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Investigation of Teachers' Verbal and Non-verbal Strategies for Managing Attention Deficit Hyperactivity Disorder (ADHD) Students' Behaviours within a Classroom Environment

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Abstract: This paper investigated teachers' verbal and non-verbal strategies for managing ADHD students in a classroom environment. It was found that effective verbal and non-verbal strategies included voice control, short phrases, repeated instructions, using students' names, and visual cues and verbal instructions combined. It has been found that teachers' talk is instrumental in gaining the students' attention and that strategic teachers' talk can result in students calming down or communicate better with the ADHD students, however, teachers' non-verbal strategies were found more useful in classroom management. Teachers may find this paper useful in developing more confidence in managing ADHD students' challenging behaviours, implementing positive strategies in the classroom that lead to more time learning and less time managing behaviours, and improving their relationships with students in the classroom environment.

Introduction

Attention Deficit Hyperactivity Disorder (ADHD) affects more and more children around the world, as it occurs across all socioeconomic, cultural, and racial backgrounds and affects individuals of all intelligence levels (for example, Barkley, 2006; Loe & Feldman, 2007; Sonuga-Barke, 2002, 2003).

The *Diagnostic and Statistical Manual of Mental Disorders* (American Psychiatric Association, 1995) defines the essential feature of ADHD as a persistent pattern of inattention and/or hyperactivity-impulsivity that is more frequent and severe than is typically observed in individuals at a comparable level of development, ADHD is currently seen as a neurobiological, developmental disability (Deault, 2009; DeShazo Berry, Lyman & Klinger, 2002; Rapport, Scanalan & Denney, 1999). Children who are diagnosed with ADHD are constantly having difficulties in the classroom environment (DuPaul, McGoey, Eckert & VanBrakle, 2001; Loe & Feldman, 2007) and after their graduation (Murphy, Barkley & Bush, 2002) and more likely to be expelled, suspended or repeat grades (Lefever, Villers, Morrow & Vaughn, 2002).

If a child is diagnosed with ADHD and a treatment plan is established, it may be the responsibility of the teacher to implement an intervention in the classroom (for example, Davis & Florian, 2004; Vereb & DiPerna, 2004). Although few studies have evaluated the long-term effectiveness of psychotropic medications managing challenging behaviours in ADHD children, researchers have suggested that the variables which affect treatment effectiveness include a teacher's knowledge of a student's problem, knowledge of the intervention, or the acceptability of the intervention, such as how appropriate the intervention

is perceived by the classroom teacher (Vereb & DiPerna, 2004), and teachers and clinicians may need to communicate with one another about their expectations to create intervention solutions for ADHD students (Power, Hess & Bennett, 1995).

ADHD students' behaviours include distractibility, impulsivity, and hyperactivity (Barkley, 2006). Assessing and treating children with ADHD has been a controversial challenge. Although some research (for example, Davis & Florian, 2004) has found that it is important for educators to begin focusing on implementing successful interventions in their classrooms, there has been little research conducted on the impact and effects of teacher factors, which include teachers' understanding of ADHD, philosophies on intervention, experience, and tolerance levels with respect to ADHD behaviors in the classroom (Sherman, Rasmussen & Baydala, 2008).

Creating a classroom that is conducive to learning begins with the "development of human relationships that are functional and reciprocal" (Arthur-Kelly, Lyons, Butterfield, & Gordon, 2006, 61). A positive teacher attitude is the key to a positive and productive learning environment and is achievable by enhancing students' socialisation. Strong teacher student relationships can make all the difference in the success of a student and are achievable when the teacher utilises key elements of socialisation such as the "modelling and instruction of prosocial behaviour, communicating positive expectations, attributes, and social labels; and reinforcing desired behaviour" (Brophy, 1996). If the teacher has a positive attitude towards their students, and they believe and act as if all their students will be successful, then students will live up to those expectations. A positive teacher-student relationship built on trust, understanding and mutual respect, and where communication is open supports students academically, socially and personally.

