

Research Article:

## **Occupational Therapy Service for Special Education in Malaysia: Facilitating the Implementation of Practice**

**Mahfuzah Zainol<sup>1,2\*</sup>, Masne Kadar<sup>1</sup>, Farahiyah Wan Yunus<sup>1</sup> and Nor Afifi Razaob<sup>1</sup>**

<sup>1</sup>Centre for Rehabilitation and Special Needs Studies, Occupational Therapy Programme, Faculty of Health Sciences, Universiti Kebangsaan Malaysia, Jalan Raja Muda Abdul Aziz, 50300 Kuala Lumpur, Malaysia

<sup>2</sup>Special Education Division, Ministry of Education, No. 2, Block E2, Kompleks E, Pusat Pentadbiran Kerajaan Persekutuan, Presint 1, 62604 Putrajaya, Malaysia

\*Corresponding author: mahfuzah98@gmail.com

### **ABSTRACT**

Occupational therapy is the profession of supporting children with special needs to optimise participation in the school curriculum. Occupational therapy service in school is described as an integrated service between stakeholders to support inclusive education, special education, and mainstream programmes. This research explored three main objectives, (1) the status of occupational therapy service delivery for special education in Malaysia, (2) the specification of the occupational therapy capacity within special education, and (3) the challenges in the implementation of the practice in the Malaysian context. The research employed quantitative study and individual semi-structured interviews with occupational therapy professionals and special education teachers. A descriptive analysis was utilised for the quantitative research, and a thematic analysis was applied for open-ended interview questions. The finding showed a scarcity of occupational therapy service provision in the special education programs in Malaysia. The function of school-based occupational therapy practitioners was mainly providing screening, individual assessment and intervention, training to teachers and parents, and consultation on special education school placement. The themes that appeared in challenges encountered in the practice implementation were the inadequacy of school-based occupational therapists in the practice setting, funding deficiency in terms of facilities, political governance impact, and the collaborative practice between teachers and therapists. In conclusion, this study provides insights and discernment on implementing school-based occupational therapy practice to support special education service delivery in Malaysia. This study is significant to highlight the necessity to strengthen special education provision through support service practice.

**Keywords:** Social identity, interpersonal relationships, students with disabilities, Higher Education, social inclusion

**Published:** 10 June 2025

**To cite this article:** Zainol, M., Kadar, M., Wan Yunus, F., & Razaob, N. A. (2025). Occupational therapy service for special education in Malaysia: Facilitating the implementation of practice. *Asia Pacific Journal of Educators and Education*, 40(1), 215–235. <https://doi.org/10.21315/apjee2025.40.1.11>

## INTRODUCTION

### **Occupational Therapy in Malaysia**

Occupational therapy services in Malaysia were introduced in 1958 by Barbara Tyldesley, a member of the British Association of Occupational Therapists (BAOT) (Kadar et al., 2015). Nationwide, the occupational therapist-to-population ratio is 1 to 17,777 and special needs education is among the highest shortages (World Federation of Occupational Therapist, 2017). Most occupational therapists in Malaysia work within hospital and health clinic settings under the Ministry of Health. A few entrepreneurs' occupational therapists also open private rehabilitation and early intervention centres.

Ministry of Education Malaysia would have a long-term plan to hire more occupational therapists to serve in the schools. However, a well-developed best practice should be evidenced to justify the need to hire more occupational therapists in the future. Occupational therapists employed by the Ministry of Health lack the authority to visit children at schools; therefore, they usually do interventions in the clinic, separate from the school environment. Students must withdraw from attending school when they have occupational therapy appointments at health clinics, hospitals or private therapy centres. Only a few schools in Malaysia that have Integrated Special Education Programmes (ISEP) initiated calling for occupational therapists to come over for therapeutic interventions for students with severe learning support within the school environment. They adopt a pull-out occupational therapy service where the occupational therapist does the intervention in a separate room. Hence, this situation concludes that the current partnership between therapists and teachers is not fully optimised to maximise the learning potential of students with disabilities in the school curriculum.

The occupational therapy service for special education is known as the school-based occupational therapy practice (SBOT). Yet, the SBOT in Malaysia is not declared its implementation by the Ministry of Education Malaysia. School-based occupational therapy in Malaysia is believed to have been established around 2012 when an occupational therapist was hired to work within the Ministry of Education under the Special Education Service Centre, or locally known as Pusat Perkhidmatan Pendidikan Khas (3PK). To date, 15 occupational therapy professionals permanently serve special education under the Ministry of Education Malaysia. Occupational therapy services in special education are implemented through services at the 3PK. School-based occupational therapists in Malaysia provide services directly to students with special educational needs through 3PK, both in schools and other 3PK premises. The work of occupational therapists at 3PK is to provide support services to students with special educational needs to increase their level of independence and involvement in teaching and learning activities at school.

## **SPECIAL EDUCATION SERVICE CENTRE FOR SPECIAL EDUCATION IN MALAYSIA**

The Ministry of Education Malaysia, under the Special Education Division, has established Special Education Service Centres (3PK) in every state throughout Malaysia to provide support services to students with special needs. The 3PK is a unit under the administration of the State Education Department, Ministry of Education Malaysia. This local service centre provides support and consultation services to help children with special educational needs towards a better quality of life. In total, there are 13 3PK centres across the country with a capacity of four professionals from a multidisciplinary team, including occupational therapy.

The specific function of 3PK is to:

1. Provide support services in the aspects of therapy and rehabilitation through a multidisciplinary team.
2. Conduct screening and diagnostic tests for children with special educational needs.
3. Implement intervention programmes according to specific intervention from a multi-disciplinary team.
4. Creating a network of cooperation between government and non-government agencies in support services.
5. Offering consultation services, support services and advice related to special education.

