Jurnal Sains Kesihatan Malaysia **15**(2) 2017: 43-51
DOI : http://dx.doi.org./10.17576/JSKM-2017-1502-06

Artikel Asli/*Original Articles*

The Impact of Hanen More Than Words Programme on Parents of Children with ASD in Malaysia

(Keberkesanan Program *Hanen More Than Words* dalam Kalangan Ibu Bapa yang Mempunyai Anak ASD di Malaysia)

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ABSTRACT

This study aims to investigate the viability and effectiveness of the Hanen More Than Words (HMTW) programme amongst parents of children with Autism Spectrum Disorder (ASD). This quassi-experimental study involved 31 children (27 boys, 4 girls; M = 34.58 months, SD = 3.67) who met criteria for ASD and their parents. The measurement was conducted in three phases; Time 1 (prior to intervention), Time 2 and Time 3 (at three and five months after the intervention begins). The outcome measures were assessed based on: (1) changes in parental facilitative strategies; (2) the children's growth in vocabulary and (3) the progress of communication and social skills. The paired t-test were used to analyze the pre and post findings within the intervention and control group with p-value <.01. Results showed that there was an increase in using the facilitative communication strategies by parents in the HMTW group during parent-child interaction. The children showed an increased in vocabulary, communication and social skills. The parents agreed that their mastery of facilitative communication strategies increased and they provided positive feedback about the HMTW approach. The results suggested that the HMTW program could be implemented well by Malaysian parents. The training was supported by Malaysian parents and had measurable effect on both parents and children.

Keywords: Autism; Hanen More Than Words; parent implemented-training program; Malaysia; speech language therapy

ABSTRAK

Kajian ini bertujuan untuk mengkaji perkembangan dan keberkesanan program Hanen More than Words (*HMTW) dalam kalangan ibu bapa yang mempunyai anak autisme. Kajian berbentuk kuasi-eksperimen ini melibatkan 31 orang ibu bapa dan 31 orang kanak-kanak (27 orang kanak-kanak lelaki, empat orang kanak-kanak perempuan; M = 34.58 bulan, SP = 3.67) yang memenuhi kriteria dengan diagnosis autisme. Terdapat tiga fasa penilaian iaitu; sebelum intervensi bermula (Masa 1), selepas 3 bulan (Masa 2) dan selepas 5 bulan intervensi dijalankan (Masa 3). Analisis ujian t-berpasangan dijalankan untuk kedua-dua kumpulan intervensi dan kumpulan kawalan dengan nilai-p < .01. Hasil penilaian diukur melalui (1) perubahan penggunaan strategi komunikasi yang berkesan oleh ibu bapa dan (2) perkembangan perbendaharaan kata dan (3) kemahiran komunikasi dan sosial bagi kanak-kanak autisme. Hasil kajian menunjukkan terdapat peningkatan pada penggunaan strategi komunikasi berkesan oleh ibu bapa dalam kumpulan intervensi HMTW. Kanak-kanak dalam kumpulan intervensi turut meningkat secara signifikan bagi pemerolehan perbendaharaan kata selain kemahiran komunikasi dan sosial. Ibu bapa bersetuju bahawa terdapat peningkatan dalam penguasaan strategi komunikasi berkesan dan mereka memberi maklum balas positif berkenaan pendekatan program HMTW ini. Dengan ini terbukti bahawa program HMTW adalah boleh diaplikasikan dalam kalangan ibu bapa di Malaysia. Secara kesimpulannya, program latihan keibubapaan ini diterima di Malaysia dan memberi kesan positif yang boleh diukur bagi kedua-dua pasangan interaksi iaitu ibu bapa dan kanak-kanak.*

Kata kunci: Autisme; Hanen More Than Words*; program latihan keibubapaan; Malaysia; terapi pertuturan dan bahasa*

INTRODUCTION

Malaysia is a fast developing country situated in Southeast Asia. It is a multi-ethnic, multi-racial, and multi-religious country with a population of more than 30 million people (Department of Statistics Malaysia 2015). In recent years, there has been an increased awareness about autism in Malaysia.