Communication is a complex process and includes the entire environment, for the "concept of communication involves not only the verbal message, but the non verbal message as well" (Uko, 2006). Arthur-Kelly et al. (2006) claims that advance organisation of the physical classroom environment is of fundamental importance and will influence the attitudes, behaviours and expectations of students as the classroom aesthetics are considered part of the overall development of the classroom ecology. When the environment is welcoming and "enables children to meet their basic needs", students feel safe and supported and are more "able to devote effort to achieving self actualisation through learning" (Arthur-Kelly et al., 2006, 124). Therefore, in classroom management, teachers' good communication skills facilitate problem solving and the resolution of conflicts. Communication is therefore a fundamental component in promoting positive behaviour and a positive classroom climate for classroom teachers. On the contrary, poor communication skills can lead to disruptive behaviours that can hinder a teacher's management of a classroom, owing to the reason that communication is a two-way process which involves sending and receiving messages. To assist students in becoming comfortable in their learning environment, Arthur-Kelly et al., (2006) suggests that "clear behaviour standards are necessary" and should be established as soon as possible. Therefore, "the development and implementation of clear organisational routines and procedures" (Arthur-Kelly et al., 2006, 142) need to be established so that any anxiety or confusion that students may be experiencing in regards to "behavioural expectations is reduced" and a positive learning environment enhanced as students feel more secure as they are aware of the behaviour that is expected of them individually and as a class. Teachers who maintain a positive learning environment by establishing and maintaining clear student expectations not only support the developmental needs of their students academically, but also socially and personally (Portel, 2000).

Various strategies for managing and motivating ADHD children have been developed and implemented in schools, including:

- peer-monitoring development, for example, McEvoy and Walker, 2000;

- cognitive-behavioural approaches, for example, Ervin, Bnakert and DuPaul, 1996; Miranda and Presentacion, 2000; Van de Wiel, Mattys, Cohen-Kettenis, and Van Engeland, 2002;
- behavioral approaches of positive reinforcement, for example, Weiss and Weisz, 1995; Purdie, Hattie and Carroll, 2002; Root and Resnick, 2003; and
- a combination of approaches, for example, Graham, 2008; MTA Co-operative Group, 1999; National Institute of Mental Health, 2003; and
- parental training programs, for example, Deault, 2009; Van de Wiel et al., 2002.

Among the above strategies, much has been debated about the power of words and non-verbal strategies used by teachers, and the impact they have on their students (Staples, 2010). Sherman et al (2008) found that ADHD children received one of three types of scaffolding (speech-only, gesture-only and speech and gesture) and the degree to which teachers use hand gesture in coordination with speech during instructions, can impact performance among ADHD children (Wang, Bernas & Eberhard, 2004).

Although some research (for example, Fairbanks & Stinnett, 1997; Snider, Busch & Arrowood, 2003; Vereb & DiPerna, 2004) were also conducted about the ADHD students' characteristics, such as age, and gender, amid the many challenges facing teachers today, perhaps one of the biggest is choosing the right words or verbal strategies for managing challenging behaviours of the students who are diagnosed with ADHD. Where there is a good rapport between teachers and those students, practical strategies will be more effective. McEvoy and Walker (2000) and Galey (2007) have developed resources for teachers to assist them to understand ADHD and develop teaching and behaviour management strategies that are effective and respectful of ADHD students and their peers. McDonald (2010) also stated that developing positive and consistent relationship was very important in classroom management, with non-verbal communication such as facial expression, tone of voice and gestures.

The best practice teachers can follow is to become informed about the recommended strategies for managing ADHD and analyse their beliefs about the condition and how they will support their students. Galey (2007) offers clear suggestions, which include (a), making frequent use of students' names; (b), standing close when giving instructions and maintaining eye contact; (c), using specific and direct instructions; (d), illustrating and writing instructions in addition to speaking them; and (e), develop rapport with the students and treating them with respect (Galey, 2007,48). However, children were more responsive and more successfully in completing the tasks when teachers used more gestures either speech and gestures or gesture only scaffolding techniques (Wang et al, 2004). It was also found in Golin-Meadow, Alibali and Church (1993)'s research, that usefulness of accompanying speech with gestures, such as more visual, can provide additional information and appear less abstract compared to spoken instructions.

Although teachers have a strong influence on students, both behaviourally and educationally, it is very important to ensure that they are aware of how to talk to ADHD students to prevent any negative outcomes, given that ADHD students have been found to be prone to academic failure, negative social behaviour and impaired relationships with peers. Witt and Martens (1983) found that the main component influencing intervention acceptability ratings is the perception of whether the intervention is to be helpful for a child and suitable for the mainstream classroom settings (Sherman et al, 2008). In fact, more traditional forms of behaviour management, such as negative behavioural sanctions and extensive verbal instructions have been found to be ineffective in managing ADHD students' behaviour (DuPaul & Weygandt, 2006), and some strategies have been found to be condescending and cause students to resent teachers and schools (Prosser, 2008). The

establishment of good and positive relationships with students will encourage greater responsibility for behaviour and learning.

