

An Analysis of Teachers' Knowledge and Training: Implication of Teaching Autistic Children

Norsuhaily Abu Bakar^{1*}, Nurul Zulaikha Raihan¹, Ibrahim Mohammed Sulaiman², Lingga Apri Murtini¹, Rabia Munir¹, Sohail Farouk¹, ZulfaIzza Hashim¹

¹Faculty of Applied Social Sciences, University Sultan Zainal Abidin, Terengganu, Malaysia

²Faculty of Informatics and Computing, University Sultan Zainal Abidin, Terengganu, Malaysia

*norsuhaily@unisza.ed.my

ABSTRACT

Autism is a developmental disorder that negatively impacts the ability for communication and interaction. Current statistics have reported an increase in its prevalence. Therefore, the need for well-trained NASOM teachers to teach children with autism has also increased. This study was implemented to investigate the level of knowledge, training and competency of autism's teachers in NASOM. The location of the study chosen was on few branches of NASOM throughout in Malaysia. The research data were quantitatively obtained through the questionnaire. Questionnaire was distributed to 55 respondents consisting of men and women who teaches autistics in NASOM. Questionnaire forms have been divided into sections such as knowledge. However, they showed interest to undergo advanced courses to enhance their competence in educating children with autism. Thus, the ToT course and the module has to be improved by adding more components regarding autism. Teachers in NASOM also needed to be provided an access to the service of training in autism because the field of autism education has progressed and various strategies that have been proven effective scientifically are now available. Several suggestions by researcher have been proposed for improvement of studies of autistic students, training, competency and the presence to ToT course. The raw data obtained analyses using the SPSS version 20 software was analyzed again using t-test, correlation and regression. The findings shown that there was a difference to their knowledge, training and competency with their presence to ToT course. The ToT course was found to be rather ineffective as they have a moderate and low competency in teaching autistic students.

Keywords :Autism, Education, Teaching, Analysis

Introduction

Autistic children are children with autism. Autism or its other name, Autism Spectrum Disorder (ASD) is one of the most common neurological problems that can be characterized by social, behavioral and non-verbal communication problems such as the lack of eye contact. Spectrum refers to a variety of manifestations of anxiety such as the severity of autistic conditions, developmental stages and chronological age. ASD is a complex developmental and neurological disorder. It involves the structure, function of the brain and nervous system. Depression affects an individual's social skills and communication skills. One of the most apparent features of ASD children are their repeated behaviors and limited attention (American Psychiatric Association, 2013).

Autism Spectrum Disorders is a neurobiological condition that affects at least 60 out of 10 000

children under the age of 6 (Couteur et al., 2007). The Center for Disease Control and Prevention (CDC) reported that of children born in 2012, 1 out of 88 were diagnosed with ASD within the age of 8; in 2018, 1 out of 59 was diagnosed with ASD at the age of 8, which showed a 15 percent improvement over the year. According to the CDC (2018), boys are more likely to develop this syndrome than girls.

Studies showed that 1 out of 166 children in the world have autism. However, the cause of this autism has not yet been identified. One of the causes of this is the virus infection by the mother during pregnancy. According to NASOM (2015), it is estimated that 47 000 children in Malaysia are autistic. Some children have early autism symptoms. As a teacher, therefore, they need to be equipped with the skills that will address the behavioral problems of autistic children. This is because the behavioral problems of autistic children need to be taken seriously (Sumrah et al., 2008). If these children are not addressed, problems will arise as teaching and learning goes on. Therefore, teachers need to have the skills to address the problematic behavior of children with autism.

Therefore, the need for trained or more specialized special education teachers, especially for children with autism, has increased to educate these autistic children so that they can overcome or reduce the negative impact of autism in their lives. However, training is the weakest element in the effort to provide effective services for children with autism (National Research Council, 2001). According to The Center on Personnel Studies and Special Education, COPSSE, (2003), the agency has reported that there is a shortage of special education teachers to serve students with disabilities, particularly in the areas of emotion or behavior, general disabilities, learning disabilities and mild or moderate defects (Brownell et al., 2003).