The multidisciplinary services offered at 3PK are such as:

1. Audiology services for children with hearing problems.
2. Speech and language therapy services for children with problems in language, communication and speech.
3. Occupational therapy services for children with difficulty and issues in motor, sensory, cognitive and behavioural skills.
4. Clinical psychology services for children's mental health and early diagnosis.
5. Physiotherapy services for children who need therapeutic support and physical rehabilitation.
6. Educational intervention services to provide support in aspects of teaching and learning and consultations related to educational placements.

To add, all of the multi-disciplinary team professionals at 3PK were qualified in the Diploma of Education (Special Education). Therefore, these professionals are competent in Special Education pedagogy and curriculum.

Generally, 3PK serve special needs students aged between 4 years old (pre-school age) to 19 years old (final year of high school for students with special educational needs). Besides, 3PK receives referrals from mainstream teachers, special education teachers, health professionals such as clinics and hospitals, and direct referrals from parents. The services implemented at 3PK are: (a) direct intervention services (individual or group), (b) screening services for specific intervention needs, (c) assessment using standard instruments and tools, (d) home programmes for parents, (e) educational consultation services related to schooling options for students with special educational needs, (f) school and classroom consultation for teachers to integrate intervention activities in teaching and learning, (g) training programs for parents and teachers, (h) school visits to assist teachers in Individual Education Plan (IEP), and (i) develop modules, instruments and guidelines to facilitate the special education service delivery within the Ministry of Education. Therefore, the role of occupational therapy in schools can be utilised by occupational therapy professionals at 3PK who have credible access to students with special educational needs in school.

## **THE IMPORTANCE OF OCCUPATIONAL THERAPY SERVICE IN SPECIAL EDUCATION**

### **Support Special Needs Students in The School Environment**

Occupational therapy's role is to support students with special needs in school academic learning. Occupational therapy services for special-needs students would significantly impact handwriting, fine and gross motor skills, and cognitive function (Clough, 2019). The types of students that demand occupational therapy services are in two groups: The first group includes students with diagnoses such as physical disabilities, intellectual disabilities, and specific learning difficulties. These students attend an ISEP, which provides special education services to small groups within a classroom setting. The second group consists of students without formal diagnoses but who experience difficulties that affect their participation in the school curriculum. These students typically attend remedial classes and are often referred to occupational therapy for handwriting and visual perception issues (Mekyska et al., 2017).

### **Assist Teachers in Optimising Student's Participation in The School Curriculum**

Occupational therapy service for special-needs students is very demanding because its approach is individual (Missiuna et al., 2012; 2017). The individual assessment and intervention would optimise the students' support for participating in the school curriculum. Collaborative practice between occupational therapists and teachers should be adopted as school teachers have time limitations to provide one-on-one support to students

with special needs (Wilson & Harris, 2018). Teachers could optimise their teaching and learning activities alongside occupational therapy services provided in the classroom with implemented recommendations (Ng et al., 2015).

### **Embrace Inclusive Education Through Collaborative Practice**

Collaborative practice between therapists and teachers will notably impact inclusive education for students with special learning needs (An et al., 2019). Occupational therapists employed under the Ministry of Education Malaysia had a huge responsibility to cater to the needs of inclusive students towards participation in the mainstream curriculum. The inclusive education program in Malaysia has been revised and started to be implemented systematically in 2013 in the Malaysia Education Blueprint 2013–2025 (Ministry of Education Malaysia, 2013). However, with a limited number of occupational therapists being employed under the Ministry of Education Malaysia, there is a need to collaborate with the occupational therapist employed by the Ministry of Health Malaysia to support the collaborative practice in delivering SBOT service for students with learning needs.

### **Support Special Needs Students Through The Individualised Education Programme (IEP)**

School-based occupational therapy (SBOT) service needs collaborative practice between therapists and teachers. There are a lot of opportunities for the SBOT service to succeed when the teachers are aware of the occupational therapist's role in assisting the student's learning needs within the school environment (Ianni et al., 2022). The role of occupational therapy is very much needed for collaboration with teachers to plan and implement targeted goals in the Individualised Education Plan (IEP) for students with learning needs to participate in the school curriculum (Friedman et al., 2022). The IEP is a written document that demonstrates the goals agreed upon by the stakeholders to be achieved by a student with learning needs in any supportive way (Leigers, 2017). Teachers are part of the stakeholders, while occupational therapists play an essential role in collaborative practice in school-based occupational therapy services (Caidor, 2015). However, the barriers to SBOT service in Malaysia are the lack of occupational therapy professionals employed in the health or education sectors.

Consequently, this research was based on three main research questions:

1. What is the occupational therapy service delivery status for special education in Malaysia?
2. What are the existing occupational therapy services in special education?
3. How can the challenges be solved to facilitate the implementation of the occupational therapy practice in special education in the Malaysian context?

## **METHODS**

The research employed both quantitative and qualitative studies to answer the research questions. For the quantitative research, a survey was completed among 58 special education teachers ( $n = 58$ ). The quantitative study aimed to study the occupational therapy service delivery status for special education in Malaysia.

Then, for the qualitative study, semi-structured interviews were accomplished with six occupational therapy professionals and three special education teachers ( $n = 9$ ). The qualitative research was intended to investigate the role of occupational therapy services in special education and the challenges in implementing the practice in the Malaysian context. The individual interviews were conducted to comprehensively analyse the situation (Chee, 2016; Polit & Beck, 2009).

## **PARTICIPANTS**

### **Survey**

The participants for the quantitative study were sought from a few special education programme schools near Kuala Lumpur and Klang Valley. The participants must have these criteria: (a) possessing a qualified degree in special education or related studies, (b) teaching special education integrated programme (also known as Program Pendidikan Khas Integrasi), (c) at least one year of teaching experience, and (d) teaching in a government public school monitored by the Ministry of Education Malaysia. All participants ( $n = 58$ ) were recruited via phone and agreed to participate in the cross-sectional survey.