With an increase in awareness about autism, there has been an increase in demands for services for children with autism, including speech-language therapy services. Mostly, children with autism in Malaysia receive speech

therapy services via the one-to-one therapy model (Joginder Singh et al. 2011). In recent years however, there has been a greater interest in providing services to these children using the Hanen More than Words (HMTW) programme (Sussman 1999), which is a parental-implemented training program. This shift is service delivery model could be because there have been trainers coming to Malaysia to provide the HMTW training, leading to more local speech-language therapists (SLTs) taking up the training. In addition to the increased opportunities for training, another reason why the HMTW is becoming increasingly popular among Malaysian SLTs is because it allows them to provide treatment to more than one child and family at a time. There is a shortage of SLTs in Malaysia (Joginder Singh et al. 2011) with there being about 250 SLTs serving a population of more than 30 million people. Therefore, as suggested by Joginder Singh et al. (2016), there is a need for an alternative service delivery model as the one-to-one treatment model may not be feasible given the enormous service-delivery gap. Given that the parental training based on the HMTW program allows SLTs to provide services to several families at once, and also allows parents to be trained as the interim, it has been receiving increased attention from Malaysian SLTs.

HMTW program is a parent educational program that aims to provide support, knowledge and practical skills to parents in order to improve the language and vocabulary development as well as establish communication of children with autism (Girolametto et al. 2007). It was developed to fit the unique needs of families with young children with autism, with parents involved as co-therapists. The programme emphasizes the use of naturalistic interactions through activities that take place between the child and parent for the purpose for language learning (Girolametto et al. 2007).

There has been much research conducted on the HMTW program. McConachie et al. (2005), in a study that compared 51 families (parents and their children with autism) of children (mean age for intervention group = 38.13; mean age for control group = 34.96) who underwent the HMTW found that parents who participated in the HMTW program showed positive change in the way they interacted with their children as compared to parents in the control group who received traditional speech and language therapy. These positive changes in parental interaction styles included using fun words, praise and expanding words resulting in increased vocabulary of the children. Prelock et al. (2011), in a pilot study involving four families on facilitating communicating in children with ASD reported that the HMTW programme had a positive impact on children's social interaction and vocabulary development. The parents in this program also reported that they learnt new skills to increase their children's communication and play. Patterson and Smith (2011) when interviewing parents to explore their experience of participating in the HMTW program found that although the program is a good starting point for them to learn on how to help their children and provided an opportunity for support from other parents, there was too much for them to learn in a short period of time. Furthermore, they also felt that their unique informational and emotional needs were not met and different child factors affected their ability to implement strategies taught to them.

Carter et al. (2011) conducted a randomized control trial comparing the effects of the HMTW programme and traditional speech therapy approach. Sixty-two children diagnosed with autism (mean age = 20 months) were involved in the study that span over nine months. Children's communication and parental responsivity were measured at the start of the study (T1), at 5 months (T2) and at 9 months (T3). Findings indicated that that the HMTW intervention did not have a significant effect on parental responsivity. However, as argued by the researchers, the large effect size obtained suggested that parents demonstrated gains in their interaction strategies following the HMTW. The HMTW programme did not, however, have a significant effect on the children's communication, with exception of children whose pre-treatment level of object interest was low. The children in the study by Carter et al. (2011) were very young, and thus the authors suggested that the HMTW programs effectiveness might be questionable for young children. Overall findings from these and other studies suggest the HMTW programme to be an effective intervention approach although some family and child factors might affect its outcomes.

With an expected increase in the number of HMTW certified SLTs in Malaysia in the next few years, it is expected that the programme will be offered to more families. Although the HMTW is an evidence-based programme, there is a need to explore its effectiveness for Malaysian parents, who might have different parenting styles as compared to their western counterparts. According to Cheng (2007), Asian parents have been found to be relatively more restrictive and adopt an authoritative parenting style compared to Western parents. Children are expected to obey and respect authority and learn good moral character. Parents tend to be more strict and controlling of their children (Winskel et al. 2013). In addition, Asian parents seldom praise their children for good achievements, because it is expected for them (Yen 2014). These and other parenting styles might lead to some challenges in applying the HMTW approach that is based on naturalistic interaction.

For children with ASD, positive parenting is important for the development of effective language and social interaction skills, as well as for managing behaviour especially when dealing with emotions (Sussman 1999). Through the HMTW programme, parents are guided to be more tolerable, attend to their child's interest and being responsive towards their behaviour (Carter et al. 2011). Joginder Singh et al. (2014) in a study involving children with disabilities found that Malaysian parents took the role of the initiator during interaction. They also asked a lot of questions during interaction, with the aim of keeping the interaction going. Local research has also indicated that

Malaysian parents are very dependent on SLT to be the key person of working with their children rather than parents creating partnership with SLTs (Othman 2009).