From the review of literature, there is a need of more research to better understand the role that teachers' verbal and non-verbal strategies play in ADHD students' behavior management in a classroom setting. This paper reports an investigation into teachers' verbal and non-verbal strategies that might encourage positive behaviours from ADHD students and ultimately improve their educational and behavioural outcomes.

Methods

This research used qualitative research methodology. Observation has been used as a "fundamental basis of all research methods" in the social and behavioral science (Denzin & Lincoln, 2005). Denzin and Lincoln (2005) further stated that it is possible to conduct observations in settings that are natural loci of those activities that may be the result of a controlled experiment. Therefore, in this study, semi-structured field observation was used to collect information about teaching strategies within a classroom.

Participants

This research was conducted by five researchers in three Australian schools: in Beaudesert, Queensland; Darwin, Northern Territory; and Adelaide, South Australia. In each school, two students who had been diagnosed with ADHD were selected. Four out of the six students took ADHD medications. The students were labelled 'A' and 'B' (Queensland), 'C' and 'D' (Northern Territory) and 'E' and 'F' (South Australia). All the participants were male students.

Procedures

The six ADHD students were observed with the support of the participating schools. The consent of teachers and parents was obtained before the observations were undertaken. The observations were conducted during a range of sessions, such as morning (9 am - 11 am), afternoon (1 pm - 3 pm), and lunch (12 noon - 1 pm) and activities, such as school photo shoots and the administering of medication.

Observations were carried out with the minimum of disruption to class teaching and time frames varied from one to four days, depending on the students.

All researchers used the same form to record their observations. This included three sections: (a), the student's ADHD behaviours; (b), the teacher's verbal and non-verbal strategies; and (c), the student's response to the teacher's strategies. After each observation, the researchers worked collaboratively to discuss what they had witnessed.

Results

It was found that all the teachers used both verbal and non-verbal strategies in their classroom management. However, owing to the differences among the strategies, the outcomes of classroom management and teacher's intervention were different. This paper presented three examples (see Figures 1, 2 and 3).

Figure 1 shows an observation of Student A's behaviours, his teacher's strategies and A's response to them. Student A had difficulty sitting still and focusing his attention. The teacher made repeated attempts to refocus his attention by using short, firm use of his name and single-word instructions. The verbal words attracted the student's attention temporarily. The teacher also repeated instructions many times so that the student's attention was drawn back to tasks. It was also noted that the teacher also used some non-verbal strategies, such as gently touching the student's shoulder and helping point out the tasks for the students. This strategy gained his attention momentarily, before he was back off task again and moving around.

A's behaviours observed:

- being restless
- continual moving around, out of place during carpet session
- constantly talking with other students during times for listening
- fidgeting
- crawling around
- constantly in and out of seat during writing tasks
- fidgeting in neighbour's desk
- being off task constantly
- at the back of the room playing with blocks when others are writing
- drawing on the board with chalk when not supposed to be
- fidgeting with a stick
- making noises
- touching others
- spitting blocks out of his mouth
- writing letters and markings all over the pages in his book
- not following instructions
- having difficulty in holding his pencil and eraser.
- copying words from the board with no coherent sentence structure

Teachers' strategies:

Verbal

- short, firm instructions.
- using student's name often
- loud, sharp instructions, whispered instructions
- 'Stop'; 'No'; 'Turn around'; 'Move over there'; 'Ssh'; 'Sit down 'A'
- repeating instructions

Non-verbal

- touching 'A's shoulder when giving him an instruction
- gesturing, pointing

Student's response to strategies:

- momentary refocusing. followed by return to restless behaviours

Figure 1: Examples of observation of Student A (morning session, Day 2)

Figure 2 shows an observation of Student D, his teacher's strategies and D's response to them. Although the teacher also used firm and short verbal instructions, such as calling the student's name and positive reinforcement of the student's good behavior, the teacher also used a non-verbal strategy of turning around and ignoring the student. It showed that the teacher did not have control or management over the student and the student tended to do as he pleased when and how he wanted to. Moreover, the student constantly resisted the instructions from the teacher and interrupted the class when the teacher was trying to get it ready for school photos. During the class, Student D's behavior was ignored, and the teacher

was struggling to implement strategies in the classroom that assisted in managing his behaviours. Student D was not on medication.