### **Informants for the Interviews**

The interview focused on exploring occupational therapy services' role in special education and the challenges in implementing the practice in the Malaysian context. Nine informants accepted the invitation to contribute to the individual interview sessions. The sampling size for the informants is based on data saturation. The sampling method for this study is purposive, as the researcher focused on a specific sample that met the sample characteristics (six occupational therapists and three special education teachers) ( $n = 9$ ) (Polit & Beck, 2009). The criteria for the occupational therapy informants are: (a) possess a degree in Occupational Therapy from universities approved by the World Federation of Occupational Therapist, (b) a minimum of 1-year experience working as a school-based occupational therapy practitioner, and (c) working premise is in a 3PK in Malaysia. The criteria for the special education teachers' informants followed the survey participant's criteria.

## DATA COLLECTION

For the survey, a questionnaire was designed to answer the research questions. The first author developed the questionnaire items based on the initial research questions, a literature review, and input from a panel of experts that included three occupational therapists experienced in research and school-based occupational therapy practice (with experience ranging between 6 and 18 years). Potential participants were sent an e-mail that included a hyperlink to the electronic poll via Google Forms and initial details of the research. Informed consent was obtained after the potential participant clicked on the link. After obtaining electronic consent, the participant was granted access to the survey. Participants were allowed to withdraw from the survey at any point by exiting without submitting responses. All information in the study was kept entirely confidential. Researchers did not have direct interaction with any participants. The survey took about 5 to 10 minutes to complete. Data collected through the survey included demographic information such as gender, age, years of experience, level of academic qualification and the frequency of occupational therapy service delivery for special education teachers in Malaysia.

Then, the data gathered through semi-structured interviews were based on an interview protocol. The justification for utilising this interview method for data collection is to elicit broader experiences, perceptions, and suggestions for practice to facilitate occupational therapy practice in special education (Restall et al., 2020). This study has been approved by the ethics committee and granted by the Sekretariat Etika Penyelidikan, Universiti Kebangsaan Malaysia UKM PPI/111/8/JEP-2020-491. Ethics approval for this study is gained from the Ministry of Education Malaysia through the Educational Planning and Research Division (EPRD) because the sample for this study was sought from government educational institutions.

After obtaining ethical approval, all participants were contacted virtually for the invitation to join this study. Formal invitation letters, information sheets and consent forms were sent to participants via e-mail. The consent forms were collected individually before the interviews were conducted. The researcher is also responsible for data confidentiality and security. Participants were acquainted with the focus of the research study in the research information sheets. All individual face-to-face interview sessions lasted 15 to 20 minutes for each informant. The individual interviews were conducted in a separate room away from distractions. The first author conducted the interviews in the Malay language. All interviews were audio-recorded. The first author kept a reflective journal to maintain the trustworthiness of data collected during interviews (Sharma, 2013).

The proposed interview protocol was prepared and distributed to participants before individual interviews. The interview protocol questions were constructed according to research questions and were finalised by the researchers to prove their clarity and validity. The protocol interview comprised questions corresponding to: (a) the specific job specification of occupational therapy practitioners in special education, (b) the capacity of occupational therapists within special education, (c) the challenges in the implementation

of the occupational therapy practice in special education, and (d) the suggestion to facilitate the practice in the Malaysian context. The interview findings were collected until data saturation was accomplished and no new information was identified regarding the topic. The 9th participant discontinued the interview. All participants were acknowledged at the end of each interview.

## **DATA ANALYSIS**

Results from the survey were compiled. Quantitative results were analysed using descriptive statistics, including means and frequency distributions (Hemming et al., 2018). Thematic analysis was applied using an inductive qualitative approach for open-ended interview questions (Restall et al., 2020). The interviews used audio recordings and were transcribed verbatim (Garfinkel & Seruya, 2018). Member checking was done with the informants to clarify the summary of the given information. The transcripts were sent back to each informant to review their statement and alter any data not deemed correct (Liamputtong, 2019). Later, pseudonyms replaced informants' names to strengthen confidentiality. Initial codes were identified in the transcripts through a software analysis programme, nVivo version 12, across all transcripts (Merriam, 2009). The coding structure was derived by an inductive strategy application. Subsequently, the codes were categorised and grouped into relevant themes through their definite meaning. The codes, categories, and themes generated from the transcripts were determined to reflect the objectives of this study. After that, a peer reviewer was employed to ensure accurate interpretation of the interview transcripts (Rens & Joosten, 2014). The emerging themes were demonstrated and discussed according to the research questions.

## **RESULTS AND FINDINGS**

### **Demographic**

Of the 58 participants in this study, 46 were females (79.3%) and 12 were males (20.7%). The mean participant age was 40.93 years, ranging from 25 to 59 years old. More than two-thirds of the participants reported their highest earned degree as a bachelor's degree (72.4%), and approximately one-third reported having a Master's degree (27.6%). When asked about years of experience working as a Special Education teacher, participants reported a range of 1 to 21 years with an average of 7.49 years (see Table 1).

**Table 1.** Participants' demographic for the survey

Demographic information	Category	<i>n</i>	%
Gender	Male	12	20.7
	Female	46	79.3
Age	25–39	21	36.2
	40–49	31	53.4
	50–59	6	10.3
Years of experience	1–5	34	58.6
	6–10	16	27.6
	11–15	6	10.3
	≥ 16	2	3.4
Level of academic qualification	Degree	42	72.4
	Master's degree	16	27.6
Type of occupational therapy service delivery for special education teachers	Indirect OT service*	10	17.2
	Direct OT service**	7	12.1
	OT service in the classroom***	1	1.7
	No OT service in school****	40	69

*Notes:* OT = occupational therapy; \*indirect OT service means the therapist provides training to carry out intervention in the classroom, intervention checklist for teachers, consultation, and advice on classroom accommodations or modifications; \*\*direct OT service means the therapist directly approaches the students in schools to do an intervention with the students (carried out in another room); \*\*\*OT service in the classroom means the therapist directly approaches the students in the classroom to do intervention (seating position, table task etc.); \*\*\*\*no OT service in school means the school did not receive any OT service.

