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# EARLY INTERVENTION AND ITS EFFECT ON MALAYSIAN SIGN LANGUAGE ACQUISITION AMONG CHILDREN WITH HEARING LOSS: A CASE STUDY

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*The purpose of this research is to examine the Malaysian Sign Language competency of children with hearing loss of parents with hearing loss. Many parents with hearing loss believe that their children with hearing loss would be able to acquire language competency in any environment without the need for proper early language acquisition intervention. In reality, this is not the case. Therefore, it is appropriate that children with hearing loss receive assistance in language learning, especially from their parents in acquiring both sign and spoken languages, via early intervention education so that they will be sufficiently competent in at least one language by the time they reach school age. The children in this study were observed in three individual learning activity sessions for their responses to the Early Intervention Program worker. Their responses were analyzed together with supplementary data obtained from their parents' interview and observation reports. The investigation into the effect of input on sign language acquisition would involve comparing and describing the development of the Malaysian Sign Language in children with hearing loss from two different linguistic environments. One is an environment where the child is exposed to constant daily sign language input, and the other is an environment of limited sign language input. The findings reveal that the children with hearing loss who had early intervention on sign language acquisition have acquired better Malaysian Sign Language in terms of expressive and receptive skills.*

**Keywords:** Malaysian sign language, early intervention, language acquisition, hearing loss

Children with hearing loss often struggle to fit in with a society where spoken languages are commonly used, which do not benefit most of the children with hearing loss who lack hearing and speaking abilities. The most significant drawback is the lack of ability to properly utilise spoken languages, as such communication with the rest of the people is often difficult or limited. This struggle has led to the creation of a new culture so that they can co-exist in society;

hence the culture, which came to be known as the deaf culture[1] (Ladd, 2003). Children with hearing loss grow up learning two languages (a spoken language and a sign language) sometimes in different cultural settings (Christensen, 2000). Sign language is a right typical of minority languages and should be the first language for people with hearing loss (Trovato, 2013). However, the way people with hearing loss learn languages is different from other people with disabilities or non-disabilities. Many children with hearing loss acquire their language and culture from their peers with hearing loss and adults at school instead of parents and relatives with the exception of parents with hearing loss (Plann, 2000). In such situations, the dissemination of people with hearing loss's language seems to be occurring almost exclusively within the deaf community, at schools for the deaf and deaf associations where sign language is practiced or used.

The fact is that the number of sign language users is low in Malaysia; as of 2013, only 58,706 people with hearing disability have registered with the Social Welfare Department (Social Welfare Department, 2014). This figure is equal to an estimated 0.2 per cent of the total population in Malaysia, which stands at 29.95 million as of 2013 (Trading Economics, 2014). The opportunity the children with hearing loss will see sign language would be low. Mastering a language can be more challenging for children with hearing loss than for hearing children. Hearing children are able to pick up languages from their environment easily but children with hearing loss encounter limitations, as they cannot hear the input and they have to depend totally on their sight to acquire language. Children with hearing loss receive less linguistic information due to their inability to hear all the speech directed at them (Dockrell & Messer, 1999). Therefore, they need to be put in an environment where they can obtain more visual input and opportunities to practise as much as possible to assist their acquisition or learning of the visual language – at an early age – and this sadly may not be provided for in the home environment. Bailes (2001) stated that children with hearing loss who are afforded "opportunities" to acquire sign language naturally, at an early age, are made aware that spoken language is the language using speech and they need to acquire parallel competence as well.

Krashen's Input Hypothesis suggests that children need sufficient input in order to achieve high language competency; Krashen believed that humans acquire language by understanding messages, or by receiving "comprehensible input". Many studies have provided evidence for language acquisition occurring naturally in hearing children (Baron, 1992; Hoff, 2009; Owens, 2008; Ng & Wigglesworth, 2007). Ahlgren (1994) suggested that sign language can be developed as the first language if children with hearing loss can spend sufficient time with adults with hearing loss or hearing parents who know sign language. All children, whether deaf or hearing, need to receive sufficient and relevant language input as early as possible so that they will be sufficiently competent in at least one language by the time they reach school age.