The aim of this study is to explore the effectiveness of the HMTW programme for families of children with autism in Malaysia in terms of (a) whether parents are able to implement interaction strategies taught to them (b) whether children demonstrate improved language and social skills, and (c) whether parents are satisfied with the program.

METHODOLOGY

This study was conducted in Klang Valley, Malaysia and the ethics approval was obtained from the Human Ethics Committee, the National University of Malaysia (UKM).

PARTICIPANTS

The study involved children with autism and their parents. Participants were recruited from early intervention centres across Kuala Lumpur and Selangor, in the west coast of Peninsular Malaysia. Families with children with autism who met the following criteria were approached: (a) child had been clinically being diagnosed with autism, (b) child had been receiving speech therapy session at least three times a month, (c) child did not have any confounding diagnosis such as failure to thrive, premature birth or other disabilities such as Down Syndrome, (d) parents had not participated in any other parental training program prior to the study, (e) parents have an educational level of at least Sijil Pelajaran Malaysia (an equivalent of A-levels), (f) parents possessed satisfactory English proficiency, and (g) there were no other children with any learning disabilities in the family. The English proficiency criteria were necessary since the parental training programme was conducted in English, as currently there are no translations of the HMTW programme available in the local languages.

Fourty-eight families were invited to participate in this study, and 31 families agreed to participate. The characteristics of the subjects presented in the Table 1 and Table 2.

TABLE 1. Demographic information of the children in the intervention and control groups

	Intervention MSD	Control MSD
Gender		
Male	14	13
Female	2	2
Child mean age in months	51.87 (10.53)	58.33 (8.27)
VABS-II score (SD)	489.37 (144.43)	523.93 (136.98)
MCDI score (SD)		
Receptive	223.88 (146.35)	283.73 (189.54)
Expressive	153.19 (168.57)	207.87 (195.48)
Parents mean age in year	34.50 (3.67)	34.87 (3.54)
JAFA score	20.25 (4.80)	14.47 (3.16)

TABLE 2. Demographic information of the parents in intervention and control groups

	Intervention (n = 16)	Control (n = 15)
Total		
Mother	14 (87.5%)	15 (100%)
Father	2 (12.5%)	0
Age (Year)		
Minimum	30	29
Maximum	42	41
Average (SD)	34.50 (3.67)	34.87 (93.54)
Employment		
Employed	10 (62.5%)	8 (53.3%)
Not employed	6 (37.5%)	7 (46.7%)

PROCEDURE

The study was divided into three phases; baseline, intervention and generalization.

BASELINE (T1)

At baseline, parents completed a form to provide demographic information. Following that, parents were asked to interact with their children as they normally would at home. A seven minute video recording of the parent interacting with the child was taken. The parent-child interaction consisted of three activities: playing with child's favourite toys, book sharing, and singing. The video was coded using the Joy and Fun Assessment (JAFA) (McConachie et al. 2005). In addition, an interview was conducted with the parents based on the Vineland Adaptive Behavior Scales, Second edition (VABS-II) (Sparrow et al. 2008). The parents also completed the MacArthur Communication Development Inventory (MCDI) (Fenson et al. 2007). Parents from the intervention group also completed the Parent Self-Evaluation Questionnaire (PSE-Q) (Prelock et al. 2011). The parent-child interaction session, the interview and completion of the MCDI and PSE-Q were conducted at the Speech Therapy Clinic, the National University of Malaysia (UKM), Kuala Lumpur and early intervention centres (located in Rawang and Puchong, Selangor). All evaluations were conducted on the same day with a total time at least 45 minutes up to an hour. All data collected at baseline will be referred to as T1 (Time 1) data.

Table 1 displays the characteristics of children and parents from the intervention group and control groups at T1. Groups did not differ on any of the child and parents characteristics as evident from Table 1.