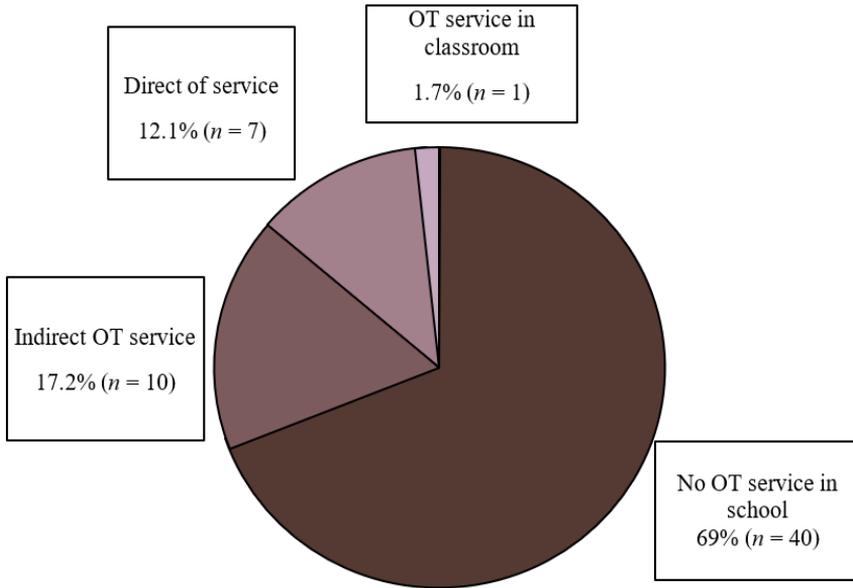
The demographic characteristics of the nine informants who participated in the semi-structured interviews are presented. Nine informants signed the consent form to participate in the semi-structured interviews. All nine informants were clustered into two interest groups: the Special Education teachers ( $n = 3$ ) and the occupational therapy officers ( $n = 6$ ). For educational background, three informants held a Master's degree and six informants had obtained a Bachelor's degree. All of the informants ( $n = 9$ ) were under 40 years of age. Regarding gender, eight informants ( $n = 8$ ) were female, and only one was male ( $n = 1$ ) (see Table 2).

**Table 2.** Participants' profiles for the semi-structured interviews

Code	Profession	Gender	Educational background
OT1	Occupational therapy officer	Female	Master's degree
OT2	Occupational therapy officer	Female	Bachelor's degree
OT3	Occupational therapy officer	Male	Bachelor's degree
OT4	Occupational therapy officer	Female	Bachelor's degree
OT5	Occupational therapy officer	Female	Bachelor's degree
OT6	Occupational therapy officer	Female	Bachelor's degree
SE1	Special education teacher	Female	Master's degree
SE2	Special education teacher	Female	Bachelor's degree
SE3	Special education teacher	Female	Master's degree

### **Status of Occupational Therapy Service in Special Education**

In the survey, when asked type of occupational therapy service delivery for special education teachers, 40 participants reported no occupational therapy service received within the school environment (69.0%), and 10 participants said that they received indirect occupational therapy service (17.2%), 7 participants reported that their students experienced direct occupational therapy service (12.1%). Only one participant experienced occupational therapy service in a classroom (1.7%). Direct occupational therapy service was exemplified by special needs students who receive direct occupational therapy service in clinics, hospitals and private centres. In contrast, indirect occupational therapy service was specified as special education teachers getting training and guidelines from occupational therapists to do intervention in the classroom. The results from the survey showed a scarcity of occupational therapy service provision in the Special Education programmes in Malaysia (see Figure 1).



**Figure 1.** The scarcity of occupational therapy service provision in the Special Education programme in Malaysia.

### **The Specific Function of Occupational Therapy Service in Special Education**

Findings from the semi-structured interviews on the function of school-based occupational therapy practitioners were mainly: (a) to provide screening for students with special educational risks, (b) to conduct individual or group assessments and interventions, (c) to train the teachers and parents on strategies to optimise the effectiveness of the intervention at home or in school and; (d) to deliver consultation on special education school placement.

The function of occupational therapy services is to provide screening for students with special educational risks. The purpose of occupational therapy screening is to identify the problem, difficulty, risk or area of intervention for students with special educational needs. The screening outcome would certify the occupational therapy service required by each special-needs student. An occupational therapist (OT2) claimed:

I did screening before I proceed with my clinical intervention to ensure that the student gets what he/she needed from occupational therapy service because not all students in special education program need occupational therapy intervention.

Next, the function of occupational therapy services is to conduct individual or group assessments and interventions. A specific assessment would take place following a screening procedure to further investigate the difficulty or risk among students with special needs. Therefore, appropriate intervention could be provided to minimise the gap of difficulties in skills. Assessment and intervention were aimed to indicate the effectiveness of occupational therapy service delivery in special education.

An occupational therapist (OT4) said:

Assessment is the most important thing to do before I proceed with my intervention. The score from an assessment tool would indicate the performance before I provide my intervention. Then, after a certain period of intervention, I will repeat the same assessment to get the performance score after the intervention is given. From there, I can justify whether my clinical intervention is effective or not.

Other than that, the role of occupational therapy services in special education is to train the teachers and parents on strategies to optimise the effectiveness of the interventions at home or in school. Providing training through workshops for parents and teachers would reflect the collaborative practice between parents, teachers and therapists. The contributing factor to the effectiveness of occupational therapy intervention was the amount and frequency of therapy sessions. Due to the shortage of school-based occupational therapists in Malaysia, there is a crucial need to empower parents and teachers to facilitate therapy sessions in school and at home. One of the special education teachers (SE1) supported:

As a special education teacher, I meet my special needs students five days a week, while the therapists only see them once a month or more. This means, if we receive training from the OTs to practice certain intervention strategies within the school environment, this might help the therapists too.