[1] The term "deaf culture" is the social movement that holds deafness to be a different human experience rather than a disability.

## SIGN LANGUAGE ACQUISITION AND ASSESSMENT

First language acquisition among children does not require systematic instruction (Guasti, 2002). Guasti added that language develops spontaneously by exposure to linguistic input on the basis of what children hear. It does not make a difference for children with hearing loss to receive linguistic input on the basis of what they see. Language acquisition of children with hearing loss (of parents with hearing loss) has the same maturational timetable and the same milestones as that of hearing children (of hearing parents) who use spoken languages (Meronen & Ahonen, 2008). Sign languages have developed in alternative transmission systems in visual-gestural channels: signed and spoken languages have the same kinds of organisational principles, rule systems, and grammatical complexity, expressive power, and capacities for creating complex linguistic systems (Meronen & Ahonen, 2008, p. 496). Thomson, Kennedy, and Kuebli (2011) mentioned that the first two years are a vital period of language acquisition. By the age of 2 years or 24 months, children typically have at least a 50-word spoken vocabulary (Botting, 2003). Watson, Watson, and Wilson (1999) suggested that children from eight months old repeat the words they are learning over and over, as in practising so that they will be able to combine sounds, babbling and words. It also means they are able to begin with two-word combinations, for example "dad work" or "mom angry" (Guasti, 2002). In comparison, children with hearing loss should be able to express a 50-sign vocabulary without being asked and to begin with two-word combinations. However, it also has to depend on the degree of the children with hearing loss's exposure to the Sign Language, since they can only see the language from their parents and other adults who know Sign Language. In some case, however, children may not be ready to speak; individual biological readiness varies for each child. Sometimes it may take a child 20 months to speak a language and some are exceptionally talkative at an early age. Children are on their own "schedule" (Jalango, 2000). Gųasti (2002) suggested that the Deaf exposed to American Sign Language (ASL) which is in the same family with Malaysian Sign Language (BIM), from birth, performed better than those exposed from 4-6 years of age.

Socialisation is vital to a child's growth and can be limiting without a common language (Lane, 1992). Socialising influences the vocabulary development children undergo at home and in a child care setting (Katz & Snow, 2000). Language acquisition takes place in conversations. In learning to participate in conversations, children learn more of their language as well as communication protocol such as how to address persons and when to respond. Acquisition is embedded in and supplemented by gesture, gaze, stance, facial expression and voice quality in the full array of options people can use for communicating (Clark, 2003, p. 8). Thomson, Kennedy, and Kuebli (2011, p. 41) suggest that "physical contact, eye contact, and facial expressions are essential for effective communication." This will enable the children with hearing loss to develop sign

language into a full language, so that they can be native speakers. Rush (2011, p. 2) suggests that "with consistent use of signing ... the children became empowered to express themselves more readily and more appropriately than other pre-schoolers [sic] who did not have signs available to them. Rush's observation parallels Marschark and Hauser's (2012) argument that the parents' capability in assisting their children to access earlier and fluent language would help the children master the language better.

## METHODOLOGY

The subjects of this study are four children with hearing loss[2], aged between 26 and 31 months. They are all children of parents with hearing loss. The subjects are referred to as AE, HW, NC and JK. This study employed three research techniques: formal learning activity sessions, interviews and observations to explore and gather data on the subjects' language use. While the formal learning activity sessions are the main source of data, information from the interview and observation sessions will supplement the analysis, where relevant. All the formal learning activities, interviews and observation sessions are videotaped so they can be repeatedly referred to during the analysis.

An experienced early intervention program (EIP) worker[3] facilitated three activity sessions, each lasting 40-45 minutes, with the children. Each of the sessions covers five activities i.e. putting round chips into board columns, matching picture to picture, animal farm toys, cutting and cooking, and reading *Jovi*. These five activities will be repeated in the second and third sessions so that it is easy to see if there is any progress in the subjects' acquisition of the target sign vocabulary. Twenty-nine (29) target sign vocabularies are taught to the children based on the items (animals, images and objects) available in these activities.