D's behaviours observed:

- constantly walking out of the classroom
- calling out
- back chatting the teacher
- continually making comments while the teacher is trying to address the class to get ready for school photo.
- not following instructions
- being restless
- constantly out of his seat, moving around the classroom
- making noises with a leaf
- swinging on chair
- not remaining on task at all
- saying rude comments about other staff members
- yelling out to special education teacher 'No, I'm not going'
- talking with other students while the teacher is trying to address the class

Teacher's strategies:

Verbal

- short, sharp instructions, using student's name
- constant reinforcement of instructions
- firm, loud voice to gain student's attention
- positive reinforcement of good behavior
- use of calm voice: 'Calm down. I need you to calm down'

Non-verbal

- turning around and ignoring student's behaviour

Student's response to strategies:

- Ignoring teacher's attempts to curb his behaviour
- Talking back to the teacher: 'I don't care'; 'I am going to get my socks'
- Walking out of the classroom
- Stopped challenging behavior for approximately 20 seconds and then did the same thing again.
- Calmed down instantly when the teacher used a calm voice and calming words

Figure 2: Examples of observation of Student D (morning session, Day 1)

Figure 3 shows an observation of Student E, his teacher's strategies, and E's response to them. The afternoon session was calm compared with the morning. Student E was only able to spend half a day at school due to his behaviour in class and knowing that home time is approaching seemed to settle E. The behaviour was managed with a firm reminder and activities were hands on, to allow for movement. This also benefited other students in the class. Student E was keen to leave school and repeated requests to leave early were met only with eye contact and a shake of the head. It was found that the teacher also used similar

verbal strategies such as using firm and short instructions to attract the student's attention, however, Student E stopped the challenging behavior for a short time and walked out of the classroom. It was also found that the teacher used eye contact, and visual hand gestures to gain the student's attention successfully. However, after several trials, the teacher lost her patience and shook her head, which completely lost control of the student and Student E continued his responses (see Figure 3).