INTERVENTION (T2)

The intervention which was based on the HMTW programme was conducted on the 16 participants in the intervention group. They were divided into two groups of eight. The

intervention was conducted by the first author who is a certified HMTW therapist. The intervention consists of eight sessions of group training and three home visits and took three months. HMTW follows a social-interactionist model of language that promoting adult responsiveness, also known as the act of parents interpreting and responding to all their children's communicative attempts as meaningful. Essentially, HMTW deals with enhancing the quality of reciprocal interactions. By establishing joint attention, using child-oriented approach (i.e. follow the child's lead), waiting technique, and strategically modifying the environment, parents increase their child's motivation to initiate and maintain the interaction.

The families in the control group continued to attend traditional one-to-one speech therapy as they were prior to the study, at autism centres and private hospitals.

At the end of intervention, a parent child-interaction session was conducted once again and coded using the JAFA. The parents were also interviewed again using the VABS-II for the language and social domains, and they also completed the MCDI. The parents in the intervention group was also completed the PSE-Q and the Satisfactory Survey on HMTW. All data collected at the end of intervention will be referred to further as Time 2 (T2) data.

GENERALIZATION (T3)

For the third phase of the study, the generalization phase, parent's ability to continue to use to interaction strategies taught to them throughout intervention was evaluated. This phase was conducted after 5 months after the last intervention session at Speech Therapy Clinic, UKM and was for the intervention group. During this time, a parent child-interaction session was conducted once again and coded using the JAFA. All data collected during the generalization phase will be referred to further as Time 3 (T3) data.

MEASURES

The Joy and Fun Assessment (JAFA) ((McConachie et al. 2005) is an observational checklist used in this study to assess parents' use of responsive interaction with their child. It has a maximum score of 36 across nine sections which explore the parent's ability to use (1) fun words, (2) simple words, (3) varied intonation, (4) physical contact, (5) praises, (6) imaginative games, (7) smiles and laughter, (8) turn taking routine and (9) imitations and expansions.

Parent Self-Evaluation Questionnaire (PSE-Q) (Patterson 2010) was used to rate parents' skills before and after their participation in the HMTW programme. The questionnaire employs a 7-point scale where a score of 1 indicates that the parent almost never uses the strategy or skill and a score of 7 which indicates the parent consistently uses the skills correctly. The questionnaire comprises of 24 items which are separated into six categories: (1) stage of communication and objective, (2) skills of facilitative communication strategies (e.g. facing their children, making interpretations, labelling and expansions, (3) activities (ability to engage in people games or toys, singing and sharing books), (4) implementation, (5) generalization and (6) maintenance (the ability to use the skills over time).

The Satisfactory Survey (SS) on the HMTW (Prelock et al. 2011) was used to obtain feedback from parents about the HMTW programme in terms of perceived value, challenges and overall satisfaction. As some parents preferred to complete the questionnaires in Malay, both the PSE-Q and the SS were translated and validated into Malay language for this study.

MacArthur Communication Development Inventory (MCDI): Words and Sentences (Fenson et al. 2007) was completed by the parents to indicate the words and phrases that could be understood and produced by their child. English, Malay, and Mandarin language versions of the forms were made available to each parent to choose according to the dominant language used at home.

Vineland Adaptive Behavior Scales – II (Sparrow et al. 2008) was administered, by interviewing parents, to obtain information about the children's adaptive behaviour. The interviews were conducted in English and Malay, in which the lead researcher was fluent.

CODING

All the parent-child interaction videos were coded for the children's (1) vocalization, 'intentional' response to an action or a prelude to the interaction with sounds but it is not referring to the word for example: sound/a/,/i/ (Sussman 1999); (2) spoken words, meaningful words produced by the child; and (3) gesture, often made with hand or arm signalling communication (Charman et al. 2003).

RELIABILITY

A second rater coded 25% the parent-child interaction samples (n = 8) to determine inter-rater reliability. This rater was done by a speech–language therapist who had certification in HMTW. Using Cohen's Kappa, good levels of agreement were obtained for each level of coding: gestures = 0.94; vocalizations = 0.92; and spoken word = 0.97. Inter-rater reliability on JAFA coding was highly correlated, r = 0.97.

RESULTS

The findings shown by the parent outcome and following by the children's vocabulary, language and social development measures. The JAFA scores obtained from parents in the intervention and control group are presented in Table 2. There was a significant increase in the JAFA scores for the intervention group from T1 to T2, t (15) = 7.29, $p < .005$ but no significant increase from T2 to T3, t (15) = 2.08, $p > .005$. For the control group, there was no

significant increase in JAFA scores from T1 to T2, t (14) = 1.59, $p > .01$.