The data from the formal learning activity sessions are mainly analyzed to determine how much the subjects understand the learning activities. Therefore, the responses from the subjects are recorded based on the their ability to: 1) provide the correct response (sign) – when the worker shows a picture of a "cow", the subject is expected to answer "cow" by signing it, 2) perform the right action – when the worker makes a request "Give me the burger" by signing "burger", the subject is expected to pick up the picture of the "burger" and then pass the picture to her, and 3) imitate the worker's sign vocabulary – where the subject reproduces the sign language vocabulary after the worker when the worker introduces the targeted sign. The frequency of each subject's correct

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[2] The children's degree of hearing loss is between 55dB and 100dB bilateral.

[3] The EIP worker assisting in this study is someone who has worked with Deaf children for many years and has a good command of Malaysian Sign Language. The EIP worker has volunteered to assist in this research project as the researcher has no experience in the early intervention program.

responses to the worker's tasks is recorded for both expressive and receptive levels. The sign imitation made by the subjects is recorded as well.

The interview sessions were conducted with their mothers and their care givers/babysitters. These sessions are carried out to obtain information on the children's typical behavior, communication profile with the people around them and their educational background. The parents were asked to list down and show the sign language vocabulary the children have produced or expressed exactly on their own without being prompted by anyone, prior to the learning sessions. The parents had to explain the context that caused the children to use the signs.

Observation takes place during the following events: formal learning activity sessions with the EIP worker, and the subjects' interactions with their mothers at home, at church, and shopping places. The observations for each child were carried out once a week at a place for three consecutive weeks. The main purpose of the observation is to investigate the level of the subjects' sign language acquisition when they respond to their parents at these three places and to the EIP worker during the formal learning activity sessions. The data obtained from all observations are descriptive in form, involving the capability of subjects in using sign language. During these observations, the vocabulary signs that the children have produced to express their feelings, concerns, confusions and thoughts and also their responses to adults' questions were captured.

## RESULTS FROM THE INTERVIEWS

AE's mother did not start any home education with AE; however his mother taught AE some random signs which she felt was necessary for him to understand in order to manage basic home communication. Hence, AE experienced a delay in sign language acquisition because he depended only on his parents for sign language exposure opportunities. AE understood most of what she said or instructed him to do at home. However, he sometimes did not respond to her requests. His mother commented, "*I signed to him 'Father where'. He nodded but he did not look for his father.*"

As for AE's grasp of sign language, it was difficult to understand him. His signing skills were bad. AE often made phonological errors, i.e. wrong hand shape, wrong location, wrong movement or wrong palm orientation when producing signs. His father constantly struggled to understand what AE tried to communicate to him. For example, AE uses the open palm for 'Ear'[4] and a fist for 'Mobile Phone'[5]. AE had not practised sign language in terms of expressing his thoughts and curiosity. AE mostly pointed things out when he saw something

[4] The correct hand shape for EAR is "F" and the sign user completes the sign by pinching the earlobe and wiggling it a bit.

[5] The correct hand shape for MOBILE PHONE should be "Y" and is placed on the ear as if talking on the phone.

that drew his attention. AE spent most of his time with his hearing elder sister at the nursery and at home. At the centre, nobody communicated with AE through sign language except his sister who can sign well. Ibu, the centre owner, mentioned, "*I use a few very basic signs to communicate with him. I could understand signs only for 'Milk' and 'Defecate'*". There was very little opportunity for AE to be exposed to sign language usage.

HW had been exposed to sign language as early as 4 months old. His parents communicated with him using simple signs like how hearing parents speak to their babies using simple words. His mother started home education with HW when he was 6 months old. His mother recalled: "*I saw him signing 'Diaper' for the first time. I taught him more sign vocabulary afterwards.*" At the beginning, it was tough for her to get his attention as sign language learning requires eye contact; however her efforts were well rewarded. His mother added, "*When he was 9 months old, he signed to me 'Want eat...Milk' in a cute and happy way.*" HW was capable of making sentences comprising of more than one word, i.e.'Get-Attention-Index-Point Angry'[6].

