning style, will be discussed in relation to that child's temperamental traits.

### *Research questions and hypotheses*

Based on the studies mentioned above, the following three questions have been formulated to explore the pattern, variation and interpretation of the variation in an early FL learning environment.

1. What verbal and non-verbal behavior can be observed in Chinese preschoolers in an English-learning class?
2. What variation can be observed among the children in such a class?
3. To what extent can the observed variation be interpreted on the basis of the children's temperament?

For question 1, it is expected that Chinese children might go through the first two phases mentioned by Clarke (1999, 2009) during the first half year of learning English. Some characteristics of

each phase might be different from what was found in Clarke's studies, since the amount of English exposure and use is different in the two settings. In Clarke's study, the immigrant children had instructions in English every day in the kindergarten and they might get access to English media at home as well. However, in the current paper, English input in EFL settings in China is quite limited both inside and outside the language school and the possibilities to use English are more rare.

For question 2, there might be considerable variation in early English development among the young language learners. Such a finding would be in line with previous studies (e.g. Clarke, 2009; Toohey, 2000).

For question 3, similar temperamental traits as those that were found to affect children's L1 development are expected to explain the variation of children's early L2 English-learning behavior: attention span, positive/negative emotion, adaptability and sensitivity. Some new dimensions of temperament may also be found to be associated with early English language development.

## Methodology

### *Participants*

The participants of this study are four Chinese preschoolers from the same class of Happy English, an EFL school in Chongqing, China. Happy English is one of the largest private English initiation language institutes in the south-eastern part of China. It targets three- to twelve-year-old Chinese children and uses the Total Physical Response approach in teaching (Asher, 1996). The textbooks for three- to six-year-old children in this school are from the Yippee series (Red, Green, Blue), published by MM publications. The Yipees are designed for very young English learners, aiming at children's listening and speaking first, and gradually involving reading and writing tasks when they get older. This study looks at the first year of English learning where it is the aim to have children get interested in English, get acquainted with English pronunciation and to understand and produce some simple English words and phrases.

Every week, the children were required to come to Happy English twice, about two hours in total: once for the main course taught by an American teacher and a Chinese teaching assistant together, to learn new words and songs; and the second time for an activity class taught by the Chinese teacher only, to review what they learned in the main course. The current investigation uses data from the main course only. Each main course lasted about 70 minutes per week with the same routines under the syllabus of Yippee Red. At the beginning of each main course, children usually sat in a semi-circle and watched a video of a song or a little story on an interactive whiteboard and then they would stand up to sing and dance or repeat after their teachers in English with gestures. After the warm up session, the key words and phrases of the unit were introduced by the teachers with pictures, props or body language, and were practiced in English with songs and stories and by playing games and coloring pictures. The class ended with stickers as a bonus. The topics were child-friendly, such as colors, numbers and toys. Body language, such as gestures and dance, were frequently used by the teachers for children's better comprehension and higher motivation.

In class, children were encouraged to mimic the teachers' body language for better engagement while singing and practicing new learnt words. However, when the video was on or the American teacher was teaching, they were expected to sit on their seats and to look to the front. Running around, playing by oneself or continually talking to peers were seen as violations of discipline. Also the use of Chinese by the children was not encouraged out of the worry that they might rely on their mother tongue too much and produce less English. Since English exposure is quite limited outside the class in China, both the school and the teachers hoped to establish a "pure" English environment for children and have them get access to English as much as possible.

The two teachers for the main course were very nice and patient with the children in general. The Chinese teaching assistant studied in Britain for eight years and has a master's degree in language education. She is extroverted and cheerful, and was very popular among the children. In class, the American teacher was responsible for teaching and the Chinese teacher helped him to organize activities and to keep children looking front.

The four targeted children were observed using video recordings each week for 20 weeks from September 2012 to January 2013. Only the main courses were video-recorded because of the stable attendance of the children. The four participants, here called Linda, Adam, Lyna and Philip, two girls and two boys, had no English education before the Happy course started in September 2012. Their English-learning onset age ranged from 2;10 to 3;3 years. There were another four Chinese children in the class and, like the participants, they were from a similar socio-economic background and none of them had any English education before, according to the questionnaire parents were asked to fill out beforehand. The questionnaire was used for children's background information, such as their English exposure experience, their parents' education level, profession, English ability and so on.

### *Data collection procedures*

Data collection began in August 2012, one month before the English program started. Parents were introduced to the research and signed a consent form for data use for the current study. They were then asked to fill in a questionnaire about the children and their family background. All four participants were from middle class families. Then, in order to make sure that the participants knew little or no English, their English vocabulary knowledge was tested productively and receptively with 10 pictures respectively (production: banana, fish, shoe, hand, table, ice cream, dance, listen, read, write; reception: book, pink, five, hair, cat, father, cherry, square, ice cream, sofa). The 20 frequently used words were mainly selected from MacArthur Communicative Development Inventories (MCDI; Fenson, Marchman, Thal, Dale, & Bates, 2007). After seeing the pictures of the words, children were expected to either produce them in English or to choose the target words from four pictures after hearing them in English. No participant could answer correctly more than two words, either productively or receptively.

The period of classroom recording started on 7 September 2012 and ended on 17 January 2013 due to the two-month winter holiday. During the first five months, all the main courses had been video-recorded, with the exception of a few sessions in the first month due to technical problems. Two cameras were used to capture a comparatively comprehensive picture of the children's and the teacher's class performance. Children were also recorded with a small mp3-recorder and a tie-pin microphone, carried in special jackets (Deunk, 2009) that the four participants wore. One video clip of the first month and two main courses from each of the rest of the months were chosen for analysis; more details are listed in Table 1.

Children's temperament was informed by parents with a Chinese normed version of the New York Longitudinal Study (NYLS), a questionnaire designed by Thomas and Chess (1977). As one of the most widely used tools in the field of children's temperament studies, it is composed of 72 items, targeting nine temperamental traits: activity, initial reaction, adaptability, intensity, regularity, mood, distractibility, attention span and threshold of responsiveness. More explanations of each trait (Firchow, 2009) are listed in Table 2.