Scheuerman et al. (2003) noted that among the major problems in the field of autism in the United States are the lack of trained teachers educating autistic children and there is also a critical need to provide adequate international training for all teachers dealing with ASD students (Leblanc et al., 2009). Although there is a workforce of teachers who can teach, they are not provided with adequate training which indirectly hinders the provision of adequate and trained teachers in the field of autism. Increasing the number of high quality and intensive training opportunities should be a national priority (Barnhill et al., 2010). Of course, all teachers with autistic children as students need training and learning theory to meet the needs of ASD students in the classroom (Scheuremann et al., 2003; Steuernagel, 2005).

Training is defined as a systematic development of the knowledge, skills and attitudes or behaviors required by a person to perform a well-assigned task (Norsuhaily Abu Bakar et al., 2020). According to the Glossary of Training Terms (Manpower Services Commission, U.K.), it is a process designed to modify attitudes, knowledge or skills through learning experiences to achieve effective performance in a variety of activities. The purpose is to develop individual capabilities and meet the organization's current and future workforce needs.

According to the Knowledge and Belief in the Speech-Language Pathology of Autism (2010) by Julie M. Ray, National Autism Center (NAC), a non- governmental organisation dedicated to improving the life of autistic people, recently completed a national project in which it presented a thorough analysis of evidence-based practice in the field of autism (2009). In the study, the

importance of response treatment, comprehensive teaching strategies, modeling and behavioral treatment was recognized on the basis of evidence-based practices. This indirectly provides the impression that Speech Language Pathology working with autistic children should have competence and confidence in not only providing skills but also in managing behavioral problems (Nungesser & Watson, 2005).

In 2004, Cascella and Coella conducted a study examining the knowledge of speech pathology in schools within Connecticut regarding the information on university training; continuing education, knowledge about autism and knowledge about the inability to communicate about autism were also collected. In conclusion, the whole study led to a conclusion that although they are speech language pathologists, they also have less compelling knowledge. Cascella and Colella (2004), therefore, suggested that further education is needed in preparation for the pathologies working with autistic students.

The study was supported by its findings because Schwartz and Drager argued that speech language pathologists should be more knowledgeable about the common features of autism than the criteria being diagnosed. They suggested that further studies should be conducted that focused on evaluating speech pathology knowledge in different dimensions. They also suggested that university studies focus more on autism-related information on how to build confidence in speech pathology.

According to Simpson (2004), in order to provide effective education for autistic children, teachers need to be provided with basic early childhood skills and special education including special skills in the field of autism. Among the knowledge and skills, they need to master is the understanding of autism traits, assessment, diagnosis and evaluation of autism children. Teachers for children with autism also need to work closely with current mainstream teachers in providing inclusive education as well as cooperating with parents and other professionals such as speech therapists, occupational therapists and others (Scheuerman et al. 2003).

In 2008, Schwartz and Drager examined the effectiveness of training and knowledge of autism among US speakers and the results of their study showed that respondents had a solid knowledge of autism but were still confused about its diagnosis. The findings also showed that these speech therapists were not receiving enough training and were less confident in their existing ability to provide services for autistic children. This finding was also supported by several previous studies in which teachers who taught ASD children were less confident in teaching them because of their limited knowledge of autism (Abdulahde & Yahia, 2013; Hasnah et al., 2010). There were also other studies explaining that teachers who deal with autistic children as their students not only need to feel confident in giving instruction but also have confidence in managing behavior problems (Nungesser & Watson, 2005). Whereas in Malaysia, Susanna Philips (2005) conducted a study to examine the current state of primary school teachers' knowledge about autism and through their research, it was found that primary school teachers in Malaysian schools were less knowledgeable on the cognitive, social and emotional aspects of students who have autism. 84.3% of the respondents were also unable to identify the type of support services or types of professional personnel these children needed.

Need for the study

Special education teachers or more specifically NASOM, should be knowledgeable about ASD as according to previous research, teachers were less confident in teaching students with ASD due to the lack of knowledge about autistic children. Therefore, this study indirectly helped teachers better understand their behavior, so that they could provide and plan appropriate teaching and learning approaches.

Objectives of the study

Based on Shchwartz and Drager (2008) study, three questions were identified to guide the study:
Are there any differences between the knowledge, skills and competencies of teachers attending ToT and those not attending ToT?

Is there a relationship between the impact of teacher attendance on ToT programmes and absent teachers?

What is the dominant influence on the knowledge, skills and competencies of teachers attending ToT?