HW repeated signs of certain objects several times, every time he saw the object. For example, when he saw a house and a dog, he signed 'House' and 'Dog' respectively. HW was able to express sign vocabulary for abstract emotions such as 'Happy' and 'Sick'. There were certain sign vocabularies that HW could not sign or fail to recall; therefore he would substitute these signs with similar semantic sign vocabulary. For instance, he would use 'Catch' for 'Police' and 'Sit' for 'Chair'. HW's babysitter said, "*I tried to learn some important signs from a sign language book provided by the parents.*" She also related: "*HW taught me A-Z when he was playing with the alphabet mat on the floor.*" Although his exposure to sign language at the babysitter's place was limited, he was still exposed to some signs. In other words, HW's exposure to sign language was not limited to his home only.

NC's parents' sign language mastery was not as good as that of the other parents. When the interview was conducted, it was a struggle to make NC's parents understand the questions and to answer appropriately. The question had to be rephrased and elaborated to the parents repeatedly. His parents lacked social interaction and communication skills and it can seriously compromise NC's social interaction skills.

His mother did not initiate any home education with him. It was often noticed that his mother told NC's 6-year-old deaf sister to teach him some signs. His sister was too young to teach NC sign vocabulary properly. Nevertheless, his mother claimed that "*I attempted to teach signs to him but he did not pay attention to me.*" His mother said that she would let NC pick up sign language on his own from his surroundings.

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[6] Translation: HW patted his mother's hand to get her attention and then he pointed at a person and signed that the person looked angry. His mother recalled how HW signed this sentence when they were at a restaurant.

Although NC learnt 'Toilet', 'Eat' and 'Milk', there was still insufficient input. His mother commented, *"He does not have many signs in his vocabulary"*, which implied that NC did not receive much input from his surrounding at home or at his babysitter's house. The lack of exposure to sign language could retard NC's sign language development. This was supported by NC's babysitter's comment about NC: *"I did not communicate with him so much except when disciplining him on what he could and could not touch in the house."* and *"NC did not communicate much with me even though he was the only child I was looking after."*

JK was a year old when she was first exposed to sign language. JK often received sign language input from her grandmother[7] while she was under her grandmother's care. Although JK experienced a delay in the acquisition of sign language; she learnt the language quickly. From her grandmother's communicating in sign language, JK was able to acquire sign vocabulary even though she was away from her parents. Amongst her first signs were 'Father', 'Mother', 'Milk' and 'Defecate'. Her mother related, *"She signed 'father' to every man she met. I had to correct her many times."* JK did not understand the meaning of the 'Father' and 'Mother' signs. JK was confused; therefore, she signed 'Father' to every man she saw and 'Mother' to every woman she saw. This showed that her semantic understanding was that 'Father' and 'Mother' refer to man and woman respectively. After several times of being corrected, she finally understood what these signs meant. As part of JK's process in acquiring sign language, her mother and grandmother would read her books during bedtime. JK's grandmother commented, *"I taught many signs to JK and tried to expose her to new things."* She added that *"I want JK to make a request herself, i.e. 'Drink milk' to ask for milk, and to sign 'Book' when she wants a book."* Yet, her grandmother and mother have not started any home education.

With committed efforts by JK's grandmother and mother, JK was capable of making sentences comprising of more than one word: 'Father where'[8]. Besides that, her mother used real objects while teaching JK. For example, she would take a ball out to show JK before signing 'Ball' so that JK would understand and remember the sign. It was also found that JK repeated some signs several times in different situations. Her mother stated, *"When in the car, JK would sign the things she sees i.e. 'House' or 'Tree' by herself."*

## RESULTS FROM THE OBSERVATIONS

The observation sessions on AE revealed that his receptive responses in sign language were limited as indicated by his general inability to respond to simple

[7] The grandmother was a teacher for deaf students and knows sign language.

[8] Translation: Where is father? JK's grandmother related one incident where JK was looking for her father when she woke up and found that her father was not around. Therefore, JK asked her mother where her father is.

questions that his mother asked, for example, his mother asked "what is this?" and pointed at a toy car expecting AE to respond. Sometimes AE responded to his mother by copying her signs, which means AE was repeating the same sign after his mother. AE also repeated the sign vocabulary of another person whom he met for the first time. It was often noticed that although his mother was aware of the hand shape errors, she made no effort to correct them. It was rare to see AE producing different sign vocabularies as a response to his mother or other people's simple questions. In this case, the researcher simply made a hand shape of "1" (☝) as a request for a sweet from AE and AE immediately gave the researcher the sweet and then produced the sign 'Thank you'.

