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## Feature Article

# Fine motor difficulties: The need for advocating for the role of occupational therapy in schools

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**Background:** Fine motor difficulties can impact on the academic, social and emotional development of a student.

**Aim:** The aims of this paper are to: (i) investigate the need for support to students experiencing fine motor difficulties from the perspective of their classroom teachers, and (ii) report on the level of knowledge teachers have in regard to the role of occupational therapists in supporting students with fine motor difficulties.

**Methods:** Fifteen teachers from a stratified random sample of public schools within two regions of Victoria, Australia, were interviewed in this qualitative, grounded theory investigation.

**Results:** Results showed that the current level of support for students with fine motor difficulties is inadequate.

**Conclusion:** Occupational therapists in Victoria need to advocate their role in developing the fine motor skills of students at both an organisational and an individual level in order to increase the access of students with fine motor difficulties to occupational therapy services.

**KEY WORDS** advocate, childhood development, consultation, education, teachers.

## Introduction

Fine motor skills are an important component of childhood development (Beilei, Lui, Qu & vonHofsten, 2002; Rosenblum, Weiss & Parush, 2003) and become critical skills when a child reaches school age because

fine motor ability in tasks such as cutting and writing is expected in daily school activities. There is a high rate of fine motor difficulties among the school-age population in the USA (Hammerschmidt & Sudsawad, 2004), and many students in Victoria, Australia do not receive additional classroom support for their fine motor difficulties (Snelling, 2003). Studies have shown that occupational therapy intervention leads to improvement in the skills of students with fine motor difficulties (Case-Smith, 2002; King *et al.*, 1999; Palisano as cited in Whalen, 2002). Limited resources and a lack of knowledge among teachers in regard to occupational therapy services may limit a student's access to these services.

The aims of this paper are to report on the need for support to students with fine motor difficulties from the perspective of teachers, and to present findings on the level of knowledge that Victorian teachers have in regard to the role of occupational therapists in supporting students experiencing fine motor difficulties. The results reported within are part of a larger study on students with fine motor difficulties in Victorian government schools.

This paper will briefly explore the literature in regard to the importance of fine motor skills and the role of occupational therapy in supporting students with fine motor difficulties. A description of the research will be provided and results and conclusions of the present study will be discussed in regard to implications for the occupational therapy profession.

## Importance of fine motor skills

Difficulty with fine motor skills can have detrimental effects on the academic, social and emotional development of a student (Beilei *et al.*, 2002; Rosenblum *et al.*, 2003). In the USA, the prevalence of fine motor difficulties has been estimated to be as high as 20% in the primary school-age children (Hammerschmidt & Sudsawad, 2004). This is a concern given that students may spend as much as 60% of their school day carrying out fine motor tasks (McHale & Cermak, 1992). Fine motor capacities greatly contribute to handwriting

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ability; handwriting being the primary method by which a student can display to a teacher what they have learnt (Hammerschmidt & Sudsawad; Rosenblum *et al.*).

The significant amount of time spent performing fine motor tasks, and the effect a difficulty in this area can have on a student, makes fine motor skills a critical component in a child's overall development. Despite this, resources may be inadequate to provide students who experience fine motor difficulties with important educational opportunities (Snelling, 2003).

## The role of occupational therapy

Occupational therapists have the skills and knowledge to assist students experiencing fine motor difficulty (Case-Smith, 2000). Occupational therapists are often called on to assist students with handwriting and with other fine motor difficulties, and may address these difficulties through proprioceptive, vestibular and tactile intervention (Case-Smith).

Occupational therapy intervention has been shown to have a positive effect on students with fine motor difficulties (Case-Smith, 2002; King *et al.*, 1999; Palisano as cited in Whalen, 2002). In an investigation by Case-Smith, it was found that students who received occupational therapy services for handwriting difficulties showed improvement in their handwriting legibility. Oliver (as cited in Whalen) found that weekly occupational therapy sessions and regular client practice led to increased writing readiness in 5- and 6-year-olds experiencing fine motor performance difficulties. In a study by Lockhart & Law (as cited in Whalen), teachers reported that occupational therapy intervention had a positive effect on students' confidence in their written work.