### *Data analysis*

The first author transcribed all data according to the CHAT transcription standards of the child data language exchange system (CHILDES) (MacWhinney, 2000). The data were then coded

**Table 1.** Video data analyzed in the present paper.

Month, Week	Total time (in minutes)	Participation
M.1 (W.2)	11	All
M.2 (W.6, W.8)	136	Adam missed the second session of week 8
M.3 (W.10, W.12)	146	All
M.4 (W.14, W.15)	137	All
M5. (W.19, W.20)	122	Adam was absent in week 20

**Table 2.** Explanations of nine temperamental traits.

Temperamental trait	Explanation
Activity	Child's physical energy
Initial reaction	Also known as Approach or Withdrawal, which refers to how the child responds (whether positively or negatively) to new people or environments.
Adaptability	How long it takes a child to adjust to change over time.
Intensity	The energy level of a positive or negative response.
Regularity	The level of predictability in a child's biological functions, such as waking, becoming tired, hunger and bowel movements.
Mood	The child's general tendency towards a happy or unhappy demeanor.
Distractibility	The child's tendency to be sidetracked by other things going on around her.
Persistence and attention span	The child's length of time on a task and ability to stay with the task through frustrations.
Threshold of responsiveness	How easily a child is disturbed by changes in the environment.

and analyzed using the CLAN software from CHILDES. Basic results from CLAN were further analyzed using SPSS software. The coding scheme was designed based on Clarke's work (1999) and the one used in the Head Start Project, which checked American children's response when they were taught new words at preschool (Grifenhagen, 2012). Both verbal and non-verbal behaviors in class were taken into consideration. Six categories were used to capture development: gaze, non-verbal repetition, verbal repetition in English, non-verbal response, verbal response in English and mixing language of English and Chinese. Babbling, calling mother or Chinese-filled pauses have not been included in the last category. The details of each category are listed in Table 3.

The correlation between learning behavior and time was examined both across and within the participants. First of all, the raw number of the four children's behaviors in the six categories was converted into frequency per minute. After confirming with Pearson correlations that each child's behaviors across classes were highly correlated, the averages of their behaviors as a group were calculated and used to depict the group tendency. Next, the four children's development graphs were drawn on the basis of their individual performance in each class. Then, the summary of non-verbal behaviors (gaze, non-verbal repetition and non-verbal response) and the summary of verbal behaviors (verbal repetition, verbal response and mixing language) were calculated for each participant. The difference scores of non-verbal behaviors and verbal behaviors were correlated with weeks.

The temperament data were analyzed with the software MentalList Version 2. The software contains the normed values based on large-scale studies on children's temperament in China (e.g.



**Table 3.** Explanations and examples of the six categories.

Category	Explanation	Example
Gaze	Pay full attention to the teacher but without doing anything. The raw number of gazes is counted based on children's reaction to each turn of the interactive teaching. The length of one gaze is usually more than 5 seconds.	
Non-verbal repetition	Copy the teacher's action or gesture	<b>*TE1: jump high, whee@si.</b> (says "jump high" while jumping) <b>*Linda: 0.</b> (mimics gesture)
Verbal repetition	Repeat (a part of) the teacher's English utterance	<b>*TE1: who want a pencil?</b> (demonstrates "pencil" with a picture) <b>*Adam: pencil.</b> (repeats after the teacher)
Non-verbal response	Comprehend the teacher's requirement or question and demonstrate it with action (e.g. nodding) or gesture (e.g. put hands over the head to imitate a rabbit)	<b>*TE1: who wants to try?</b> <b>*Philip: 0.</b> (raises up hands)
Verbal response	Use English to answer teacher's questions and requests	<b>*TE2: ok, what's this?</b> <b>*Adam: book.</b> (answers the question correctly in English)
Mixing language (either use Chinese only in the utterance or code-switch between English and Chinese)	Switch back to Chinese to ask questions or give comments	<b>*TE1: blue.</b> (demonstrates "blue" with a picture) <b>*Lyna: 老师你的衣服也是blue@s.</b> ("Mr. Chad, your shirt is blue, too")

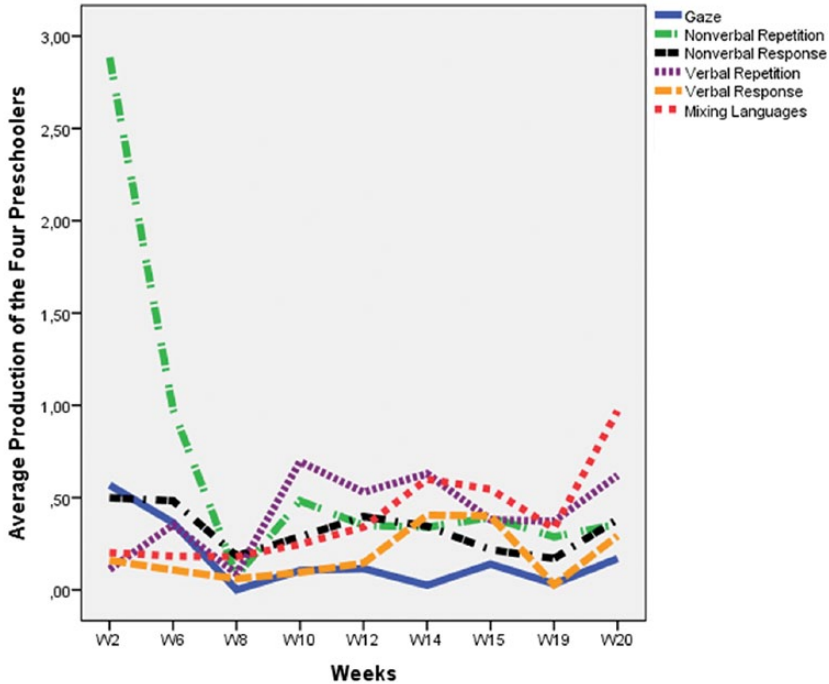
Note: "@" indicates an utterance line; TE1 refers to the American teacher; TE2 refers to the Chinese teaching assistant; contextual information and utterance translations in brackets.

Zhang & Wang, 1996). The software compared the four children's nine temperamental traits with the normed value and put them into the categories "above average", "normal" and "below average".