Another teacher also said, “I had attended one workshop conducted by OT last year; she shared *specific tools and techniques to teach my special needs student to write and use scissors. And I practised that in my classroom. It works! I am happy I learned those skills and strategies from the OT*” (SE2).

Furthermore, the role of occupational therapy services in special education is to deliver consultation on Special Education school placement. Providing screening, assessment and intervention is inadequate to support Special Education. An occupational therapist needs to have extensive knowledge of consultation skills about special schooling options based on the needs of the specific students. Consultation for parents is another essential skill for school-based occupational therapists.

Stakeholders such as parents and mainstream teachers would need information on the best schooling options for newly diagnosed (neurodevelopmental) students with Autism Spectrum Disorder, Dyslexia or Attention Deficit Hyperactivity Disorder. These newly

diagnosed students might not be suitable for mainstream classes or the integrated Special Education programme. Therefore, opinions and views from a subject matter expert like an occupational therapist are needed to solve this matter. An occupational therapist (OT1) said:

Since I started working as an occupational therapist within the school setting, I have always been referred by the remedial class teacher for school options for their newly diagnosed dyslexic students. Some dyslexic kids are not fit to stay in a mainstream class, while some dyslexic students are very bright, and sending them to special education programmes is not a good option. I need to visit the student in his school to identify the best school option for him to grow well in academic and co-curricular activities.

### **Challenges in The Implementation of The Occupational Therapy Practice in Special Education**

The themes that appeared on challenges encountered in the practice implementation were the inadequacy of school-based occupational therapists in the practice setting, funding deficiency in terms of facilities, political governance impact and the collaborative practice between teachers and therapists.

The main challenge in implementing practice was the inadequacy of school-based occupational therapists in the practice setting. The ratio of occupational therapists to students with special needs was extremely inadequate. An occupational therapist said (OT6):

I am the only school-based occupational therapist here to cater to special education programs for the whole state. We need at least one OT in each district. I am not capable of functioning alone.

Another occupational therapist (OT3) supported that:

Imagine that we have more than 100 special education programs in this state; I am the one to do intervention in our centre, arrange school visits, get an invitation to provide training to special education teachers and all. My waiting list has increased. I could not attend to all cases. The complaints increase as they do not receive school occupational therapy services.

The issue on human resources was the main challenges in the implementation of the occupational therapy practice in special education. The shortage qualified school-based occupational therapist in Malaysia contributed to the difficulty of meeting the growing demands of special education especially for the low function students. There is a need to provide training and professional development for school-based occupational therapists to maintain consistent development of the profession.

Besides, the funding deficiency in terms of facilities was the barrier to implementing the practice. One occupational therapists (OT4) examples highlighted this theme:

In most school or special education programs; there was no therapy room for me to do a pull-out intervention, I need a quiet place or a room to do one-to-one intervention during my school visits. But it is tough to find an empty classroom or space for the therapy session within the school environment.

The funding barrier might impact on the infrastructure such as physical resources and facilities. The implementation of school-based occupational therapy practice requires separate rooms for one on one therapy session. the situation is getting worst if the school has inadequate physical classroom to accommodate high number of special needs students. Thus, lack of facilities resulted in failure to accomodate occupational therapy practice within a school setting.

The implementation of school-based occupational therapy service also depend upon specialised equipment for assessment and intervention. Another occupational therapist (OT2) claimed:

In my centres, we do not have enough assessment and intervention tools. For example, many autistic students need sensory-based intervention or sensory integration therapy. However, there was lacked sensory-based material and equipment to execute the sensory intervention. It is disappointing because I need to spend my expenses to buy that sensory material from local stores.

As a result, providing sufficient supplies and material can be challenging due to funding constraints.

Moreover, the challenge in implementing the practice was the political governance impact. The instability of the political situation in Malaysia, where the minister for the Ministry of Education changed a few times within 2 to 3 years. This phenomenon has impacted the occupational therapy service in special education. This was supported by a claim from a Special Education teacher (SE3):

Last time, there was Zero Reject Policy practice where all children cannot be denied for school even if they need special education, but after minister changed, the policy has gone quiet. Also, the LINUS Outreach Screening Programme was demolished, and mainstream teachers in my school do not know how to refer their students who need occupational therapy services.

In addition to that, Malaysia has not yet implemented general policies that integrate occupational therapy into special education settings. Hence, the establishment of standards for occupational therapy practice in a school setting is essential to ensure quality.

Furthermore, the challenge in implementing practice was the lack of collaborative practice between teachers and therapists. A collaborative approach is very demanding to prove as evidence of effectiveness in a programme or practice. Without collaboration, the achievement of the implementation of practice is deniable. A special education teacher (SE2) claimed:

Schools need therapists to come to our school to collaborate on doing the Individual Educational Plan for our special needs students. Sometimes, we lose and do not know what to do with our students. That is why we need guidance from an expert like an occupational therapist.

Interdisciplinary collaboration between therapists, teachers and parents could bridge the gap and improve communication. Another issue is the school curriculum integration that requires occupational therapists to understand and incorporate therapeutic strategies into teaching and learning activities. This would enhance the quality of school-based occupational therapy services within the educational setting.

## **DISCUSSION**

### **Insufficient School-Based Occupational Therapists in Malaysia**

The result from this study highlighted the effect of a deficient number of occupational therapy practitioners in a special education setting in Malaysia. This situation is very unlikely in other advanced countries such as Canada, Australia, the United States, the United Kingdom, Ireland, Switzerland and Japan (Benson et al., 2019; Bolton & Plattner, 2019; Donica et al., 2012; Imms et al., 2018; Kaelin et al., 2019; O'Donoghue et al., 2021; Spencer et al., 2006). Those countries experienced challenges in providing the best model of delivery for school-based occupational therapy practitioners (Laverdure et al., 2019). This means that Malaysia is far behind these advanced countries, struggling to establish a school-based occupational therapy setting with an adequate number of therapists.