PSE-Q scores for participants from the intervention group for T1 and T2 are presented in Table 4. There was a significant increase in scores for all domains of the PSE-Q from T1 to T2, as evident from the results of the paired t-test with p-value < .01 (Table 4).

TABLE 3. JAFA scores for the participants from the intervention and control groups for Time 1 and Time 2

Item	Intervention (n = 16)				Control (n = 15)		
	Time	M (SD)	t value	p value	M (SD)	t value	p value
Fun words	T1	3.00 (1.03)	1.00	0.333	2.13 (1.19)	0.00	1.000
	T2	3.25 (1.00)			2.13 (1.19)		
Parentese	T1	2.75(1.00)	4.39	0.001	2.00 (0.00)	1.00	0.334
	T2	3.87 (0.50)			2.13 (0.52)		
Music	T1	2.38 (0.96)	3.50	0.003	2.87 (0.64)	-1.15	0.271
	T2	3.13 (0.34)			2.67 (0.82)		
Physical contact	T1	1.13 (0.89)	3.59	0.003	0.80 (0.78)	-1.44	0.173
	T2	2.38 (0.89)			0.47 (0.64)		
Praise	T1	1.00 (1.03)	1.78	0.096	1.07(1.03)	0.44	0.670
	T2	1.63 (1.50)			1.20 (1.01)		
Imaginative/Pretend games	T1	1.38 (0.96)	-1.46	0.164	1.20 (1.01)	1.00	0.334
	T2	0.88(1.03)			1.47 (0.92)		
Smiles & Laughter	T1	2.50 (1.86)	3.22	0.006	1.33 (1.63)	2.07	0.057
	T2	4.00 (0.00)			2.53 (1.77)		
Routine	T1	3.50 (0.89)	2.24	0.041	1.60 (0.83)	1.47	0.164
	T2	4.00(0.00)			1.87 (0.52)		
Imitations & Expansions	T1	2.75 (1.00)	5.00	0.000	1.47 (1.19)	-0.70	0.499
	T2	4.00 (0.00)			1.20 (1.01)		
Total JAFA Score	T1	20.25 (4.80)	7.29	0.000	14.47(3.16)	1.59	0.135
	T2	27.12 (2.22)			15.67 (3.13)		

*significant value, $p < 0.01$

Information about the parent's perception on the usefulness of the parent-training programme was gathered at the end of the 8-week training programme. Results indicated that parents perceived the home visits, discussions and videotape viewing to be the most beneficial. Planning and putting into action what had been taught was viewed as the most challenging aspect of their participation. 90% of parents strongly agreed and 10% of parents agreed that their expectations were met and their participation in the programme was positively affected in their children's progress. 94% of the parents were very satisfied and only 6% were satisfied with HMTW programme.

The children's language development was determined based on their scores on the MCDI and VABS-II, as well as the change in the amount of vocalization, spoken words and gestures. The children's MCDI and VABS-II scores are presented in Table 5.

The result of paired t-test showed that there was a significant increases in the receptive t (15) = 3.09, $p < .01$ and expressive language t (15) = 3.54, $p < .01$ scores on the MCDI for the intervention group from T1 to T2. There is no significant increase of MCDI receptive and expressive for control group.

The result of paired t-test that also showed that there was a significant increase in VABS-II communication t (15) = 5.37, $p < .01$ and socialization t (15) = 7.54, $p < .01$ for intervention group only. The control group only showed a significant increase in VABS-II socialization t (15) = 2.71, $p < .01$. There is no significant increase in VABS-II communication for control group.

From the video observation, it was evident that the children in intervention group demonstrated significantly produced more spoken words t (15) = 3.72, $p < .01$ and gestures t (15) = 3.17, $p < .01$ at T2 as compared to T1. However, there was no significant increase in their vocalization from T1 to T2 t (15) = 1.44, $p > .01$. The paired t-test also indicated that there was no significant difference in spoken words t (14) = -0.546, $p > .01$, vocalizations t (14) = -1.263, $p > .01$ and gestures t (14) = 0.235, $p > .01$ produced by children in the control group from T1 to T2.