## Results

### 1. What verbal and non-verbal behavior can be observed in Chinese preschoolers in an English-learning classroom?

Generally speaking, the four Chinese children's first 20 weeks of English development in an EFL setting (Figure 1) fell into the first two phases of early English development in an ESL setting as described by Clarke (1999). During the first eight weeks, all the children, except Adam, went through silent periods of different lengths. They stared at the teachers cautiously at the beginning and gradually were willing to gesture after them while learning new words or singing. Body language was used frequently to participate in the classroom activities and to react to the teachers. For instance, in week 6, Adam was tested with an image of the greeting word "hello". He kept waving his hand to the teachers but would not pronounce it.



**Figure 1.** Group average of the six categories throughout the first five months.

Gradually, the average production of gazes, non-verbal repetitions and non-verbal responses decreased and was surpassed by the average production of verbal repetition in the third month. By then, children got used to the sound of English and repeated single nouns and formulaic language after the teachers tentatively. They were more willing to sing along with their teachers, to repeat their commands and the new words in class. For instance, in week 14, the children produced 247 repetitions within a 70-minute class.

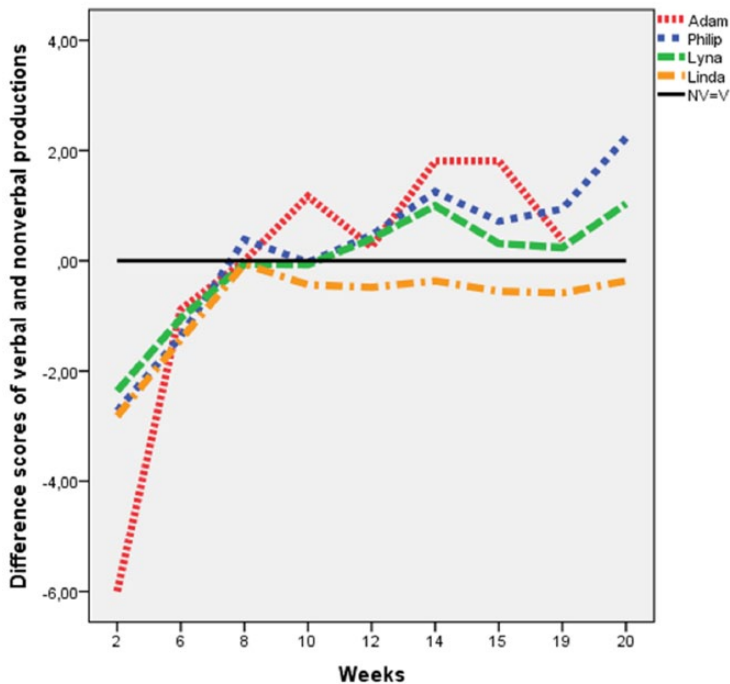
The average use of verbal response and mixing language (English and Chinese) grew steadily and peaked in the fourth month. With more confidence in English, children tended to use a word or a phrase to answer teachers' questions, to initiate a question and to express a requirement. With increasing communication, they seemed to sense the limitation of their oral English, and used more Chinese to deliver their meaning better. In week 19, children's verbal and non-verbal response had dropped dramatically due to the change of the Chinese teaching assistant temporarily. In the following week, their performance went back to normal. According to the picture naming games in class and the parental interview in month 6, the four children could generally comprehend and produce simple words and phrases in the categories of color, number, shape, sensory organ and greetings, after their first five months of learning English.

Despite the similarities between the current study and Clarke's research (1999), there are differences in the onset time for verbal repetition. In Clarke's study, Phase 1 includes a silent period, non-verbal production and verbal repetition. Phase 2 includes verbal response and language switching between English and the children's mother tongue. In the current study, the large amount of verbal repetition appeared significantly later than the silent period and non-verbal production, associating the last part of Clark's Phase 1 with the beginning of Phase 2. It therefore seems that

**Table 4.** Correlations of verbal–non-verbal difference scores and time of each child.

Child	Pearson correlation sig. (1-tailed)
V–NV difference scores_Lyna	.853**
V–NV difference scores_Philip	.912**
V–NV difference scores_Linda	.669*
V–NV difference scores_Adam	.760*

\* $p < .05$ ; \*\* $p < .01$ .

**Figure 2.** Difference scores of children's verbal and non-verbal production respectively in five months.

children's development in the current study may be divided into two phases that differ slightly from those proposed by Clark: Phase 1 includes the silent period and non-verbal production (gazes, non-verbal repetitions and non-verbal responses) and Phase 2 includes verbal production (verbal repetitions, verbal responses and mixing languages).

To investigate the development of the amount of non-verbal production compared to the amount of verbal production, the number of children's non-verbal productions was subtracted from the number of children's verbal productions, thereby yielding a positive score when children produced more verbal than non-verbal reactions. A one-tailed Pearson correlation confirmed that the number of verbal productions increased significantly throughout the five months (Table 4). The developmental pattern is depicted in Figure 2. It shows that all four children's verbal production started to surpass the non-verbal production around week 8, the end of month 2. Later, the difference fluctuated but remained positive in most cases.

In summary, the four Chinese children's first five months of English development followed the route outlined by Clarke; however, the frequent use of English verbal repetition seemed to be associated with Phase 2 rather than Phase 1. In contrast to Clarke's study, Phase 2 in the current project consisted of two parts: English verbal repetition and verbal response, either in English or in mixing Chinese and English. A further separation of the two parts within Phase 2 was not supported by the data. The correlation between the difference scores of the two parts and time was not significant.

The delay of English verbal repetition could be due to less English input in an EFL setting, such as China in this case, compared to an ESL setting, such as Australia in Clarke's case study. Children in the EFL setting might need more time to get used to the sounds of English and start to repeat after the teacher. The delay of English verbal repetition and its correlation with English verbal response and use of mixing language should be explored with further data.