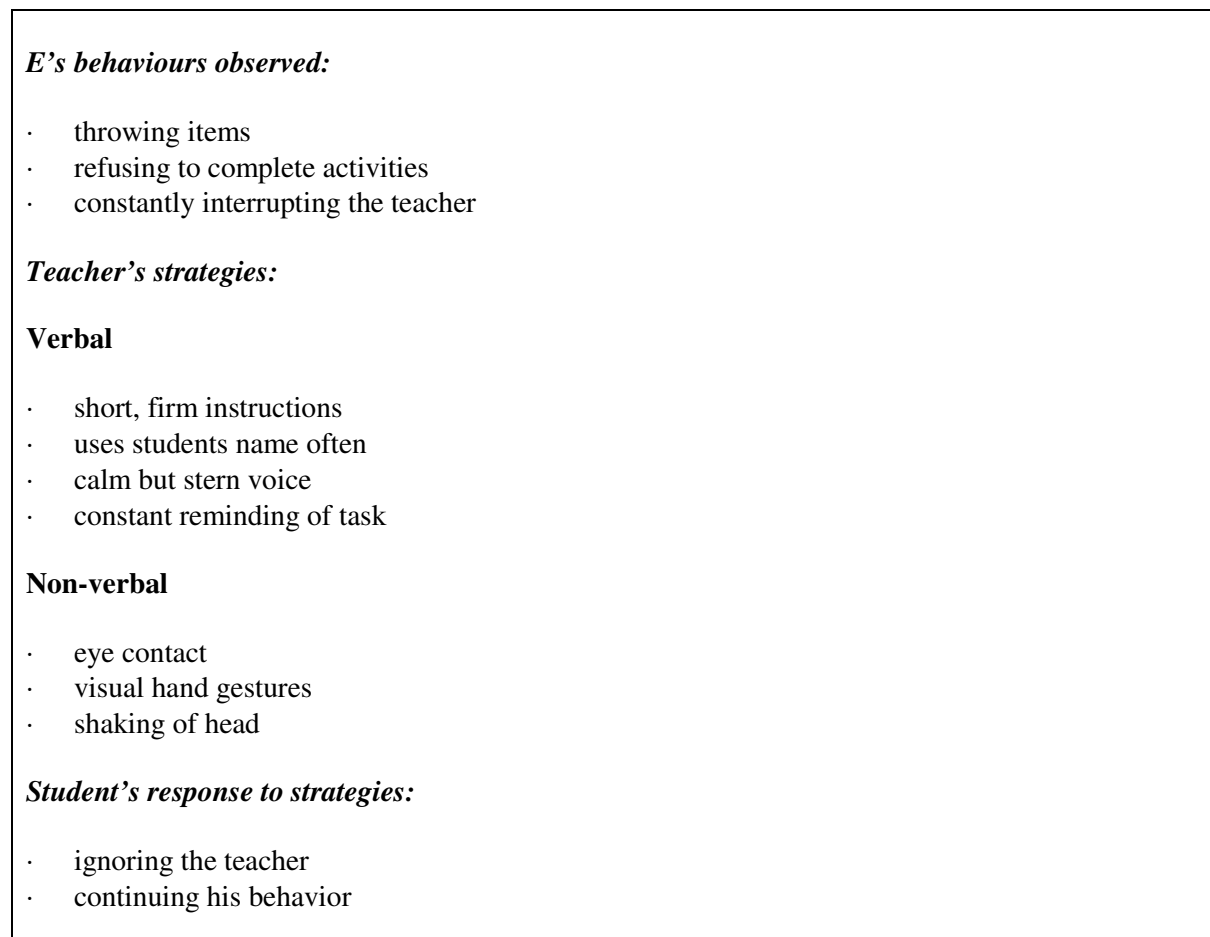


Figure 3: Examples of observation of Student E (afternoon session, Day 1)

The ADHD behaviours observed were also sorted according to categories devised by Barley (1998, 2006). The numbers in bracket shows the frequencies of the behaviours observed among the six children:

Distractibility

- Talking with other students (8)
- Pretending to hit neighbour, aggressive motioning without contact (1)
- Wrestling with another student (1)
- Arguing with other students and teachers (2)
- Talking out of turn (3)
- Not following instructions (8)
- Being off tasks (5)
- Interrupting teacher (6)

- Using aggressive verbal attack to other students and teachers (3)
- Shoving neighbour's desk around (2)
- Yelling out across the room (5)
- Waving ruler around the air, thrusting it in the direction of neighbour (1)
- Throwing items at another student (3).

Impulsivity

- Constantly in and out of seat during tasks (5)
- Waving ruler around the air, thrusting it in the direction of neighbour (1)
- Refusing to take medication (1)
- Going out of the classroom (3)
- Swinging on chair (1)
- Hitting a tree with a stick (1)
- Throwing items at another student (3).

Hyperactivity

- Crawling around (1)
- Fidgeting (6)
- Shaking head vigorously (1)
- Writing letters and markings all over pages in his book (1).

The numbers in brackets below shows the frequencies with which verbal and non-verbal strategies were employed by the teachers.

Verbal

- Short, firm and quick instructions (7)
- Repeated use of student's name when giving instructions/directions (6)
- Positive encouragement (3)
- Loud, sharp yelled instruction (2)
- Repeating of instructions (1)
- Whispering of instructions (1)
- Constant reinforcement of instructions (1)
- Firm, loud voice to gain the student's attention (1)
- Asking another student to go outside to find the ADHD student (1)
- Asking the student to think about his/ actions (1)
- Reiterate the task at hand (2).

Non-verbal

- Eye contact (5)
- Hand gestures (4),
- Shaking of head (1)
- Standing close to student (2)
- Touching student on shoulder when giving an instruction (1)
- Turning around and ignoring the student (4).

Among the teachers' negative responses observed, ignoring and yelling were found not to produce any positive responses from students at any time. It gave students permission to continue with the behaviours. Ignoring or not noticing behaviours resulted in continuation of the behaviours. Yelling also resulted in defiance: it was found to be a trigger for the escalation of challenging behavior. While the majority of teachers believed volume and tone were significant in determining the outcome of interactions, students responded to yelled instructions by yelling back and then leaving the room. This resulted in further interruptions to the lesson, with the student coming back into the room and wanting an apology from the teacher. Time needs to be managed effectively by the teachers who have ADHD students.