The poor frequency of Special Education teachers receiving occupational therapy services was due to the system's inadequacy of school-based occupational therapists (Zainol & Abdul Majid, 2013). The shortage of occupational therapists would impact the hospital's waitlist. When occupational therapists are overworked in the hospital setting, it will affect the ability of therapists to serve the students with disabilities in school settings. Hence, there is a considerable need to highlight the importance of having occupational therapy in Special Education. Statistics proved that very few school-based occupational therapists work within Special Education settings (Ministry of Education Malaysia, 2013). The role of a school-based occupational therapist is enormous in supporting the special education system (Nilholm, 2020; Zainol et al., 2021). Occupational therapy capacity should consider empowering special education teachers to execute specific interventions in terms of motor

skills, behaviour and cognitive skills in the classroom (Kadar et al., 2019; Zainol et al., 2022).

Occupational therapy service in Special Education is an area of increasing international attention, reflected by the World Federation of Occupational Therapy in 2016. The World Federation of Occupational Therapists emphasised the role of occupational therapists in school-based practice as essential and relevant to student well-being and maximising their school participation (World Federation of Occupational Therapists, 2017). Occupational therapists are guided to identify students' strengths and find solutions to remove challenges in learning (O'Donoghue et al., 2021). Meanwhile, the American Occupational Therapy Association's (AOTA) guidance on SBOT practice emphasises the use of expertise to enable children to prepare for and engage in significant learning and developmental activities within the school environment (Laverdure et al., 2019). Therefore, occupational therapy services in special education in the Malaysian context should consider the urge to establish and empower the role of occupational therapy in the Special Education system. Hence, awareness and understanding of the role and benefits of occupational therapy services in special education should be emphasised.

### **Facilitating The Implementation of Practice**

The research findings were significant in empowering the role of occupational therapists within a school-based intervention setting; to acquire the potential scope for SBOT service practice in Malaysia. The research would have positive impacts on multiple stakeholders, such as the service recipients (children with disabilities and their families), service providers (occupational therapists and teachers) and programme decision-makers across health and education sectors (administrative and policymakers) (Villeneuve, 2011).

The perception or belief that occupational therapy services are only offered in a hospital or clinical setting should be changed. This belief might limit the occupational therapy role and lead to hesitancy in utilising occupational therapy services within the school setting. Promoting a broader societal acceptance of the value of occupational therapy within the school setting is important to overcome the challenge in the implementation. Therefore, multiple stakeholders are needed to ensure meaningful outcomes of school-based occupational therapy services. This research is expected to impact policy, practice and research on implementing SBOT in Malaysia.

The research suggested a strategic plan (discover, dream, deliver and design) on several aspects:

1. Policy guidelines through collaborative practice between therapists and teachers.
2. Profiling the practice of school-based occupational therapy, and evaluating the impact of SBOT.

3. Research through studying the facilitating the implementation of SBOT on aspects of learning and inclusion as stated in the Article 24 for Education by the United Nation Convention on the Right of Person with Disabilities (Nadhir et al., 2016).

The plan should provide clear direction for future research on demonstrating the effectiveness and benefits of occupational therapy in special education settings in Malaysia. The research analysis could support a profound understanding of the implications of occupational therapy practices and help make well-informed decisions. Other than that, continuous evaluation of the effectiveness of occupational therapy services in special education could assist in refining and adapting strategies or approaches. Establishing a framework for input from stakeholders to provide insights into areas for improvement should also be included in the future strategy.

### **Recommendations for Practice**

This research strongly proposed a few recommendations for practice, such as providing adequate occupational therapists to support special education practice, increasing investment in special education facilities such as ideal classroom size and individual therapy rooms for visiting therapists to do a pull-out intervention, and proposing a collaborative model between special education teachers and occupational therapist to facilitate the implementation of the practice.

## **CONCLUSIONS**

In conclusion, this study provides insights and discernment on implementing school-based occupational therapy practice to support special education service delivery in Malaysia. The study highlights the need to strengthen special education provision through support service practices, particularly occupational therapy services.

## **RESEARCH ETHICS**

Full ethical approval has been granted by the ethics committee, granted by the Sekretariat Etika Penyelidikan, Universiti Kebangsaan Malaysia UKM PPI/111/8/JEP-2020-491. Permission to conduct the study was also granted by the Educational Planning and Research Development (EPRD), Ministry of Education Malaysia KPM.600-3/2/3-eras(8087).

## **DECLARATION OF CONFLICTING INTEREST**

The authors declared no potential conflicts of interest with respect to the research and/or publication of this article. The authors report no declaration of interest. The authors

declare that the research was conducted in the absence of any risk or harmful situation to the researchers and participants.

## FUNDING STATEMENT

This study is for a PhD in Occupational Therapy, which is funded by Ministry of Education, Malaysia (KPM.BBP.700-30/19/54) and Faculty of Health Sciences, Universiti Kebangsaan Malaysia. The research grant was under the Fundamental Research Grant Scheme, code FRGS/1/2020/SSIO/UKM/03/2.

## STATEMENT OF CONTRIBUTORSHIP

Mahfuzah Zainol researched literature, involved in participant recruitment, data collection and analysis, and wrote the first draft of the manuscript. Masne Kadar, Nor Afifi Razaob and Farahiyah Wan Yunus supervised, reviewed, edited the manuscript and approved the final version of the manuscript.

## ACKNOWLEDGEMENTS

The authors would like to thank the experts for their participation in the study. A note of thanks to the Educational Planning and Research Development (EPRD), Ministry of Education Malaysia, for giving permission to conduct the study KPM.600-3/2/3-eras(8087). A big thank you to the Ministry of Higher Education Malaysia for the study research grant under the Fundamental Research Grant Scheme, code FRGS/1/2020/SSIO/UKM/03/2.