## *2. What variation can be observed among the children in class?*

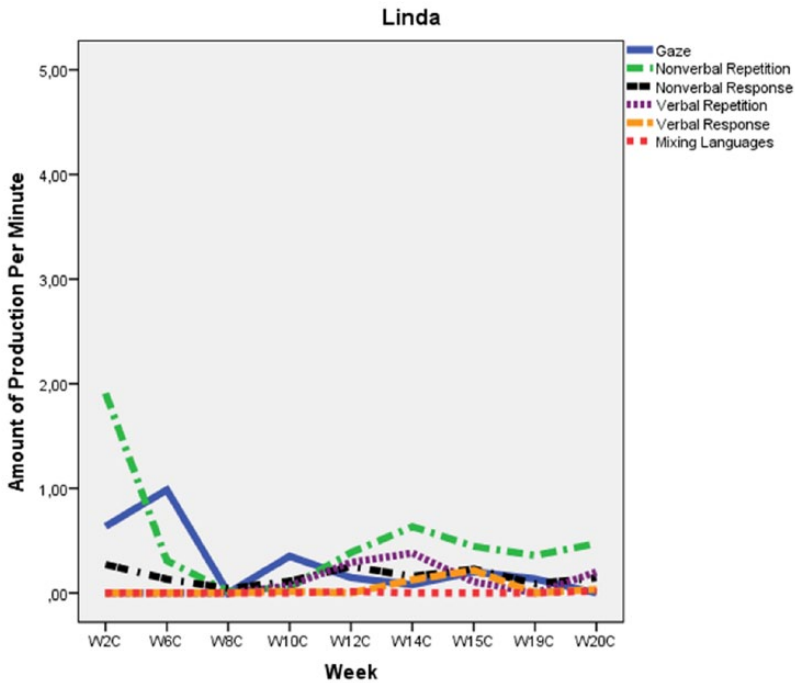
Although all the children went through Phase 1 and 2 in general, their classroom behaviors were quite different from each other. As shown in Figures 3–6, children varied in the time of entry into English use, the total amount of non-verbal and verbal production, and the time at which certain categories peaked. Linda had the longest silent period. She did not say anything until week 10, after more than two months of English exposure. Although she kept silent most of the time, the videos show that she paid full attention to the teachers' instructions. Gradually she started repeating after the teachers and responded to them with body language. Her English responses and the mixed use of English and Chinese were quite rare throughout the five months. In contrast, Adam's was very active in class and produced the most in terms of repetition and response, both verbally and non-verbally and almost all the time. He was the first child in the class to repeat after the teacher in English and had no silent period. Lyna's development pattern was quite similar to Adam's, but her frequency of verbal and non-verbal English repetition and production was much lower than his. Similar to Linda, Philip's English production was quite limited as well. However, he code-switched much more often than Linda. He used Chinese to ask questions, give comments and maintain peer communication.

Taking English verbal repetition and response as an example (Figure 7), it is clear that throughout the five months, Adam's amount of production was always on the top, and Linda's was almost always on the bottom, with Lyna and Philip somewhere in between. All children showed a peak of verbal repetition/verbal response at some point; however, the time at which this peak appeared was different for each child. For instance, verbal repetition reached a peak for Adam in Week 10, Lyna's in Week 12, and Philip's and Linda's in Week 14.

## *3. Can we interpret the variation on the basis of the children's temperament?*

With MentalList 2, the four participants' temperaments were analyzed; the results are shown in Table 5 (1 = "above the average", 0 = "average", -1 = "below the average").

*Linda.* Linda's initial reaction is below average. She tended to withdraw from the new learning environment and cautiously watched for a while before engaging in new experiences. During weeks 2–8, she only observed the teachers and occasionally repeated after them using body language. She did not say anything in class until week 10, after three months of English learning, and her initiative made both the teachers and her mother excited. Since then, she voluntarily started to join in during classroom activities and liked answering questions in English. However, in week 19, she retreated to silence again probably due to the change of the Chinese teaching assistant. Her

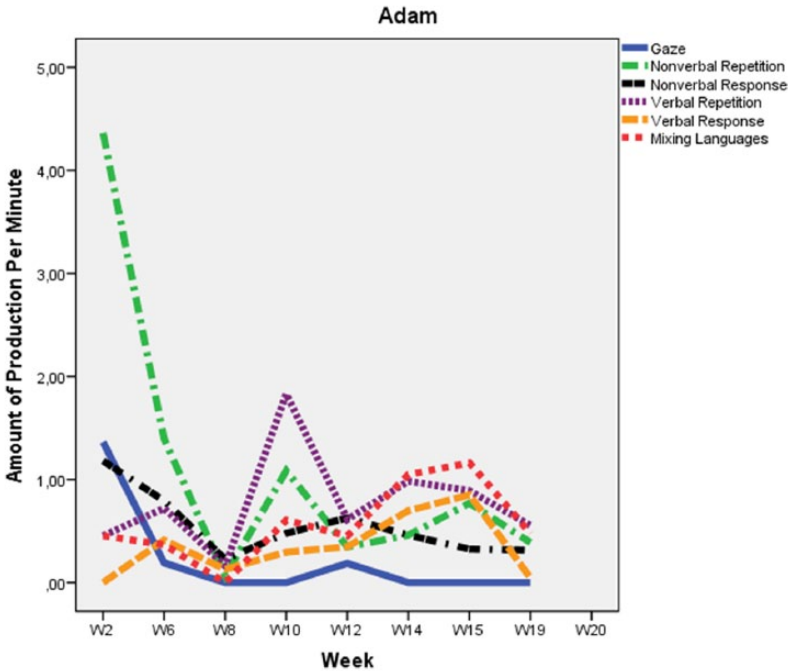


**Figure 3.** Linda's English development pattern.

comparably low level of initial reaction might make Linda more vulnerable to the change of teacher than the other children.

The effect of her lower activity level and her higher level of regularity could be observed in two aspects. First of all, no matter whether or not Linda willingly participated, she produced the lowest amount of verbal repetition and verbal production during the entire time of testing, except week 15. Her classroom behaviors were relatively predictable: sitting back and concentrating on what is being taught. She seldom interacted with the teacher and other children, which led to almost no code-switching. Secondly, despite being the youngest in class, she was quite disciplined and had no difficulty sitting still all the time, thereby adhering to the teachers' expectations. Linda's learning behavior was in line with what has been found previously: a child with a low activity level can do well in a very structured environment. The teachers were quite patient with her during the three-month silent period and praised her for any initiative. According to the interview with the teachers at the end of the project, they highly appreciated Linda's good discipline and predictability, and would have liked to pay more attention to her even though she did not say anything in class at the beginning.