Discussion and Conclusion

It was found that, although each ADHD student was different, their behaviours were similar and could be classified as **distractibility**, **impulsivity** and **hyperactivity**. This supported the findings of Barley (2006). However, while some strategies are appropriate for use with each child, each child's response varies. For example, in the present study Student D was found to require more support than the others.

Teachers stated that the effectiveness of behavior management strategies depended on each child and must be tailored to the individual needs of each student.

It was found that positive teachers' verbal strategies included voice control (low to loud volume, firmness, tone and pace), short phrases, repeated instructions, use of students' names and a combination of visual cues and verbal instructions. Calm verbal strategies resulted in students' calming down or complying with the teachers' instructions. This finding supports the view that the words and strategies used by teachers affect their students (Staples, 2010; Weiss & Weisz, 1995; Purdie et al., 2002; Root & Resnick, 2003).

However, these verbal strategies only momentarily caused the students to attend to what the teachers were saying. The teacher referred to in Figure 2 did not have a close relationship with the student and hence found it was very difficult to communicate with and control the student. With good rapport between teachers and students, practical strategies will be effective (Galey, 2007; Miranda & Presentacion, 2000). Respectful and consistent positive relationships between students and teachers and among students assist teachers to understand ADHD students' behaviours (Galey, 2007; McDonald, 2010).

It was also found that the non-verbal teaching strategies, such as gently touching the student or pointing out the important information for the student can draw student's attention more easily and manage the ADHD students' behaviours. This is consistent with Wang et al (2004)'s suggestions that the degree to which teachers use hand gesture in coordination with speech during instructions, can impact performance among ADHD children. However, in the present study, it was found that the teachers also should use appropriate gestures. Shaking of head or turning around was not proper non-verbal strategies for the classroom management. It was connected with the teachers' characteristics, such as their patience, tolerance and understanding of ADHD.

Moreover, good resources, including medications, were found to be very useful in assisting teachers to manage ADHD students and develop effective teaching and behaviour management strategies. The present study found that medication was useful in managing the students' responses to the teachers (Davis & Florian, 2004). Behaviour management strategies that were implemented together with medication were more effective, with the most popular strategy being a combination of reward systems and constant monitoring. It is

consistent with the other research findings (Power et al, 1995; Snider et al, 2003; Vereb & Diperna, 2004) that medication can help teachers to understand ADHD children's needs.

In conclusion, the words teachers speak can enable or stunt learning (Staples, 2010) and 'teacher talk' has an undeniable impact on the behaviour of ADHD students. It is therefore essential for both pre-service and practising teachers to understand productive and appropriate ways of talking to ADHD students. Developing behaviour management strategies that are appropriate and adapted to suit individual students' needs is also necessary in order to create a positive learning environment for all members of a class.

The present research has been useful in raising awareness of those strategies that escalate situations and those that calm them. ADHD students face a difficult learning life due to lack of concentration and the inability to self-regulate their behaviours. This situation can be alleviated by supportive teachers who deliver teaching and learning programs that are mindful of the unique needs of ADHD students. The right words and tone can defuse a situation and ensure that the teacher-student relationship remains intact and free of disruptive confrontations. Unstructured observations showed that a combination of medication and calm teacher talk, together with positive teacher-student relationships, assisted students to stay on task. Ignoring behaviour is an ineffective strategy that enables the behaviour to continue and to escalate.

Our findings are useful for raising teachers' awareness of what works and what doesn't. They also provide practical and proven approaches that can be implemented with students. However, each student is different and teachers may find the present research useful in analysing their own practices and devising tailored management approaches for their ADHD students.

It is important for teachers to understand ADHD and how to manage it in a general way, but it is even more important for teachers to know their ADHD students as individuals.

Enabling or stunting the learning of their ADHD students depends on teachers' ability to understand them (Staples, 2010). If teachers have an awareness of their students' strengths, weaknesses and needs, they are better equipped to develop teaching and learning strategies and, subsequently, behaviour management strategies that are appropriate and effective.

All students are different and each case of ADHD varies. There are, however, strategies that are useful across the board. Although literature about ADHD and practical resources for managing behaviour and supporting ADHD students already exist, our research reached four conclusions that are useful for teachers:

- Teachers' talk can influence whether a situation escalates or calms. The choice of words and mode of delivery are of the utmost importance.
- Ignoring negative behaviour does not result in any positive outcomes and only enables the student to continue with that behaviour.
- There is no 'one size fits all' effective behaviour management strategy. Every ADHD student is different and strategies must be adjusted to the needs of the child.
- Medication plays an important role in students' response to selected strategies.