The observations revealed that HW was capable of responding receptively and expressively when conversing with his parents and other signers. HW was able to respond when his father asked for the sign vocabularies for the pictures he pointed in a book (i.e., 'Lion' and 'Giraffe'). HW recalled most of the animal signs correctly which confirmed his father's claim that HW had an excellent memory, and was able to recall the signs his mother taught him. It was observed that HW could sign the 13 different animal signs within 70 seconds without any hesitation, despite having phonological errors in 4 signs. HW was able to point correctly at the pictures when his father signed their sign vocabulary. There was one incident where his father teased him by pointing at his mother and signing 'Father' instead. HW responded by pointing at his father instead. HW was receptive and could identify and interpret the meaning of the sign vocabularies that he saw. He could also answer his parents' questions about other family members, by producing the correct signs. It was also found that HW was capable of making two-word questions (e.g., 'Friend where'). HW often initiated a simple conversation with his mother by asking a question.

The observation sessions with NC revealed that his receptive responses in sign language were poor, as indicated by his inability to respond correctly to simple questions from his mother. For example, when his mother asked him "what is this?" and pointed at a picture of a dog in a book, NC looked at the picture blankly and only responded after his mother signed 'Dog'. An incident with his 6-year-old sister also showed that NC was simply copying his sister (i.e., signing the sign vocabulary after his sister). It was also found that NC's mother was unable to make him sit still and pay attention to her. She could not get NC to engage in any form of communication, even for a minute. NC's mother did not use effective methods or ways to teach him. Instead of signing 'Monkey' in front of him, she signed behind him and he could not see it. It was rare to see NC expressing himself (i.e., producing sign vocabulary by himself). The only sign vocabularies that NC produced by himself during the observation sessions were 'Lion' and 'Toilet'.

The observation sessions revealed that JK could express herself using sign language when conversing with her parents and other signers. JK was able to respond appropriately when her mother asked her to sit in front of a small table and when her mother asked her the sign vocabularies for the fish and flower

sketches on a mini whiteboard. Her mother attempted to get JK to produce sign vocabularies for 'Ball' and 'Apple' in a book; however JK declined to produce the sign vocabularies. In an incident where she produced the sign vocabularies for 'Apple' and 'Banana' correctly after completing the puzzles, she could not however sign 'Pineapple' and 'Mango'. Hence, her mother showed the sign vocabularies to her and her mother repeated the same sign vocabularies so that JK became aware of the signs. It was found that JK was capable of making two-word sentences, i.e. 'Index close close' (shaking head)[9]. JK developed the sentence while looking at her mother to say that the box was not covered properly. JK could possibly know that in order to converse with her mother, eye contact is crucial; therefore, before she made the sentence, she would look at her mother first, and then only produced the intended sentence. This situation confirmed her grandmother's statement that she was able to make two-word sentences.

## RESULTS OF RECORDED ACTIVITY SESSIONS

In all the sessions, AE was able to produce only 3 of the targeted sign vocabularies: 'Tomato', 'Soup' and 'Cow'. He was unable to respond to the EIP worker's simple question: 'Colour what'[10], hence he could not produce sign vocabularies for 'Green' or 'Purple'. Although the EIP worker signed 'Green' more than 20 times, AE only attempted to copy and repeat the sign less than five times. AE only attempted to copy and repeat 11 targeted sign vocabularies after the EIP worker in all five activities for the three sessions. The sign vocabularies he imitated had phonological errors, mainly hand shape. AE did not show that he was capable of producing the 13 targeted sign vocabularies in the last two activities in all three sessions.