*Adam.* In contrast to Linda, Adam is quite extroverted. He is above the average level in terms of activity, adaptability, intensity, mood and initial reaction. In the English class, he quickly adapted to the new environment and was the first child to repeat after the teachers in English and verbally explored English sound regularities. He applied what he learned in class most quickly and frequently. For instance, in week 12, the two verbs "stop" and "jump" were taught consecutively.



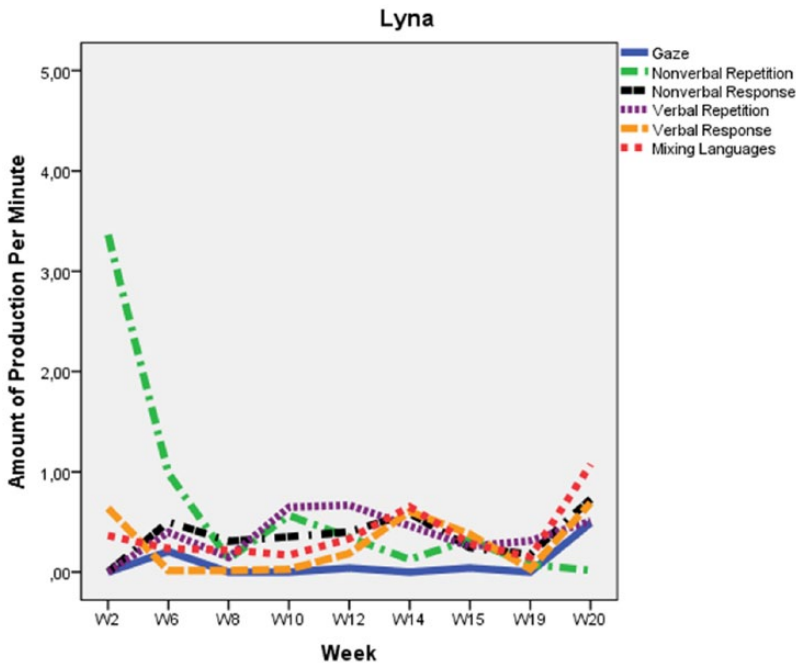
**Figure 4.** Adam's English development pattern.

While being taught “jump”, Adam asked the teacher to stop jumping by saying “stop” while gesturing it. In general, his quick adaptation and creative use of newly learnt knowledge earned him praise from the teacher. However, in many cases, the teachers could not make good use of the chance to facilitate Adam's learning. For instance, in week 13, while being taught the word “yellow”, Adam suddenly said to the teacher “let's go”, which also contains the English vowels / $\Theta$ / and / $\mathcal{U}$ /. The teachers seemed not to understand it and had to laugh about it.

In addition, he always participated in class activities energetically and happily unless he was ill. His positive mood was contagious and other children enjoyed repeating after him in many cases. His high activity level might also have enabled him to monitor other children's performance. For instance, in week 14, he noticed that Philip did not say “red” as others did and reported this to the teacher immediately.

Although being active in class in general, Adam could easily get bored with review activities, probably due to his lower level of persistence. In order to check the children's progress, the teacher tended to ask children to speak out the newly learned words in different games. Adam always tried to mimic the teacher and transformed pronunciation or intonation into a funny way after several rounds of review or repetition. The second half of each main class always showed a significant drop of Adam's English verbal and non-verbal production. Transcripts of Adam's class performance mentioned above are listed in Appendix 1.

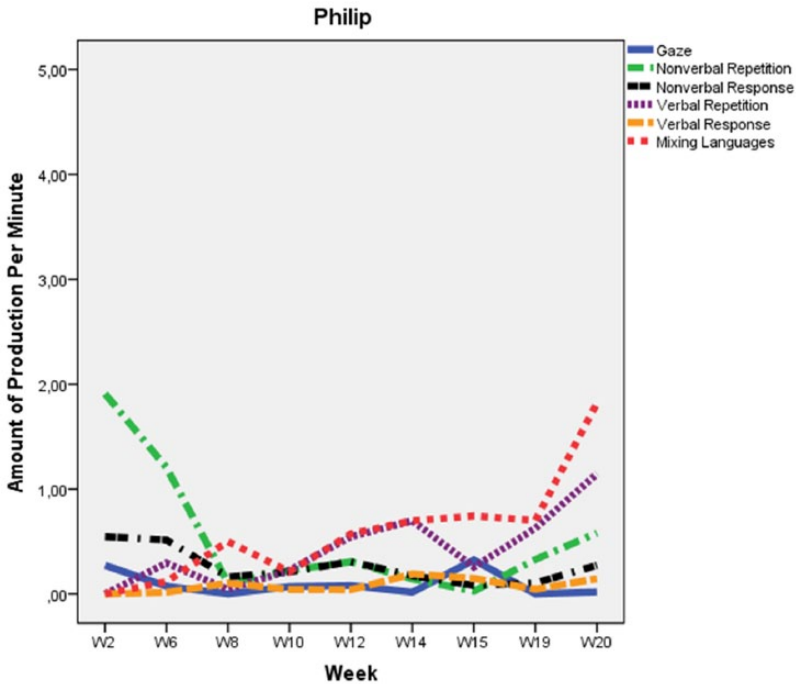
*Lyna.* Lyna's development pattern is quite like Adam's. With a higher level of adaptation, she also quickly got used to the English environment and tried to answer questions creatively. She was the



**Figure 5.** Lyna's English development pattern.

first child who tried to put single words into a sentence in class. In week 12, while learning the color word “green”, she found her jacket was the same color, so she said in mixing languages “这是 green Lyna”, which means “this is green Lyna”. The teachers seemed not to realize the attempt and only confirmed the pronunciation of “green” and “Lyna” separately by saying “green, yes, Lyna, yes, green”. Just like Adam, Lyna also tried to connect what she learnt with the environment. For instance, in week 15, she found the color “blue” on her socks and told this to the teacher with delight. However, she often indulged herself in the “discoveries” and started to play with herself, which made the teachers frequently urge her to sit back and pay attention to the class. Lyna was not sensitive to the teachers’ commands and mainly focused on what she liked most, which was probably due to her lower level of regularity and higher level of threshold of responsiveness. Under such conditions, the teachers were often busy with disciplining her but could not notice her real interest. In fact, a quick and genuine concern of her interest would not only draw Lyna’s attention back but also increase the chance of incidental learning. For instance, in week 6 while reviewing a word, Lyna found a pumpkin label on the Chinese assistant’s T-shirt. She happily yelled it out in Chinese and the teacher confirmed her finding by nodding and taught her how to say pumpkin in English with a clear and loud voice. After being lauded for her curiosity, Lyna directed her attention back to the class immediately. As in this case, to satisfy Lyna’s curiosity would facilitate the effect of her higher level of adaptability. Transcripts of Lyna’s class performance mentioned above are listed in Appendix 2.