DISCUSSION

The present study provides the opportunity to explore the effectiveness of the HMTW programme for families of children with autism in Malaysia, by exploring the parents' interactional style and satisfaction as well as the children's

TABLE 4. PSE-Q scores for participants from the intervention and control groups for Time 1 and Time 2

	T1	T2	Paired *t*-test	*p*-value
	M (*SD*)	M (*SD*)		
Average Communication and Objective Setting	2.46 (*1.32*)	6.34 (*0.65*)	12.45	0.00
Skills	2.70 (*1.07*)	6.93 (*0.54*)	14.45	0.00
Activities	3.86 (*1.58*)	6.58 (*0.42*)	8.26	0.00
Overall Implementation Fidelity	2.13 (*1.46*)	6.94 (*0.25*)	13.09	0.00
Utilizes Communication Opportunities	2.13 (*1.46*)	6.94 (*0.25*)	8.80	0.00
Maintenance	2.44 (*1.32*)	6.62 (*0.62*)	14.35	0.00

*significant value, $p < 0.01$

TABLE 5. MCDI and VABS-II scores for participants from the intervention and control groups for Time 1 and Time 2

Characteristics	Time	Intervention (n = 16) M (*SD*)	*p*-value	Control (n = 15) M (*SD*)	*p*-value
MCDI Receptive	T1 T2	223.88 (*146.35*) 303.87 (*183.14*)	0.007	283.73 (*189.54*) 332.93 (*216.86*)	0.039
MCDI Expressive	T1 T2	153.19 (*168.57*) 233.19 (*203.96*)	0.002	207.87 (*195.48*) 256.87 (*209.99*)	0.023
VABS-II Communication	T1 T1	124.13 (*59.50*) 159.00 (*64.27*)	0.000	135.27 (*63.26*) 155.33 (*67.33*)	0.004
VABS -II Socialization	T1 T2	72.13 (*23.62*) 87.00 (*22.66*)	0.000	71.33 (*19.47*) 79.60 (*18.65*)	0.017

*significant value, $p < 0.01$

performance in language and social skills. Parents in this study who received training based on the HMTW programme demonstrated a significant increase in their JAFA scores from T1 to T2, indicating improved responsive interaction. McConachie et al. (2005) who also used the JAFA to report parental interaction had similar findings, that parents demonstrated a significant increase in the use of facilitative strategies during interaction with their children from the time of recruitment to the end of intervention five months later. Carter et al. (2011), however, did not find a significant increase in parental responsivity following the implementation of the HMTW from T1 to T2. Unlike the present study and that by McConachie et al. (2005) which utilized JAFA, Carter et al. (2011) used a different system to code parental interaction strategies. They coded the parental responsivity into only two categories which were verbal or non-verbal. The JAFA was developed specifically to evaluate the content of the HMTW program, addressing specifically the different components thought in the program (McConachie 2005). The different coding systems used could have resulted in the difference in findings.

Parents in this study were able to retain the facilitative strategies taught during intervention at T3. This could be due to the nature of the HMTW programme that takes into consideration the home setting and allows generalization (Goldstein 2002) which in turn benefits children with autism who need continuous intervention (Carter et al. 2011).

The parents in the control group, who received traditional speech therapy that did not involve parents directly, demonstrated no significant change in their JAFA scores from T1 to T2, suggesting the effectiveness of the HMTW programme. The HMTW programme emphasizes on the importance of parental implemented intervention. The effectiveness of parental implemented intervention for children with autism has been reported widely on pre-school children as early as one year old (McConachie & Diggle 2007). Some of the advantages of parental implemented intervention include: (1) the continuity of intervention across the time (Ingersoll & Wainer 2013) (2) empowering the parent's competency of managing autisme children (Tonge et al. 2006) and (3) optimize the mutual goal of the child's language and communication development (Girolametto et al. 2007).

From the PSE-Q completed by parents in this study, it was evident that parents entered the HMTW programme with a very few use of facilitative interaction skills. However, at the end of the programme they reported a significant increase in the ability to use those facilitative interaction skills. Patterson (2010), who also used the PSE-Q among 12 parents with autism who underwent the HMTW programme, reported the similar findings. They reported a significant increase in parental competence in using facilitative interaction strategies. However, in the study by Patterson (2010) the PSE-Q also completed by the interventionist to compare the progress. They found that at baseline, parents rated themselves lower than the interventionist and at post-

intervention, higher than the interventionist. Therefore, parents perceived more change in their skills from baseline to post intervention as compared to the interventionist. According to Prelock et al. (2011), parent who start the HMTW with low confidence about their skills are more likely to demonstrate an increase in their confidence over the course of intervention. This improved confidence will have a positive effect on their interaction with their child, resulting progress in child outcomes.