Table 1
*Occurrence of the Responses in the Sessions for Respondent AE*

| Responses according to the tasks (the worker's instruction) | Session 1 | Session 2 | Session 3 |
|---|---|---|---|
| Provide the correct response (sign) | 2 | 2 | nil . |
| Perform the right action | nil | nil | 2 |
| Imitate the worker's sign vocabulary | 11 | 12 | 2 |

[9] Translation: "This box cannot be closed properly".
[10] Translation: "What is the colour?"

In all the sessions, HW was able to express by himself the 20 target sign vocabularies to the EIP worker. 'Tomato', 'Soup', 'Jelly' and 'Burger' were new to HW and were taught for the first time in the first session. After the EIP worker taught the sign vocabularies to HW, HW was able to recall them quickly in the following sessions. There was one incident where HW could not recall the sign vocabulary for 'Jelly' correctly; however, he was able to sign it correctly after the worker repeated the sign vocabulary. In the activity "Animal Farm", he could not sign 'Sheep', 'Goat', 'Man' and 'Duck' in the first session. However, he produced these sign vocabularies correctly in the second and last sessions. He was able to pick up the correct objects for the 16 sign vocabularies that the worker asked for. The response that HW showed indicated that he could understand the signs produced by the worker. In the second session, HW made a question 'Apple where' (Translation: Where is the apple?) when he realised that there was no picture of an apple. It was once again noted that he was able to make two-word sentences. This incident showed that he has learnt many sign vocabularies through home education as mentioned by his mother during the interview session. HW only attempted to copy and repeat 11 targeted sign vocabularies after the EIP worker in all five activities for the three sessions.

Table 2
*Occurrence of the Responses in the Sessions for Respondent HW*

| Responses according to the tasks (the worker's instruction) | Session 1 | Session 2 | Session 3 |
|---|---|---|---|
| Provide the correct response (sign) | 26 | 21 | 18 |
| Perform the right action | 15 | 23 | 16 |
| Imitate the worker's sign vocabulary | 11 | 12 | 2 |

In all the sessions, NC was able to produce only 8 of the targeted sign vocabularies. NC was unable to sign 'Green' or 'Purple' as a response to the EIP worker's simple question: 'Colour what'. He did not even imitate the worker's signs for 'Green' and 'Purple'. There were hand shape errors in each of the sign vocabularies which he produced by himself. It showed that he did not practise the hand shapes; thus, he did not use sign language to communicate his needs to his mother, and other family members. In the first session, he could sign 'Goat' but the sign vocabulary was not completely formed. It was noticed that NC used the same sign for 'Sheep' and 'Cow'. It indicated that NC did not understand that the sign vocabulary for 'Goat' was different from the sign vocabulary for 'Sheep' and 'Cow'. As for receptive skill levels, it was found that NC understood the worker's request by picking the correct objects for the 10 sign vocabularies that the worker asked for. NC only attempted to copy and repeat 18 targeted sign vocabularies after the EIP worker in all five activities for the three sessions.

For the last two activities, NC did not show that he was capable of expressing by himself the 13 targeted sign vocabularies in all sessions. It was noticed that NC produced and completed these sign vocabularies too fast (faster than the normal timing); for example, when the worker started to sign 'Egg', those who were looking can see the complete sign and understand it. However, NC completed signing too fast that people did not get a chance to look at it properly. This situation did not indicate that he can sign these sign vocabularies faster than normal, rather, NC was not ready for language learning as he has not learnt sufficient attention span to acquire sign vocabularies.

Table 3
*Occurrence of the Responses in the Sessions for Respondent NC*

| Responses according to the tasks (the worker's instruction) | Session 1 | Session 2 | Session 3 |
|---|---|---|---|
| Provide the correct response (sign) | 1 | 6 | 5 |
| Perform the right action | 6 | 7 | 7 |
| Imitate the worker's sign vocabulary | 12 | 12 | 13 |