*Philip.* Unlike Adam, Philip is above average in terms of persistency. He enjoyed different games of reviewing the same words and participated nicely. However, he had a negative mood in general and regularly showed frustration when he could not get the teachers’ attention. For instance, in week



**Figure 6.** Philip's English development pattern.

15, Philip constantly said he was angry when he was not chosen by the teacher to play a game and win a picture as a bonus. He slipped down from the chair slowly and looked very disappointed until the Chinese teacher came over to comfort him. His mood could not always be sensed in time and, in many cases, he gave up the endeavor and shifted his attention to other things, such as his clothes or the chair. Philip was the child who was most often reprimanded by the teachers. According to the interview with the teachers, they thought it was the short attention span that made Philip absent-minded. However, a closer look at Philip's class performance revealed that Philip might have a higher demand of care and attention due to his negative mood. If this demand was not met, he would give up easily and refuse to speak English voluntarily. As shown in Figure 7, his English response was limited, just slightly more than Linda's throughout the five months. This is in line with what has been found in early L1 studies, where children with a negative mood usually show less language production (Dixon & Smith, 2000). Philip's first four months of English learning (before the change of the Chinese teaching assistant) deserve our attention since the misinterpretation could lead to a vicious circle: the teachers misinterpreted the cause of Philip's absent-mindedness and used criticism and discipline to draw back his attention. Frustrated by the teachers' attitude, Philip tended to withdraw into a passive mode of learning, simply repeating after the teacher but not actively using English to initiate a conversation with the teachers. His attempt of using Chinese to call the teacher's attention was ignored by the teachers in general due to the lack of knowledge of Chinese of the foreign teacher and the "no Chinese" classroom policy. This policy thus led to overlooking Philip's higher desire for care, which could potentially be detrimental to his motivation. Transcripts of Philip's class performance mentioned above are listed in Appendix 3.



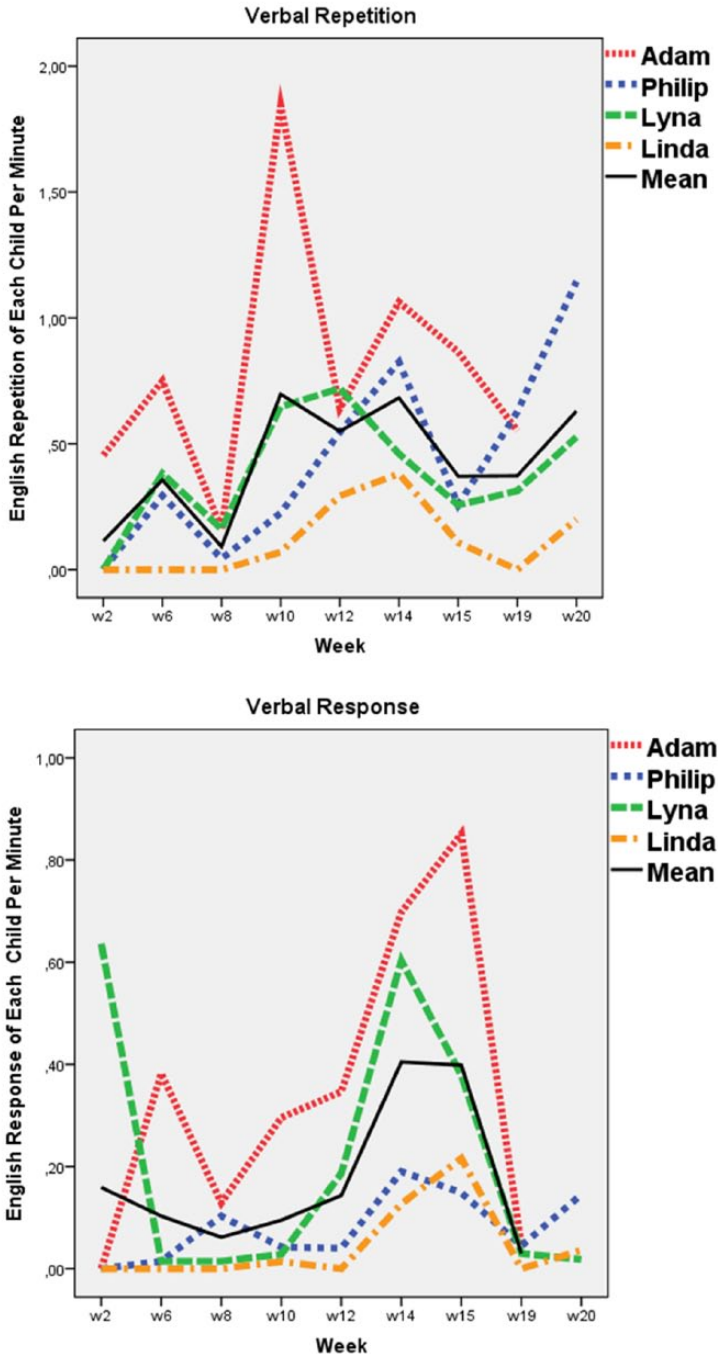


Figure 7. The four children’s development pattern of verbal repetition and verbal response.