The parents in this study reported high levels of satisfaction of the HMTW programme. Like the participants in the study by Prelock et al. (2011), the parents in this study perceived the home visits, discussions and videotape viewing to be the most beneficial. A majority of parents in this study were satisfied with the programme and felt that their expectation was met, another finding similar of Prelock et al. (2011). Parents reported high levels of satisfaction probably because they saw the impact that the HMTW programme had on their child's communication. Furthermore, parent's high levels of satisfaction could be because they did not feel burdened implementing the strategies taught to them as the strategies could be implemented in naturalistic settings. None of the parents reported having any difficulty following the contents of the programme. The HMTW programme uses an adult learning strategy called Participatory Adult Learning Strategy (PALS) (Dunst et al. 2007; Dunst & Trivette 2009a, 2009b) that consist of readiness-to-learn, self-directedness, active-learner participation, and solution content that optimizes the learning process (Holton & Swanson 1998). The use of this adult learning strategy allows participants to learn easily, and thus enabled them to meet their expectations in terms of strategies learnt to help their children.

Most if not all previous studies on the HMTW programme were conducted in western countries involving mostly Caucasian families. Findings from this study indicated that Malaysian parents, like parents from most other studies, demonstrated improved responsive interaction skills, and were able to follow the contents of the HMTW programme with ease. Although most Malaysian parents have relied on the traditional one-to-one approach in speech therapy and have not been exposed to parental training in a group, it appeared that parents were satisfied with the training and had their expectations met, suggesting that the HMTW programme was effective and accepted by Malaysian parents.

In this study, children in the intervention and control group both showed significant increase in their vocabulary and social skills from T1 to T2, suggesting that the parent implemented intervention is as effective as a therapist implemented intervention. The intervention group showed larger gains in vocabulary size as compared to the control group. For the Malaysian scenario, these findings prove to be valuable; as they allow SLTs to convince parents that parent implemented intervention is as good as, if not better that therapist implemented intervention.

Patterson (2010) and Girolametto et al. (2007) reported that there was an improvement in vocabulary size in children whose parents underwent the HMTW programme. In both studies, children progressed immediately after the HMTW programme was implemented. However, Patterson (2010) and Girolametto et al. (2007) had a different study design with no control group. The study done by Carter et al. (2011) that involved control group showed different findings which had no significant change in language ability for HMTW group and control group across all children's outcomes including the parental interview assessment and clinician-observation evaluation. The different findings factor may influence due to different study design which create the different commitment and expectation by parents as participants.

Children in the intervention group demonstrated a significant increase in their spoken words and gestures from T1 to T2. These children did not show a significant increase in vocalizations, probably because they had shifted to the use of spoken words and gestures instead, which proved to be a more effective means of communication (Yoder & Stone 2006). The control group had no significant change in their production of vocalizations, gestures or spoken words. This suggests that the children whose parents underwent the HMTW intervention were more communicative, as the HMTW aimed at increasing child's communicative skills. The HMTW targets both the nonverbal and verbal ability of children with autism (Girolametto et al. 2007; Prelock et al. 2011; Vernon et al. 2012). Therefore, in this study, the children who were non-verbal also demonstrated improved in communication skills.

The limitation of the present study is the lack of random assignment of participants to the intervention and control group. However, both groups were paired according to the gender, stage of child's communication, language score and parent's education level. The small sample size in this study limits generalization of findings.

CONCLUSION

Parents in this study were able to learn and successfully implement the strategies taught to them when interacting with their children. Furthermore, there was a significant increase in the language and social development of children whose parents attended the HMTW programme. These findings suggest that the HMTW programme can be implemented successfully on Malaysian families. Given the small number of SLTs in Malaysia, the implementation of the HMTW programme will allow SLTs to provide intervention to a larger group of families at a single time, thus being able to optimize their time.

ACKNOWLEDGEMENT

The authors would like to acknowledge the support from all families and children, without their help the project could not have been completed.

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Received: August 2016
Accepted for publication: April 2017