In all the sessions, JK was able to express by herself the 6 target sign vocabularies to the EIP worker; however only in the last session. In the first two sessions, she did not respond in producing the signs as responses to the worker's instructions. JK signed and imitated sign vocabularies for 'Burger', 'Tomato' and 'Jelly' to the worker's questions. Unfortunately, the sign vocabulary expressed by JK was not directed at the worker, but at her cousin about her age, who was sitting next to her. It was very interesting to notice this unexpected situation. Furthermore, JK signed these signs correctly. It indicated that she actually understood and was able to read the sign vocabularies produced by the worker but it could be either that she chose to be quiet while learning or she did not feel comfortable with the worker. JK taught her cousin to sign. She even moved her cousin's hands to the correct hand shapes and locations so that her cousin could sign correctly. Besides that, JK was capable of picking up the correct pictures when the worker signed 'Burger', 'Tomato', 'Soup' and 'Jelly' which showed she understood the worker's instructions. She was also able to match the pictures of the burger, tomato, soup and jelly to its identical pair after the worker signed 'Where'[11]. It was obvious to see that in the first session, she chose to be quiet, paid good attention and understood the worker, and then in the following sessions, she started to imitate and sign the objects. JK's receptive skills were also revealed in this fourth activity which was to perform tasks,

[11] Translation: Which is the pair?

initiated by the worker. JK chose bread, egg, corn and spoon objects correctly to match the sign vocabularies signed by the worker.

Table 4
*Occurrence of the Responses in the Sessions for Respondent JK*

| Responses according to the tasks (the worker's instruction) | Session 1 | Session 2 | Session 3 |
|---|---|---|---|
| Provide the correct response (sign) | nil | nil | 9 |
| Perform the right action | 3 | 15 | 5 |
| Imitate the worker's sign vocabulary | nil | 1 | 10 |

The analysis of the recorded activity sessions showed that AE and NC have similar capability in the expressive and receptive skills level as Group-A, while HW and JK shared common elements in both of the skills, as Group-B. Group-A revealed that their receptive and expressive responses in sign language were limited during the learning sessions. In terms of expressive responses, they were unable to sign most of the targeted sign vocabularies as seen in Table 5.

Table 5
*Comparison between Respondents AE and NC in Expressing Sign Vocabularies as Responses an All the Five Learning Activities*

| | AE was able to sign: | NC was able to sign: |
|---|---|---|
| Activity 1 | None of the 2 sign vocabularies | 1 of the 2 sign vocabularies |
| Activity 2 | 2 of the 4 sign vocabularies | 2 of the 4 sign vocabularies |
| Activity 3 | 1 of the 9 sign vocabularies | 5 of the 9 sign vocabularies |
| Activity 4 | None of the 12 sign vocabularies | None of the 12 sign vocabularies |
| Activity 5 | None of the 2 sign vocabularies | None of the 2 sign vocabularies |

Group-B revealed that their receptive responses in sign language were good as they were able to give correct responses to the worker. HW's expressive responses were good. HW showed more than 15 right actions to the worker in the three sessions, while JK was only able to show three, fifteen and five right actions in the first, second and third sessions respectively. JK's expressive responses seem to be limited during the learning sessions in responding to the worker by showing the right actions to the worker. Yet, JK showed outstanding performance in the last session where she expressed three sign vocabularies correctly when her cousin was present next to her. In terms of expressive

responses, HW was able to sign most of the targeted sign vocabularies as seen in Table 6.

Table 6
*Comparison between Respondents HW and JK in Expressing Sign Vocabularies as Responses in all the Five Learning Activities*

| | HW was able to sign: | JK was able to sign: |
|---|---|---|
| Activity 1 | 2 of the 2 sign vocabularies | None of the 2 sign vocabularies |
| Activity 2 | 4 of the 4 sign vocabularies | 3 of the 4 sign vocabularies |
| Activity 3 | 9 of the 9 sign vocabularies | 3 of the 9 sign vocabularies |
| Activity 4 | 5 of the 12 sign vocabularies | None of the 12 sign vocabularies |
| Activity 5 | None of the 2 sign vocabularies | None of the 2 sign vocabularies |

## DISCUSSION

AE and NC could only express 13 and 8 sign vocabularies respectively prior to the learning activity sessions. It could be that they did not get a lot of home education where they would have learnt new sign vocabulary from their mothers. They would be able to express the targeted sign vocabularies in the learning sessions if they have acquired and recalled more than 50 sign vocabularies. Since they were not given the opportunity to practise the sign vocabularies they have learnt, they were unable to form hand shapes correctly. It is because the children with hearing loss have to rely on adults with hearing loss to acquire sign vocabularies; unlike hearing children who can acquire language input from many sources, for example, television, and more hearing people live around them.