## PATIENT AND PUBLIC INVOLVEMENT DATA

During the progress and reporting of the submitted manuscript, Patient and Public Involvement in the research was included in the conduct of the research.

## REFERENCES

- An, M., Palisano, R. J., Yi, C. H., Chiarello, L. A., Dunst, C. J., & Gracely, E. J. (2019). Effects of a collaborative intervention process on parent-therapist interaction: A randomized controlled trial. *Physical and Occupational Therapy in Pediatrics, 39*(3), 259–275. <https://doi.org/10.1080/01942638.2018.1496965>
- Benson, J. D., Breisinger, E., & Roach, M. (2019). Sensory-based intervention in the schools: A survey of occupational therapy practitioners. *Journal of Occupational Therapy, Schools, and Early Intervention 12*(1), 115–128. <https://doi.org/10.1080/19411243.2018.1496872>

- Bolton, T., & Plattner, L. (2019). Occupational therapy role in school-based practice: Perspectives from teachers and OTs. *Journal of Occupational Therapy, Schools, and Early Intervention, 13*, 136–146. <https://doi.org/10.1080/19411243.2019.1636749>
- Caidor, M. (2015). The evaluation of School-Based Occupational Therapy (SBOT) services in public schools: A survey of parents' and teachers' perceived knowledge, involvement, and satisfaction. *ProQuest Dissertations and Theses*, 195.
- Chee, J. D. (2016). Pearson's product-moment correlation: Sample analysis [University of Menoa]. <https://doi.org/10.13140/RG.2.1.1856.2726>
- Clough, C. (2019). School-based occupational therapists' service delivery decision-making: Perspectives on identity and roles. *Journal of Occupational Therapy, Schools, and Early Intervention, 12*(1), 51–67. <https://doi.org/10.1080/19411243.2018.1512436>
- Donica, D. K., Larson, M. H., & Zinn, A. A. (2012). Survey of handwriting instruction practices of elementary teachers and educational programs: Implications for occupational therapy. *Occupational Therapy in Health Care, 26*(2–3), 120–137. <https://doi.org/10.3109/07380577.2012.693244>
- Friedman, Z. L., Hubbard, K., & Seruya, F. (2022). Building better teams: Impact of education and coaching intervention on interprofessional collaboration between teachers and occupational therapists in schools. *Journal of Occupational Therapy, Schools, & Early Intervention, 16*(2), 173–193. <https://doi.org/10.1080/19411243.2022.2037492>
- Garfinkel, M., & Seruya, F. M. (2018). Therapists' perceptions of the 3:1 Service Delivery Model: A workload approach to school-based practice. *Journal of Occupational Therapy, Schools, and Early Intervention, 11*(3), 273–290. <https://doi.org/10.1080/19411243.2018.1455551>
- Hemming, K., Taljaard, M., McKenzie, J. E., Hooper, R., Copas, A., Thompson, J. A., Dixon-Woods, M., Aldcroft, A., Doussau, A., Grayling, M., Kristunas, C., Goldstein, C. E., Campbell, M. K., Girling, A., Eldridge, S., Campbell, M. J., Lilford, R. J., Weijer, C., Forbes, A. B., & Grimshaw, J. M. (2018). Reporting of stepped wedge cluster randomised trials: Extension of the CONSORT 2010 statement with explanation and elaboration. *BMJ, 363*, k1614. <https://doi.org/10.1136/bmj.k1614>
- Ianni, L., Camden, C., & Anaby, D. (2022). How can we evaluate collaborative practices in inclusive schools? Challenges and proposed solutions. *Journal of Occupational Therapy, Schools, and Early Intervention, 16*(3), 346–367. <https://doi.org/10.1080/19411243.2022.2054486>
- Imms, C., Froude, E., Mang, Y. C. E., Sheppard, L., Darzins, S., Guinea, S., Gospodarevskaya, E., Carter, R., Symmons, M. A., Penman, M., Nicola-Richmond, K., Hunt, S. G., Gribble, N., Ashby, S., & Mathieu, E. (2018). Simulated versus traditional occupational therapy placements: A randomised controlled trial. *Australian Occupational Therapy Journal, 65*(6), 556–564. <https://doi.org/10.1111/1440-1630.12513>
- Kadar, M., Chai, S. C., Geoh, M. K., Razaob, N. A., & Yunus, F. W. (2019). Review on the effects of occupational therapy intervention in improving handwriting skills among preschool children. *Jurnal Sains Kesihatan Malaysia, 17*(02), 89–95. <https://doi.org/10.17576/jskm-2019-1702-10>
- Kadar, M., McDonald, R., & Lentin, P. (2015). Malaysian occupational therapists' practices with children and adolescents with autism spectrum disorder. *British Journal of Occupational Therapy, 78*(1), 33–41. <https://doi.org/10.1177/0308022614561237>
- Kaelin, V. C., Ray-Kaesler, S., Moiola, S., Stalder, C. K., Santinelli, L., Echsel, A., & Schulze, C. (2019). Occupational therapy practice in mainstream schools: Results from an online survey in Switzerland. *Occupational Therapy International, 2019*, 1–9. <https://doi.org/10.1155/2019/3647397>
- Laverdure, P., McCann, M., McLoone, H., Moore, L., & Reed, L. (2019). Developing quality indicators for school practice. *Journal of Occupational Therapy, Schools, and Early Intervention, 12*(1), 38–50. <https://doi.org/10.1080/19411243.2018.1496871>
- Leigers, K. L. (2017). Social participation in schools : Developing the role of occupational therapy practitioners [Doctoral dissertation, University of Kentucky], *Theses and Dissertations--Rehabilitation Sciences*. 41. [https://uknowledge.uky.edu/rehabsci\\_etds/41](https://uknowledge.uky.edu/rehabsci_etds/41)