Methodology

To determine the level of knowledge, skills and competencies of teachers in educating children with autism, a set of questionnaires was adapted based on the questionnaire by Schwartz and Drager (2008). Translation of the questionnaire into English has been done to ensure it can be clearly understood by the respondents involved in this study. Some items on teachers' skills in this questionnaire were modified to make them suitable for teachers at NASOM. The questionnaire consists of five main sections: Part A: Respondent Demographics, Part B: Teacher Knowledge Levels, Part C: Teacher Skills Levels, Part D: Teacher Confidence Levels in teaching autistic children and Part E: Teacher Attendance to ToT. In total, this survey consisted of 26 items covering five sections as stated.

The items in Section A pertains the demographic information of respondents. The main purpose of gathering demographic information is to identify factors that may influence respondents' answers in other parts of the questionnaire. The questions in this section are gender, age and experience as a teacher of autism children. Section A contains three questions, in which each question is provided with a choice of answers.

Part B, C and D contain 8, 5 and 9 questions, and all use a five-point Likert scale in which 1 = Strongly Disagree, 2 = Strongly Disagree, 3 = Unsure, 4 = Agree and 5 = Strongly Agree. Part E contains a question about the attendance and frequency of teachers to ToT while testing the effectiveness of ToT.

Procedure

The data collection procedure performed by the researcher was to distribute the 55 questionnaire forms in excess of the actual number of samples needed to avoid the damage to the form. Questionnaires were provided to a sample of teachers teaching autistic children at NASOM throughout Malaysia. Prior to distributing the questionnaire, the researcher first requested a

confirmation letter from the university's faculty for permission to conduct the study. Upon approval from the faculty, the questionnaires were distributed immediately at the NASOM headquarters in Ara Damansara via info@nasom.org.my which would then be provided to the teachers at NASOM around Kuala Lumpur city center. The researcher would contact the headquarters daily in the event that the form was not forwarded to each NASOM branch which would result in no respondents responding to the questionnaire and not being handed back to the researcher. It took two weeks for the data collection process using the Statistical Package for Social Science (SPSS) version 20.

Results and Analysis

Demographic information

A total of 55 respondents from NASOM were involved in this study. Of these, 5 respondents (9.1%) were male and 50 respondents (90.9%) were female. For the age factor, it was found that 25 respondents (45.5%) were between the ages of 20 and 30, 18 respondents (32.7%) were between the ages of 31 and 40, 10 respondents (18.2%) were between the ages of 41 and 50 and 2 respondents (3.6 %) were between 51 and 60 years old. In terms of experience as an autism child teacher at NASOM it was found that 27 respondents (49.1%) had 1 to 5 years of experience, 19 respondents (34.5%) had 6 to 10 years of experience, 4 respondents (7.3%) had experience during 11 to 15 years and 5 respondents (9.1%) had more than 16 years of experience. Demographic information of respondents is given in Table 1.

Table 1. Respondents Demographic Profile

		<i>n</i>	Frequency (%)
Gender	Male	5	9.1
	Female	50	90.9
Age	20 to 30 years	25	45.5
	31 to 40 years	18	32.7
	41 to 50 years	10	18.2
	51 to 60 years	2	3.6
Experience as an Autistic Teacher	1 to 5 years	27	49.1
	6 to 10 years	19	34.5
	11 to 15 years	4	7.3
	16 years above	5	9.1

The level of teachers' knowledge in teaching autistic children in NASOM

The findings of the study on teachers' level of knowledge based on attendance and frequency to ToT were analysed by observing the relationship of differences. As this study examined teachers' abilities through frequency or attendance to ToT, this section was analysed by looking at the relationship of differences. If $p > 0.05$, then there was no significant difference between the knowledge of teachers present and absent from ToT. After analysis, this finding indicated that $p < 0.05$ was a significant relationship between the knowledge of teachers teaching autistic children in NASOM who attended ToT and those who did not attend ToT. Significant differences in teacher knowledge levels are shown in Table 2.

Table 2.Differences in Teachers’ Knowledge Levels Attending and Not Attending ToT

Attendance	Number	Mean	Standard Deviation	T Value	Significant Value
Present	8	1.2813	0.0884	2.163	0.035
Absent	47	1.1676	0.1434		

The teachers’ skill level in teaching autistic children in NASOM

Respondents were asked about the skills they had acquired when they were teaching autistic children at NASOM. This finding indicated $p < 0.05$, thus a significant relationship. It also showed that teachers who came to Tot were more proficient in identifying autism traits, assessing children with autism, developing teaching strategies for children with autism, having hands-on experience with children, children with autism and in collaboration with other professionals and parents. Significant differences in teacher skills were shown in Table 3.