Despite the potential benefits of occupational therapy intervention, students with fine motor difficulties are often unable to access occupational therapy services. It has been suggested that teachers may have a limited awareness of the role of occupational therapy (Mu, Royeen, Paschal & Zardetto-Smith, 2001). Chakravorty (1993) suggested that access to a therapy service is directly related to the level of knowledge that people have about service. School teachers are in a position to refer children with fine motor difficulties to occupational therapy. As teachers are a referral source for occupational therapy, it is important to gain an understanding of their knowledge of occupational therapy.

## Study aims

An Australian study was carried out in two regions in Victoria. The study aimed to investigate teachers' perspectives regarding the need for support for students

experiencing fine motor difficulties; and to investigate the level of knowledge that Victorian teachers have regarding the role of occupational therapists in supporting students experiencing fine motor difficulties.

## Participants

A total of 15 teachers employed in Victorian government schools who had experience teaching students with fine motor difficulties participated in the research. See Table 1 for the participants' full description.

## Procedure

Ethical approval was obtained from Deakin University and the Department of Education and Training, Victoria. Stratified random sampling was used within two regional samples, in order to achieve a diverse range of participants according to the school's characteristics such as enrolment size, rurality index and access to resources. Twenty-seven schools within the Barwon South West and Wimmera regions of Victoria were short listed for the research. Principals were contacted and 18 of those short listed approved the research. Principals were sent a research information package and were asked to identify a teacher within the school who met the participant criteria and was willing to be involved in the research. Teachers were asked to read the plain language statement and to return a signed consent form to the researcher. Fifteen teachers returned the consent form within the research timeline. Semistructured interviews were conducted with 12 participants. A focus group was conducted with three participants teaching at the same school. Questions explored the participants' knowledge of occupational therapy services, the need for support to students experiencing difficulty with fine motor skills and the exploration of effective practices in the provision of occupational therapy services. Interview notes were taken by the researcher, and member-checks were carried out at the completion of the interview to verify that recorded data were correct (Holloway, 1997). Participants were invited to give further inputs should they feel there was any important information that was not covered in the interview questions. The focus group was audiotaped and taped interviews were transcribed verbatim.

## Data analysis

As suggested by DePoy & Gitlin (1998), a constant, comparative approach to data analysis was taken for this grounded theory investigation. Each dataset was analysed according to the aims of the study and for additional themes that arose throughout the interview. These themes were compared and contrasted to the datasets that had been collected and analysed previously. When data collection was complete, all data were collated according to interview questions. These

**TABLE 1:** *Participant description*

	Number of teachers
Sex ( <i>n</i> = 15)	
Male	2
Female	13
Years of experience ( <i>n</i> = 15)	
0–5	2
6–10	3
11–15	1
16–20	1
21–25	2
26+	6
Year level currently teaching ( <i>n</i> = 15)†	
Prep	5
1	4
2	3
3	2
4	2
5	2
6	2
Disability coordination role ( <i>n</i> = 15)	
Yes	3
No	12
ARIA‡ Index of school ( <i>n</i> = 13)	
0.00–0.50	4
0.51–1.00	—
1.01–1.50	1
1.51–2.00	2
2.01–2.50	3
2.51–3.00	3
3.01+	—
Enrolment size of school ( <i>n</i> = 13)	
0–100	2
101–200	—
201–300	5
301–400	2
401–500	3
500+	1

†Composite grades are included separately, thus leading to a greater no. of responses.

‡The Accessibility/Remoteness Index of Australia (ARIA) scores the rurality of towns and cities within Australia according to distance from town centres and capital city (Department of Health and Aged Care, 2001).

data were then analysed for themes, themes were grouped and the data were re-analysed until no new themes emerged. Reflective research memos were written by the researcher throughout the data collection phase to keep track of emerging ideas, as suggested in Rice & Ezzy (1999).

## Results and discussion

Two main themes emerged from the data: (i) the need for additional support to students experiencing fine motor difficulties and their classroom teachers, and (ii) the lack of awareness that teachers have in regard to the ability of occupational therapists to support students with fine motor difficulties.

### Need for support

Results indicated that the current level of support for students with fine motor difficulties in Victorian government schools is inadequate.