- Liamputtong, P. (2019). *Qualitative research methods* (5th ed.). Australia & New Zealand: Oxford University Press.
- Mekyska, J., Faundez-Zanuy, M., Mzourek, Z., Galaz, Z., Smekal, Z., & Rosenblum, S. (2017). Identification and rating of developmental dysgraphia by handwriting analysis. *IEEE Transactions on Human-Machine Systems*, 47(2), 235–248. <https://doi.org/10.1109/THMS.2016.2586605>
- Merriam, S. B. (2009). *Qualitative research: A guide to design and implementation*. San Francisco, CA: Josse Bass.
- Ministry of Education Malaysia. (2013). Malaysia Education Blueprint 2013–2025. [https://www.pmo.gov.my/wp-content/uploads/2019/07/Malaysia-Education-Blueprint-2013-2025.pdf?utm\\_source=chatgpt.com](https://www.pmo.gov.my/wp-content/uploads/2019/07/Malaysia-Education-Blueprint-2013-2025.pdf?utm_source=chatgpt.com)
- Missiuna, C. A., Pollock, N. A., Levac, D. E., Campbell, W. N., Whalen, S. S., Bennett, S. M., Hecimovich, C. A., Gaines, B. R., Cairney, J., & Russell, D. J. (2012). Partnering for change: An innovative school-based occupational therapy service delivery model for children with developmental coordination disorder. *Canadian Journal of Occupational Therapy*, 79(1), 41–50. <https://doi.org/10.2182/cjot.2012.79.1.6>
- Missiuna, C., Pollock, N., Campbell, W., Decola, C., Hecimovich, C., Whalen, S. S., Siemon, J., Song, K., Gaines, R., Bennett, S., McCauley, D., Stewart, D., Cairney, J., Dix, L., & Camden, C. (2017). Using an innovative model of service delivery to identify children who are struggling in school. *British Journal of Occupational Therapy*, 80(3), 145–154. <https://doi.org/10.1177/0308022616679852>
- Nadhir, M., Alfa Nur, A. N., & Erman, A. (2016). Special Education for children with disabilities in Malaysia: Progress and obstacles. *Geografia: Malaysian Journal of Society & Space*, 12(10), 78–87.
- Ng, S. L., Lingard, L., Hibbert, K., Regan, S., Phelan, S., Stooke, R., Meston, C., Schryer, C., Manamperi, M., & Friesen, F. (2015). Supporting children with disabilities at school: Implications for the advocate role in professional practice and education. *Disability and Rehabilitation*, 37(24), 2282–2290. <https://doi.org/10.3109/09638288.2015.1021021>
- Nilholm, C. (2020). Research about inclusive education in 2020: How can we improve our theories in order to change practice? *European Journal of Special Needs Education*, 36(3), 358–370. <https://doi.org/10.1080/08856257.2020.1754547>
- O'Donoghue, C., O'Leary, J., & Lynch, H. (2021). Occupational therapy services in school-based practice: A paediatric occupational therapy perspective from Ireland. *Occupational Therapy International*, 2021, 1 – 11. <https://doi.org/10.1155/2021/6636478>
- Polit, D. F., & Beck, C. T. (2009). International gender bias in nursing research, 2005–2006: A quantitative content analysis. *International Journal of Nursing Studies*, 46(8), 1102–1110. <https://doi.org/10.1016/j.ijnurstu.2009.02.002>
- Rens, L., & Joosten, A. (2014). Investigating the experiences in a school-based occupational therapy program to inform community-based paediatric occupational therapy practice. *Australian Occupational Therapy Journal*, 61(3), 148–158. <https://doi.org/10.1111/1440-1630.12093>
- Restall, G., Diaz, F., & Wittmeier, K. (2020). Why do clinical practice guidelines get stuck during implementation and what can be done: A case study in pediatric rehabilitation. *Physical & Occupational Therapy in Pediatrics*, 40(2), 217–230. <https://doi.org/10.1080/01942638.2019.1660447>
- Sharma, S. (2013). Qualitative approaches in Mathematics education research: Challenges and possible solutions. *Education Journal*, 2(2), 50. <https://doi.org/10.11648/j.edu.20130202.14>
- Spencer, K. C., Turkett, A., Vaughan, R., & Koenig, S. (2006). School-based practice patterns: A survey of occupational therapists in Colorado. *American Journal of Occupational Therapy*, 60(1), 81–91. <https://doi.org/10.5014/ajot.60.1.81>
- Villeneuve, M. (2011). Learning together: Applying socio-cultural activity theory to collaborative consultation in school-based occupational therapy practice [Doctoral dissertation, Queen's University, Canada]. Retrieved from <http://qspace.library.queensu.ca>

- Wilson, A. L., & Harris, S. R. (2018). Collaborative occupational therapy: Teachers' impressions of the Partnering for Change (P4C) Model. *Physical and Occupational Therapy in Pediatrics*, 38(2), 130–142. <https://doi.org/10.1080/01942638.2017.1297988>
- World Federation of Occupational Therapist. (2017). Definition of occupational therapy. <https://wfot.org/resources/definitions-of-occupational-therapy-from-member-organisations>
- Zainol, M., & Abdul Majid, R. (2013). Pelaksanaan terapi cara kerja demi penguasaan kemahiran motor halus murid bekeperluan khas di sekolah (The implementation of occupational therapy service in acquiring fine motor skills for special needs children in school). *Journal of Special Education*, 3(1), 81–91.
- Zainol, M., Kadar, M., Razaob, N. A., & Yunus, F. W. (2021). The need for a handwriting intervention guideline for occupational therapists in the Malaysian context. *Journal of Occupational Therapy, Schools, & Early Intervention*, 22(1), 1–22.
- Zainol, M., Kadar, M., Razaob, N. A., & Yunus, F. W. (2022). The effectiveness of occupational therapy handwriting intervention for children with motor coordination issues: A systematic review. *Jurnal Sains Kesihatan Malaysia*, 20(2), 161–177. <https://doi.org/10.17576/JSKM-2022-2001-15>