Table 3.Differences in Teachers’ Skill Levels Attending and Not Attending ToT

Attendance	Number	Mean	Standard Deviation	T Value	Significant Value
Present	8	4.9250	0.2121	4.677	0.000
Absent	47	4.4511	0.4671		

The teachers’ competency level in teaching autistic children in NASOM

The results obtained from the statements in this section found that the significance level, $p > 0.05$. indirectly indicated that whether or not teachers attend ToT, they still had less competence in educating children with autism at NASOM. However, they were interested (54.5%) to become an autism expert despite having to attend additional courses and training. Significant differences in teacher competence were presented in Table 4.

Table 4.Differences in Teachers’ Competency Levels Attending and Not Attending ToT

Attendance	Number	Mean	Standard Deviation	T Value	Significant Value
Present	8	4.6528	0.3914	1.211	0.231
Absent	47	4.4870	0.3526		

Difference of correlation between knowledge, skill and competency

The correlation test was used to test the impact of ToT attendance on the relationship between the 3 predictor aspects of knowledge, skills and competencies for teachers to see and it turned out that by attending the course, it affected their knowledge and skills but not their confidence. The analysis showed that there was a significant relationship between teachers' level of knowledge in NASOM and their presence in the ToT, $r = 0.146$, $p < 0.05$. The analysis for teachers' skills as a value of $r = -0.354$, $p < 0.05$, also showed a significant relationship. Finally, the analysis for confidence level did not show a significant relationship with the value of $r = -0.164$, $p > 0.05$. The relationship differences between these three aspects were shown in Table 5.

Table 5. Relationship Between The 3 Predictor Aspects

	Attendance to ToT	
Knowledge Level	Pearson	
	Correlation Sig. (2-tailed)	-0.2850.035* 55
Skill Level	Pearson	
	Correlation Sig. (2-tailed)	-0.354 0.007** 55
Competency Level	Pearson	
	Correlation Sig. (2-tailed)	-0.164 0.231 55

Dominant factors affecting teacher attendance ToT

Regression tests had been used to look at the dominant factors among the 3 aspects of predictors. The formula for regression was $(F(3, 51) = 4.464, p < 0.05)$. The p value is 0.007. The results showed that there was one factor that had a dominant impact on attending ToT, which had a significant correlation of 0.010. A high beta value of 0.367 indicated that skill factor is the dominant factor contributing to the effects of attending ToT training courses as shown in Table 6.

Table 6.Regression Coefficients Value of Multiple Levels of ToT Effectiveness on Autistic Child Teachers at NASOM

Model	B	Non-Standard Coefficient Null Coefficient	Standard Coefficient Beta	T	Sig
1 (Constant)	1 (Constant)	0.741	0.289	5.814	0.000
Knowledge	Knowledge	0.310	-0.339	-2.339	0.023
Skills	Skills	0.096	-0.097	-2.660	0.010
Competency	Competency	0.126		-0.761	0.450

Discussion

The first objective of the study was to identify the relationship between the knowledge, skills and competencies of teachers teaching autistic children at NASOM based on ToT attendance. The results could be concluded that there was a difference in the knowledge and skills of teachers teaching autistic children at NASOM based on their attendance at ToT courses but there was no difference between the levels of competency for teachers based on ToT attendance. Moreover, the objectives of the second study have shown that there was a significant relationship between the level of knowledge and skills of teachers who teach autistic children at NASOM based on their attendance in ToT. Here, the researcher concluded that teachers who attended ToT have a stronger knowledge and skills to recognize and assess autism and even develop teaching and learning strategies for their autistic students. This was evidenced by the data showing that they have a good knowledge of several factors about autism but were confused about some important information such as the diagnosis of autism. For example, most respondents found it difficult to identify social interaction as diagnostic criteria for autism and made the error of stating that

stereotypical behavior and self-injury are a diagnostic criterion for autism. Therefore, there was no significant relationship between teachers' competence levels at NASOM based on their attendance in ToT.