Future research

The present study found that calmness was a consistent factor in determining compliance with instructions. Some teachers seemed to be quite stressed when students continually displayed challenging behaviours.

Given that calmness from teachers is essential in de-escalating altercations; future research will be conducted into how teachers can best manage their stress levels while responding to ADHD student behaviours.

Research will also be undertaken into the provision of resources for students. Galey's *ADHD Support Book* (2007) will be studied to identify some practical strategies for understanding and supporting ADHD behaviour.

References

- American Psychiatric Association (1995). *Diagnostic and statistical manual of mental disorders* (fifth edn). Washington, DC: The Association.
- Arthur-Kelly, M., Lyons, G., Butterfield, N., & Gordon, C. (2006). *Classroom management: Creating positive learning environments* (second edn). South Melbourne, VIC: Thomson.
- Barkley, R. A. (2006). *Attention-deficit hyperactivity disorder: A handbook for diagnosis and treatment* (third edn). New York: Guilford Press.
- Brophy, J. (1996). *Enhancing Students' Socialization: Key Elements*. ERIC Digest. Retrieved 19 May 2011, from <http://www.eric.ed.gov/PDFS/ED395713.pdf>.
- Davis, P. & Florian, L. (2004). *Teaching strategies and approaches for pupils with special educational needs: a scoping study*. Research Report 516. London : Her Majesty's Stationery Office.
- Deault, L. C. (2009). A systematic review of parenting in relation to the development of comorbidities and functional impairments in children with ADHD. *Child Psychiatry and Human Development*, 41(2). Retrieved 27 July 2010, from <http://www.springerlink.com/content/q716r73n5617m7m2/fulltext.pdf>.
- Denzin, N. & Lincoln, Y. (2005). *The Sage Handbook of Qualitative Research* (third Edn). London: Sage Publications.
- DeShazo Barry, T., Lyman, R. D. & Klinger, L. G. (2002). Academic underachievement and attention deficit/hyperactivity disorder: the negative impact of symptom severity on school performance. *Journal of School Psychology* 40, 259-283.
- DuPaul, G. J., McGoey, K. E., Eckert, T. L., & VanBrakle, J. (2001). Preschool children with attention-deficit/hyperactivity disorder: Impairments in behavioral, social, and school functioning. *Journal of the American Academy of Child & Adolescent Psychiatry*, 40, 508-515.
- DuPaul, G. & Weygandt, L. (2006). School-based interventions for children and adolescents with attention-deficit/hyperactivity disorder: Enhancing academic and behavioral outcomes. *Education and Treatment of Children*, 29, 341-358.
- Ervin, R.A., Bankert, C.L. & DuPaul, G.J. (1996). Treatment of attention deficit/hyperactivity disorder. In M.A. Reinecke, F.M. Dattilio & A. Freeman. *Cognitive therapy with children and adolescents: a casebook for clinical practice*. New York: Guilford Press, 38-61.
- Fairbank, L. & Stinett, T. (1997). Effects of professional group membership, intervention type, and diagnostic level on treatment acceptability. *Psychology in the Schools*, 34, 329-335.
- Galey, P. (2007). *The ADHD support book*. Mascot, New South Wales: User Friendly Resources.
- Goldin-Meadow, S., Alibali, S. & Church, R. (1993). Transitions in concept acquisition: Using the hand to read the mind. *Psychological Review*, 100, 279-297.
- Graham, L. (2008). From ABCs to ADHD: the role of schooling in the construction of behaviour disorder and production of disorderly objects. *International Journal of Inclusive Education*, 12(1), 7-33.
- LeFever, G. B., Villers, M. S., Morrow, A. L. & Vaughn, E., III (2002). Parental perceptions of adverse educational outcomes among children diagnosed and treated for ADHD: a call for improved school/provider collaboration. *Psychology in the Schools*, 39, 63-71.