Participants predicted the number of students with fine motor difficulties to be approximately two to three in every class size of 22 children. This prediction is lower than that of previous studies conducted in the USA (Hammerschmidt & Sudsawad, 2004). Research is needed to determine the prevalence of fine motor difficulties among the Australian school-age population. In Australia, it is known that one in every 225 children aged 2 to 17 years has a diagnosis of autism (Icasiano, Hewson, Machet, Cooper & Marshall, 2004). Attention deficit hyperactivity disorder has been estimated at 7.5% in Australians aged 6–17 years (Graetz, Sawyer, Hazell, Arney & Baghurst, 2001) and cerebral palsy occurs in 2–2.5 of every 1000 live births in Australia (Goyen, Lui & Woods, 1998). If it can be shown that prevalence rates for fine motor difficulties in the school-age population are similar to those predicted by participants in this study, then rates will warrant attention.

A lack of support to students experiencing fine motor difficulties was identified by teachers in this study. No student with fine motor difficulties that participants had taught either in past or in present received funding for these difficulties. One participant stated:

We have support for one student because she has other issues as well, but if it was purely a fine motor thing she wouldn't get funding.

A common theme among participants was that integration aid time allocated to funded students was regularly utilised to assist students with fine motor difficulties who were not eligible for support. The use of integration aid time to assist students experiencing fine motor difficulties suggests that there is a need for support to this population group. The need for support was further evident through two participants seeking advice from the researcher at the time of interview. These two participants were experiencing great difficulty coping with a student with fine motor difficulties in their classroom, and had been unable

to access any support for this concern. The following quote exemplifies this issue:

I know the student has problems, but where do I go for help?

Participants identified that students with fine motor difficulties were often at a lower academic level compared to their peers. Participants suggested that fine motor difficulties may cause a student to avoid activities in which fine motor skills are required. This may greatly impact on a student's participation in occupations, which may have ongoing implications for the child's life course.

While participants felt that students with fine motor difficulties did make improvements with additional attention, it was noted these students rarely developed to a performance level equal to that of their peers. Comments were made such as:

They [students with fine motor difficulties] do make their own little improvements but they don't catch up to the rest of the class.

If students are provided with regular and consistent one-on-one time they improve, however, they often revert back to bad habits as soon as the teacher stops prompting them.

While participants used strategies such as threading, stickers and pencil grips to assist students with fine motor difficulties, they admitted that such intervention did not always bring about improvement in these students.

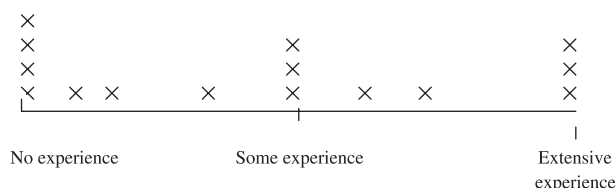
Participants who had been involved with a student receiving occupational therapy noted the marked improvement that occurred as a result of this support. This finding supports previous studies that have found occupational therapy intervention to have positive effects on children experiencing fine motor difficulties (Case-Smith, 2002; King *et al.*, 1999; Palisano as cited in Whalen, 2002). The following quote exemplifies this recognition:

Students receive definite benefits from ongoing OT intervention ... A six week intervention program can make a world of difference for students with fine motor difficulties.

Teachers who had seen occupational therapy intervention in action noted its benefits; however, few of the participants in this study were aware that occupational therapists were qualified to assist a student with fine motor difficulties.

## Teachers' awareness of occupational therapy

Participants suggested that teachers may have a limited awareness of the role of occupational therapists



**FIGURE 1:** *The range of participant experience with occupational therapy (X = 1 participant)*

within the school. This, along with limited resources, may affect the level of access of a student experiencing fine motor difficulties to occupational therapy services.

Participants varied in their level of knowledge in regard to the occupational therapy role within a school context. This variation is represented in Figure 1. Results indicate that many teachers are unaware that occupational therapists are equipped to support students experiencing fine motor difficulties. It appears that many teachers see fine motor difficulties as something they need to address unsupported within the classroom, accommodating for students as best they can, but accepting that these students may not make significant improvements. In regard to accommodating for students with fine motor difficulties, one participant commented:

I never knew that there was someone available to help out with [fine motor] activities to do in the classroom. I thought you just had to work activities out as best you could.