**Table 5.** Temperament traits of the four children.

	Initial reaction	Activity	Adaptability	Intensity	Mood	Regularity	Distractibility	Persistence	Threshold of responsiveness
Linda	-1	-1	0	0	0	1	0	0	0
Adam	1	1	1	1	1	0	0	-1	0
Lyna	0	0	1	0	0	-1	0	0	1
Philip	0	0	0	0	-1	0	0	1	0

In summary, the pattern of English development for the four learners was similar in essence during the onset period and it fits the characteristics of Phase 1 and 2 in Clarke's study. During the phase of non-verbal production, the children tried to adapt to the new environment with close observation and body language. Non-verbal repetitions and non-verbal responses were frequently used to maintain the interaction. After the first two months, children moved to the phase of verbal production. At the beginning, they tended to repeat after the teachers and each other with single words and chunks. The function of the repetition was not only to accompany an interaction but also to draw attention from the teachers and the peers. Gradually, children began to use English as their carrier of interaction. They relied less on repetition and started to use different types of single constituent constructions, mainly noun phrases. Once English was found to be ineffective in communication, Chinese was used immediately for a more precise meaning delivery. In many cases, the use of Chinese was not favored by the teachers, since it confused the foreign English teacher who does not know Chinese and violated the classroom policy from the Chinese teacher's point of view.

Despite group tendencies, the four children varied with respect to moment of entry into each phase and the extent of interaction with their teachers and peers. Take English repetition as an example: Adam started to use it from the first class onwards and Lyna and Philip only from week 6 onwards. Linda did not use repetition at all until week 10. Adam always produced the most and Linda always the least. Active repetition enabled Adam not only to draw more attention and praise from the teachers, but it also attracted the peers to repeat after him.

The results of the four children's temperament analysis is in line with what has been discovered in early L1 studies that higher levels of adaptability, positive mood and initial reaction would promote language production directly and indirectly (Rieser-Danner, 2003). A child with such aspects of temperamental easiness used more body language and repeated and produced English more often. In turn, this might enable a child to process the new knowledge quicker. A child's active participation might also draw more attention from the teacher and peers, thus enhancing language interaction and the child's own confidence. In contrast, a negative mood and a higher threshold of responsiveness might lead to too strict discipline and misunderstanding from teachers and indirectly inhibit the chance of incidental learning and harm the children's motivation.

## Conclusion and implication

The current case study partly confirmed the initial two developmental phases proposed by Clarke for young English learners in an ESL setting. It also demonstrated the potential influence of temperament on preschoolers' early FL learning behavior. After the initial five months, the four children were able to understand and produce simple words and phrases, such as "green", "nose" and "hello". Both the class involvement and learning outcomes indicated that the Total Physical Response approach and the relevant activities used by the teachers were generally effective on these very young English learners. However, the observations also suggested that because of the different needs and learning styles of the children, their temperamental traits should be considered

more. Moreover, the no-Chinese strategy has to be seen critically since it might hamper the children's participation and be detrimental to their motivation.

Regarding the English development of early learners, hardly any generalization can be made due to the small sample and limited number of months of investigation, but the four Chinese preschoolers' English development seemed to be in line with the main characteristics outlined by Clarke. The children's temperamental traits could be used to explain the variation of their learning behaviors. The first five months of English learning witnessed the development of the four preschoolers' behaviors: a silent period at the very beginning, and then the engagement of more non-verbal behavior, followed by more English repetition. In the end, children used simple English words more frequently to answer a question and switched back to Chinese more often for a better meaning delivery. Despite the general confirmation, the distinction between Phase 1 and Phase 2 is different in Clarke's study and in the current study. A significant amount of English repetition appeared together with non-verbal behaviors in Clarke's study but appeared later in the current study. Statistical analyses suggest that it is better to include English repetition in Phase 2, together with English response and mixing use of English and Chinese. The delay of English repetition might be due to the limited input in the Chinese EFL context.

Zooming in on each child's development respectively, they varied in terms of time of entry into the second phase, in the extent of interaction with teachers and peers and in learning style. Temperamental traits appeared to explain these differences to some extent. Temperamental easiness, such as a higher level of adaptation, a higher activity level and a positive mood were found to be related with more verbal and non-verbal repetitions and responses, while a lower level of activity and fewer initial reactions were found to be related to a smaller amount of verbal and non-verbal production. Moreover, a negative mood and a higher level of sensory threshold might result in misreading children's needs from teachers and thus hampered children's motivation and incidental learning. In the next phase of our study, the four Chinese preschoolers' second half year class videos are being transcribed and the data will be used to further explore the relationship between temperamental traits and English-learning behaviors.

Temperamental information might provide teachers with quite useful information. Young FL learners' initial classroom experience was found to have a lasting effect on their motivation and language proficiency in adulthood years (Nikolov, 2001). "Students highly appreciated when teachers were genuinely concerned with them, allowed them close, and understood their problems" (Nikolov, 2001, p. 165). "The problems" or the necessary kind of interaction for language learning varies from child to child (Clarke, 1999). In order to have a better understanding and properly use different approaches with children, teachers should get to know their students first. According to a small-scale investigation on teachers of Happy English, in which 20 teachers filled in a questionnaire on their qualification and teaching approach, it took a foreign teacher about 3 months and a Chinese teacher 1.3 months to get to know his students. A temperament questionnaire might shorten the length and demonstrate children's characteristics to teachers in more detail.

Moreover, it has been found that only skillful teachers were generally able to provide a rich language context for young L2 learners, tailored to the individual (Clarke, 1996). Such teachers usually have systematic training and years of practice with children. However, most of the teachers lack such a background in the field of early English language training in China at this moment. Many of them are young graduates with bachelor degrees across various fields. They change jobs often, resulting in an unstable learning environment, which could be detrimental to the young learners during the initial stages (Brewster, Ellis, & Girard, 2004). A temperament questionnaire could be used as training material to gain psychological knowledge of children's development and its result can be kept as a record to facilitate the teaching handover.

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## Appendix I

### Transcripts of Adam's classroom performance

#### Applying new knowledge quickly

Two verbs, "stop" and "jump" are taught consecutively with gestures and actions. Adam repeats actively after the teachers and mimics their gestures. He even tries to test the verb "stop" on their teachers and check their responses.