- Loe, I.M. & Feldman, H.M. (2007). Academic and educational outcomes of children with ADHD. *Journal of Pediatric Psychology*, 32, 643-654.
- McDonald, T. (2010). *Classroom management, engaging students in learning*. South Melbourne, Victoria: Oxford University Press.
- McEvoy, J. & Walker, R. (2000) Antisocial behaviour, academic failure, and school climate: a critical review. *Journal of Emotional and Behavioural Disorders*, 8 (3), 130-146.
- Miranda, A. & Presentacion, M.J. (2000). Efficacy of cognitive-behavioral therapy in the treatment of children with ADHD, with and without aggressiveness. *Psychology in the Schools*, 37 (2), 169-182.
- MTA Cooperative Group (1999). 14 month randomised clinical trial of treatment strategies for attention deficit/hyperactivity disorder. *Archives of General Psychiatry*, 56 (2), 1073-1086.
- Murphy, K. R., Barkley, R. A. & Bush, T. (2002). Young adults with attention deficit hyperactivity disorder: subtype differences in comorbidity, educational and clinical history. *Journal of Nervous and Mental Disease*, 190, 147-157.
- National Institute of Mental Health (2003). NIMH research on treatment for attention deficit hyperactivity disorder (ADHD): the multimodal treatment study. Place: the Institute.
- Portel, L. (2000). *Behaviour in schools: Theory and practice for teachers*. Buckingham: Open University Press.
- Power, T. J., Hess, L. E., & Bennett, D. S. (1995). The acceptability of interventions for Attention-Deficit Hyperactivity Disorder among elementary and middle school teachers. *Developmental and Behavioral Pediatrics*, 16, 238-243.
- Prosser, B., J. (2008). Beyond ADHD: a consideration of attention deficit hyperactivity disorder and pedagogy in Australian schools. *International Journal of Inclusive Education*, 12(1), 81-97.
- Purdie, N., Hattie, J. & Carroll, A. (2002) A review of research on interventions for ADHD: what works best? *Review of Educational Research*, 72 (1), 61-99.
- Rappport, M. D., Scanlan, S. W. & Denney, C. B. (1999). Attention-deficit/hyperactivity disorder and scholastic achievement: a model of dual developmental pathways. *Journal of Child Psychology and Psychiatry*, 40, 1169-1183.
- Root, R. W. & Resnick, R.J. (2003) An update on the diagnosis and treatment of attention deficit/hyperactivity disorder in children. *Professional Psychology: Research and Practice*, 34 (1), 34-41.
- Sherman, J., Rasmussen, C. & Baydala, L. (2008) The impact of teacher factors on achievement and behavioural outcomes of children with Attention Deficit/Hyperactivity Disorder (ADHD): A review of the literature, *Educational Research*, 50 (4), 347-360.
- Snider, V., Busch, T. & Arrowood L. (2003). Teacher knowledge of stimulant medication and ADHD. *Remedial Special Education*, 24 1, 46-57.
- Sonuga-Barke, E. J. S. (2002). Psychological heterogeneity in AD/HD: a dual pathway model of behaviour and cognition. *Behavioral Brain Research*, 130, 29-36.
- Sonuga-Barke, E. J. S. (2003). The dual pathway model of AD/HD: an elaboration of neurodevelopmental characteristics. *Neuroscience and Biobehavioral Reviews*, 27, 593-604.
- Staples, J., M. (2010). Encouraging agitation: teaching teacher candidates to confront words that wound. *Teacher Education Quarterly*, 37 (1), 53-72.
- Uko, I. (2006). Verbal and non-verbal communication *An Encyclopaedia of the Arts*, 3(1), 1-5.
- Van de Wiel, N., Mattys, W., Cohen-Kettenis, P.C. & Van Engeland (2002). Effective treatments of school-aged conduct disordered children: recommendations for changing clinical and research practices. *European Child and Adolescent Psychiatry*, 11, 79-84.

Vereb, R. & DiPerna, J. (2004). Teachers' knowledge of ADHD, treatments for ADHD, and treatment acceptability: An initial investigation, *School Psychology Review*, 33, 421-428.

Wang, Q., Bernas, R. & Eberhard, P. (2004). Engaging ADHD students in tasks with hand gestures: A pedagogical possibility for teachers. *Educational Studies*, 30, 217-229.

Weiss, B. & Weisz, J. (1995) Relative effectiveness of behavioural versus non-behavioural child psychotherapy. *Journal of Consulting and Clinical Psychology*, 63 (2), 317-320.

Witt, J. & Martens, B. (1983). Assessing the acceptability of behavioural interventions used in classrooms. *Psychology in the Schools*, 20, 510-517.

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