Participants showed enthusiasm towards the possibility of occupational therapy support for students with fine motor difficulties. The following were identified as information/services teachers would seek from an occupational therapist:

- Group activities: less than 5-min tasks that coincide with the current curriculum
- Information for parents: how fine motor difficulties affect a child, activities for home, the level of improvement parents can expect to see in their child
- Individual classroom strategies and activities
- Background information: the causes and effects of fine motor difficulties
- Resources — possible assistive equipment and where to purchase this equipment
- Activities for older students (above grade 2)
- A full assessment of students who do not respond to the above strategies

A need for increased awareness of support to students with fine motor difficulties among teachers was identified by participants. Participants identified professional development sessions as a method through which this awareness could be increased among teachers.



It was unanimous among participants that, if a support service for students with fine motor difficulties was available, they would utilise that service. Teachers suggested that they may access an occupational therapy service for background information on, and general strategies to overcome, fine motor difficulties.

Three of the 15 participants were aware of the services an occupational therapist could provide to teachers. These findings raise the issue that occupational therapists may need to advocate for their role as specialists in the field, qualified to support students with fine motor difficulties. In doing so, occupational therapists are increasing the likelihood that students experiencing fine motor difficulties will be provided with the best support available to them in order to maximise their educational opportunities.

One respondent of this study described a service in the Melbourne metropolitan area in which a qualified teacher was employed by the Department of Education to visit schools in the area and to provide resources, and 'OT stuff' (i.e. non-slip mats and elevated boards) to students with physical disabilities. Occupational therapists have the knowledge and skills to assist students experiencing fine motor difficulties and the occupational therapy profession needs to advocate their unique and important role in working with students within the school environment (Royeen & Marsh, 1988). One participant recognised that teachers do not have the specialist skills that an occupational therapist can provide for a student experiencing fine motor difficulties:

We [teachers] really are only dealing with the surface issues, what we can actually see, we don't know if there's any muscular reason, if there's any eye problem or whatever.

Unless teachers are aware that occupational therapy support is available, there will be students who will not benefit from these services. Hence, promotion of occupational therapy services is required.

There is an abundance of literature that highlights the importance of promoting the unique and important role of occupational therapists (for example, Dickenson, 2003; Jamnadas, Burns & Paul, 2001; Royeen & Marsh, 1988; Ungerer, 2002; Wilcock, 1999). Von Zweck (2004) suggested that there is a need for advocacy among therapists, to promote the unique contribution that occupational therapists can make to the lives of people. In her presentation of the 1999 Sylvia Docker Lecture, Wilcock recognised the importance of both individual and organisational actions on the growth and development of the occupational therapy profession in today's society. Specifically, Royeen and Marsh recognised that unless occupational therapists can

prove their important role in the successful education of students, the provision of school-based occupational therapy services will continue to be limited.

## Limitations and future research

Because of the low number of participants in this study, findings cannot be generalised to the Victorian teacher population. Larger-scale research is needed to fully determine the developmental and participatory implications for students experiencing fine motor difficulties. Investigation is needed to determine whether or not increasing the awareness of teachers in regard to occupational therapy services would in fact increase the access of students with fine motor difficulties to these services, given the existing resource restrictions.

## Conclusion

This paper set out to explore the need for occupational therapy support to students with fine motor difficulties and their teachers. It also investigated the current level of knowledge that some regional Victorian teachers have in regard to the role of occupational therapists.

A higher level of support is needed to provide students experiencing fine motor difficulties with the educational opportunities that every individual deserves. Teachers need not attempt to assist students with fine motor difficulties unsupported in the classroom. Occupational therapists have the skills and knowledge to assist in the development of fine motor skills of students experiencing difficulty in this area.

A lack of resources and limited knowledge of occupational therapy services among teachers may be restricting access to support services for some students with fine motor difficulties. Unless teachers are aware that support is available, it is unlikely that they will refer students to these services.

Occupational therapists need to promote their role in supporting students with fine motor difficulties and advocate for the right of these students to receive the additional support they require. Occupational therapists can create the opportunities for students with fine motor difficulties to flourish to their full potential, and encourage their participation in the occupational roles that are so important to being a student.

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