- \*TE1: **stop.** (says "stop" and gestures it)  
 \*TE2: **stop.** (says "stop" and gestures it)  
 \*Adam: **stop.** (repeats after teachers and mimics gesture)  
 \*TE1: **+< very good.** (appraises Adam for repetition)  
 \*TE2: **+< good.**  
 \*TE1: **jump.** (says "jump" while jumping)  
 \*TE2: **jump.** (says "jump" while jumping)
- \*TE1: **jump.** (says "jump" while jumping)  
 \*TE2: **jump.** (says "jump" while jumping)
- \*Adam: **stop.** (says and gestures the word "stop" learnt just now and asks teachers to stop jumping. Adam plays with the verb "stop" and checks its meaning on teachers)  
 \*TE1: **stop the jump.** (looks at Adam and confirms his intention)  
 \*TE2: **+< oh, stop.**  
 \*TE1: **good Adam.** (appraises Adam for trial on new learnt word)  
 (Week 12, Section 2, 7:29)

#### Monitoring the peers' performance

Children are playing a color-picture matching game. Pictures of different colors are presented in a row in front of the classroom. The American teacher names one color and the participant is expected to find the right picture and say it out loudly.

- \*TE1: **who wants to try?** (asks the children)  
 .....  
 \*TE1: **Philip.** (invites Philip to come to play)  
 \*TE2: **Philip, Philip.**  
 \*TE1: **red.** (asks Philip to find the picture "red")
- \*CAdam: **red.** (repeats after teacher)  
 \*TE1: **red, red, red, red, red, red, red.** (leads children to clap hands and waits for Philip to find the right picture)
- \*Coco: **red, red, red, red, red, red.** (repeats after teacher and claps hands while waiting for Philip to find the right picture)
- \*Philip: (points at the red picture)
- \*TE1: **ok, good.** (praises Philip)  
 \*TE2: **good, ok, sit down.** (asks Philip to sit down again)
- \*TE1: **everyone has gone?**  
 \*Adam: **+<他没说red@s.** ("Philip didn't say red")  
 (Adam points at Philip and reports to teachers that Philip didn't say "red" when he found the picture)  
 (Week 14, Session 1, 14:55)

Note: "\*" indicates an utterance line; TE1 refers to the American teacher; TE2 refers to the Chinese teaching assistant; Philip, CAdam and Coco are Adam's classmates; contextual information and utterance translations in brackets.

## Appendix 2

### Transcripts of Lyna's classroom performance

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#### First child in class to try to put single words into a sentence

Children are learning the color word "green" and upon seeing that her jacket is green Lyna tries to say a full sentence, "this is a green Lyna", to the teachers. However, the teachers seem not to understand it and only ask her to repeat the word. Lyna is not interested in the simple repetition.

**\*TE1:** green. (says "green" and demonstrates the color with a picture)

**\*TE2:** green. (repeats the word)

**\*TE1:** green. (repeats "green" and demonstrates the color with a picture)

**\*Claire:** green. (repeats the word after teacher)

**\*Lyna:** 这是 green Lyna@s. ("This is a green Lyna.") (Lyna stretches her green jacket a little bit)

**\*TE2:** green, yes, Lyna, yes.

**\*TE1:** Lyna is your name, yes.

**\*TE2:** green. (says "green" to Lyna)

**\*TE1:** green. (says "green" to Lyna)

**\*TE2:** Lyna, green. (ask Lyna to repeat after her)

**\*Lyna:** green. (repeats after the teacher in a low voice)

**\*TE2:** good. (praises Lyna for the repetition)  
(Week 12, Section 1, 16:18)

#### Picking up words from the environment

The children are watching a video and are expected to look to the screen. Lyna sees a pumpkin on the Chinese teaching assistant's T-shirt and happily yells it out in Chinese. The Chinese assistant firstly follows Lyna's interest and teaches her the word "pumpkin" in English and then successfully directs her attention back to the video.

**\*TE1:** ok, let's watch.

**\*TE1:** Look. (plays a video on interactive whiteboard)

**\*IWB:** Tim. (a voice from the video)

**\*TE1:** Tim. (repeats after the video)

**\*Lyna:** 南瓜@s. ("pumpkin")

(Lyna finds a pumpkin label on the Chinese teacher's T-shirt and yells it out in Chinese)

**\*TE2:** yes, pumpkin. (confirms Lyna's finding in English)

**\*IWB:** here. (a voice from the video)

**\*TE1:** here. (repeats after the video)

**\*IWB:** thanks. (a voice from the video)

**\*TE1:** thanks. (repeats after the video)

**\*TE2:** +< yes, pumpkin. (confirms Lyna's finding in English again)

**\*TE2:** look. (draws Lyna's attention from the pumpkin to the video by pointing at the whiteboard)

(Week 6, Section 2, 1:31)

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Note: "\*" indicates an utterance line; TE1 refers to the American teacher; TE2 refers to the Chinese teaching assistant; Claire is Lyna's classmate; IWB refers to the interactive whiteboard; contextual information and utterance translations in brackets.

## Appendix 3

### Transcripts of Philip's classroom performance

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#### Demonstrating negative mood and calling for attention in Chinese

The children are playing a picture game. Philip feels frustrated since he could not get appointed by the teacher to play the game after several rounds.

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Philip raises up his hand and wants to get appointed by the teacher to play the game

\***TE1: Lyna.** (The teacher appoints Lyna to play the game)

\***Philip:** 我生气了@**s.** ("I feel angry, I feel angry")

\***TE1: hello.** (talks to Lyna)

\***Philip:** 我生气了@**s.** ("I feel angry, I feel angry")

\***Lyna: hello.** (repeats after teacher)

\***TE1: say hello.** (talks to the class)

\***Philip:** 我生气了@**s.** ("I feel angry")

Another round of the game

\***TE1: come here CAdam.** (The teacher appoints another classmate, CAdam, to play the game)

\***Philip:** 我生气了@**s.** ("I feel angry.")

.....

\***Lyna: 别生气了@s.** ("Don't be angry.")

(Lyna tries to comfort Philip)

.....

\***Lyna: Philip 他说他生气了@s.** ("Philip said he feels angry".)

(Lyna reports to the Chinese teacher that Philip said he felt angry)

\***TE2: 为什么呀@s?** ("Why?")

(The Chinese assistant comes to Philip and asks for the reason)

(Week 15, Section 1, 33:17)

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Note: "\*" indicates an utterance line; TE1 refers to the American teacher; TE2 refers to the Chinese teaching assistant; contextual information and utterance translations in brackets.