The third objective of the study is that there is one dominant aspect that affected the impact of attending ToT, which is the skill aspect. A high beta value of -0.339 indicated that the skill aspect is the dominant factor contributing to the impact of attending ToT and there is a dominant influence between the skill aspect and the presence of ToT

Overall, the knowledge of teachers who teach autism children at NASOM remains at a moderate level. The findings of this study were supported by the findings of Hasnah and his research colleagues (2010). While, Abu Bakar and Bajuri (2020) found that special education teachers have a high level of knowledge about autism and the characteristics possessed by students with autism. The study respondents had some knowledge of ASD. The study showed that respondents had a good knowledge of communication problems among children with autism (83.6%), exhibited social interaction problems (83.6%), over-sensitivity and under sensitivity to pain among children with autism (100 %), a higher prevalence ratio of autism in boys (100%) as well as gross motor skills and fine motor incompatibility among these children (67.3%). However, respondents were also confused about some of the features of autism. Among them, 54.5% of respondents disagreed that children diagnosed with autism must exhibit social interaction problems even though social interaction problems were not a diagnostic criterion for autism. Self-harming behavior is not a diagnostic criteria for autism, but 54.5% agree that it is an autism criteria. The same thing happened with repeated stereotypes, it was not a diagnosis for autism however, 83.6% agreed that it was a diagnostic for autism. The findings of this study indirectly indicated that respondents did not have a sound knowledge of diagnostic criteria for children with autism. Respondents also expressed confusion (69.6%) of these children about never having eye-contact even when these autistic children actually made eye- contact but not often.

The findings of this study also found that respondents had the skills to identify autism traits, assess autistic students, teach them effective strategies, conduct direct training with students with autism and collaborate with professionals and parents. Respondents might have limited knowledge of autism students but they may be able to identify autistic students. The response received was that they lacked the confidence to set appropriate teaching and learning objectives for autistic children, less comfortable providing counseling guidance to parents and caregivers of children with autism. Although respondents feel less confident in themselves, they are still interested in becoming an autism expert despite the need for additional courses and training.

Conclusion

Although autistic children suffer from mental illness throughout their lives, they are very special individuals. As the number of autistic children increases, as well as the increasing number of autistic students in the classroom, the teachers at NASOM should have the knowledge and skills that can provide as much guidance and support to these children. The results and findings of this study show that they are in line with the findings of a study conducted by Mavropoulou and Padeliadu (2000), Schwartz and Drager (2008). Their findings are that there is a misunderstanding of knowledge about autism among special education teachers in Greece

(Mavropoulou & Padeliadu, 2000) while Schwartz and Drager's (2008) study suggests that there is a poor knowledge of autism among members and speech therapists.

Training and courses on professionalism should be given mandatory to autism teachers at NASOM so they can be more informed with the latest ASD information. As a result, teachers at NASOM can design teaching and learning that meets the needs of autistic learners at the same time, giving these teachers confidence to continue teaching autism children at NASOM that may increase their numbers in the future. It can indirectly help autistic students become actively involved in teaching and learning activities.

One of the suggestions is to improve the quality of teaching skills for autistic students. This training does not matter in terms of formal education or in-service training. When viewed from secondary sources through reading materials or on the web, most of the conducted exercises or courses not only focused on ASD but generally with the co-teaching of special education teachers. Special education includes children with visual or hearing impairments. When courses or training are held in conjunction with special education teachers, training and knowledge on ASD is not emphasized.

The next suggestion is that practical training needs to be enhanced so that it provides opportunities for trainees to have direct or hands-on experience with children with autism. For example, as everyone knows, slowness in speech and language skills development are one of the key features of autistic children (Charlop & Haymes, 1994). Therefore, the activity that can be done is to visit and study outside the school area (Siti Hodijah, 2012).

The recommendation that the researcher would like to make is to take this Training of Trainer course periodically. For example, every 3 months. In a conversation with a fellow NASOM management consultant, he said that they are not obligated to take the course on a regular basis by the date set in their management timetable, but sometimes it is planned a month or two before they even take the course together with other special education teachers who are sometimes have uncertain or impromptu attendances.

The last suggestion is to supplement the content of teaching courses that can help teachers of autistic children with their confidence to teach these special children. Learning and teaching sessions are ineffective as they only have the knowledge and skills if they do not have the high confidence that most parents of autism children expect from educators to help them in school. It is also stated by Liew Ping Yee and Manisah Mohd Ali (2008) that parents will send their children to the training centre for early intervention once their child is diagnosed as autistic.

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