Besides that, they have short attention span; therefore, they failed to observe the signs produced by the EIP worker properly. They were unable to identify and differentiate between signs, for instance, AE signed 'Caught' for both 'Jelly' and 'Soup' while NC signed 'Goat' for both 'Sheep' and 'Cow'. As for receptive responses, they could not understand the EIP worker's instruction when she asked for the picture of "burger" by signing 'Burger', for instance. They did not pick up the correct picture at the first go and still were unable to pick up the correct picture after several tries. AE and NC acquired less than 15 sign vocabularies prior to the sessions, and they were unable to produce two-word sentences. During the observations at their respective homes and learning sessions, they never initiated or responded to a simple conversation. With these abilities, both of them are considered to have not acquired sign language well in terms of expressive and receptive skills.

HW and JK were able to express 97 and 60 sign vocabularies respectively prior to the learning activity sessions. Therefore, they were capable of making sentences comprising of more than one word and make requests. Both HW and

JK were capable of carrying out a simple conversation with their parents while they were observed during the researcher's visit prior to the learning sessions. This shows that HW's parents and JK's grandmother and parents put in a lot of effort to assist them in acquiring as much sign vocabulary as possible. As for the receptive responses, they could understand the EIP worker's instruction when she asked for the picture of a burger by signing 'Burger', for instance. They both were able to pick up the corresponding picture at the first go. It matches Cromwell's (2000) proposal that comprehension develops gradually through exposure to language and through opportunities to practise language. With these abilities, both of them are considered to have acquired sign language well in terms of expressive and receptive skills.

Few phonological errors were observed when they were forming hand shapes; the low occurrence of phonological errors indicates that they have been practising the hand shapes daily, as their mothers constantly teach them new sign vocabularies besides doing reviews with them. They practised the hand shapes when they signed each object they saw when they were outside; for instance, when they saw a dog on a road, it would prompt them to sign 'Dog'. Guasti (2002) proposed that language develops spontaneously by exposure to linguistic input on the basis of what children see. Besides that, the HW and JK have good attention span; therefore, they observed the signs produced by the EIP worker properly and would remember the right hand shape.

Hoff (2009) proposed that cultures differ in how explicitly language is taught. Thus, deaf culture plays an important role in children's sign language acquisition. As there are not many language use/practice opportunities for the children to learn sign language, parents of the children with hearing loss have to be active in assisting them in acquiring sign language since they are the closest to the children. HW and JK are able to enjoy the opportunities as their parents are committed to their sign language acquisition, while AE and NC did not have the same opportunity, which helps to support the findings of this study. The result seems to be consistent with Rush (2011) and Marschark and Hauser (2012) who suggest that the impact of the parents' great efforts or consistent signing to the children is strongly positive upon the children's sign language acquisition. Without the great efforts and consistency of signing, the children will be unable to acquire sign language on their own.

## CONCLUSION

The findings suggest that the parents should be active in assisting the children with hearing loss acquire sign language from birth as the children with hearing loss would not be able to seek language learning opportunity from their regular surroundings. Therefore, the parents have to create a sign-language environment, similar to the environment of a hearing child, so that the children with hearing loss can acquire sufficient sign language opportunities. As the number of people

with hearing loss or sign language users is low, parents are encouraged to check with local associations or centers for people with hearing loss to seek assistance or support in learning Malaysian Sign Language. It may be a challenge for many parents; however, it is possible to allow the children to have a full-fledged language should they develop it from an early age like Group-B. They showed that they were able to carry on a simple conversation with the researcher and recall previously learnt sign vocabulary. The findings also confirm that the early language intervention program increases children with hearing loss's linguistic skills. Sign language may be different from spoken or written language; however, sign language acquisition has the same milestones with the acquisition of spoken/written language. It is recommended that each child with hearing loss in Malaysia should be given an opportunity to acquire Malaysian Sign Language as a first language from an early age.

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