

Teacher Attributions for the Behaviour of Students with ADHD: The Role of Student Likeability

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LIST OF ABBREVIATIONS USED

ADHD – Attention Deficit Hyperactivity Disorder

ADHD-C – Attention Deficit Hyperactivity Disorder, Combined Presentation

ADHD-HI – Attention Deficit Hyperactivity Disorder, Hyperactive Impulsive Presentation

ADHD-I – Attention Deficit Hyperactivity Disorder, Inattentive Presentation

ADHD-IR – Attention Deficit Hyperactivity Disorder, Inattentive Presentation (Restrictive)

ANOVA – Analysis of Variance

APA – American Psychiatric Association

ARS – Attribution Ratings Scale

DSM-IV-TR – Diagnostic and Statistical Manual of Mental Disorders (4th Edition, Text Revision)

DSM-5 – Diagnostic and Statistical Manual of Mental Disorders (5th Edition)

FFM – Five Factor Model of Personality (Big Five)

GTA – Greater Toronto Area

HI – Hyperactive Impulsive Type (ADHD)

HRM – Halifax Regional Municipality

IN – Inattentive Type (ADHD)

KADDS – Knowledge of Attention Deficit Disorder Scale

ODD – Oppositional Defiant Disorder

SD – Standard Deviation

TDSB – Toronto District School Board

URL – Uniform Resource Locator (address of a World Wide Web page)

ABSTRACT

This study examined the effect of child behaviour (i.e., ADHD-hyperactive/impulsive vs. ADHD-inattentive vs. control) and child likeability (i.e., likeable vs. unlikeable) on teacher attributions for behaviour in a sample of 31 elementary and high school teachers. Teachers were asked to read vignettes describing a hypothetical likeable or unlikeable student exhibiting behaviours consistent with ADHD or no ADHD. Teacher responses to the hypothetical student were assessed using (a) attribution ratings on the dimensions of locus, control, and stability, (b) ratings of helping behaviours with respect to referral, accommodations, and perceived manageability of student behaviour, and (c) an open-ended response section in which teachers could provide rationale for their responses to items on rating scales. Results partially supported previous findings of adult attributions for the behaviour of children with ADHD. Teachers rated ADHD behaviour as more externally caused, uncontrollable, and unstable and indicated that they would be likely to refer students with ADHD for further services and would be more likely to provide accommodations for these students. Finally, teachers indicated that they felt less confident in their ability to manage the behaviour of students with ADHD. Student likeability interacted with student behaviour on some attributional dimensions but not others, suggesting that more research is needed to elucidate the impact of this personality factor on teacher perceptions of students with ADHD. Implications for teacher education, student success, understanding the role attributions in classroom management of ADHD, and future directions are discussed.

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CHAPTER ONE

Literature Review

Introduction to Attention Deficit Hyperactivity Disorder

Attention Deficit Hyperactivity Disorder (ADHD) is one of the most common neurodevelopmental disorders of childhood, affecting approximately 3 – 8 percent of the childhood population in North America (Weyandt, Fulton, Shepman, Verdi & Wilson, 2009). The disorder consists of persistent and developmentally inappropriate difficulties with sustained attention, distractibility, impulse control and hyperactivity (American Psychiatric Association, 2000; Barkely, 2006; Sherman, Rasmussen, & Baydala, 2008; West, Taylor, & Houghton, 2005). The revised edition of the Diagnostic and Statistical Manual, Fourth Edition, (DSM-IV-TR, American Psychiatric Association, 2000) identifies three subtypes of ADHD: predominantly inattentive type, predominantly hyperactive/impulsive type, and combined type. The current edition of the DSM (DSM-5, American Psychiatric Association, 2013) has made slight adjustments to the terminology used to describe ADHD. As opposed to subtype classifications, the newest edition of the DSM outlines ‘presentations’ that specify the type of ADHD diagnosis (American Psychiatric Association, 2013). There are four presentations of ADHD: (1) inattentive presentation (when six or more inattentive symptoms have been displayed in the past six months); (2) inattentive presentation, restrictive (when six or more inattentive symptoms and fewer than three hyperactive-impulsive symptoms have been displayed in the past six months); (3) predominantly hyperactive/impulsive presentation (when six or more hyperactive-impulsive symptoms have been displayed in the past six months); and (4) combined presentation (when six symptoms or more in total have been displayed in the past six months from both inattentive or hyperactive-impulsive category) (American Psychiatric Association, 2013). For the purposes of

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the current research, however, ADHD will be described using DSM-IV criteria, as editions of the diagnostic manual changed during the final stages of writing.

Behavioural symptoms. From time to time, all children experience distractibility; for example, a child wandering away from his or her parents to engage in another task or pausing from his or her school work when exposed to external stimuli. However, the inattentive symptoms of ADHD reflect a developmentally inappropriate inability to persist on or sustain attention to tasks. For example, *inattentive* symptoms, as outlined in the DSM-IV-TR (and DSM-5) include: often fails to give close attention to details or makes careless mistakes in schoolwork or other activities; often does not seem to listen when spoken to directly; often does not follow through on instructions and fails to finish schoolwork, chores or duties; often has difficulty organizing tasks and activities; often loses things necessary for tasks or activities; easily distracted by extraneous material; and often forgetful in daily activities (American Psychiatric Association, 2000; Smith, Barkley, & Shapiro, 2010; American Psychiatric Association, 2013). Although these symptoms can be observed during “free play” time in children, they are most apparent when the child is asked to sustain attention during dull, boring or monotonous tasks, for example, homework or chores (Smith, Barkley, & Shapiro, 2010). Sustaining attention for children with ADHD is further complicated by increased distractibility while performing tasks for an extended period of time.

Hyperactivity/impulsivity is the second behavioural dimension observed in children with ADHD. Hyperactivity describes motor activity that is developmentally inappropriate and excessive compared to other children in the same developmental age group (Alderson, Rapport, Kasper, Sarver, & Kofler, 2011). *Hyperactive* symptoms as outlined in the DSM-IV-TR (and DSM-5), include: often fidgets with hands or feet or squirms in seat; often leaves seat in classroom when remaining in seat is expected; often runs about or climbs excessively in inappropriate situations; often has difficulty playing quiet activities; is often “on the go” or acts as

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if “driven by a motor”; often talks excessively (American Psychiatric Association, 2000; Smith, Barkley, & Shapiro, 2010; American Psychiatric Association, 2013). Impulsivity refers to difficulties with behavioural inhibition (i.e., stopping a behaviour before it starts or just after it has been initiated), particularly if the behaviour involves a delayed reward or reinforcement within the context of the task or request (Smith, Barkley, & Shapiro, 2010). *Impulsive* symptoms as outlined in the DSM-IV-TR (and DSM-5), include: often blurts out answers before the questions have been completed; often has difficulty awaiting turn; often interrupts or intrudes on others (American Psychiatric Association, 2000; Smith, Barkley, & Shapiro, 2010; American Psychiatric Association, 2013). Excessive talking, moving, and fidgeting are typically observed in hyperactive and impulsive children. These children also demonstrate a low frustration tolerance, as they cannot sustain an activity that does not have an immediate solution or foreseeable endpoint (Wilmshurst, 2008). A reciprocal causation exists between the symptoms of hyperactivity and impulsivity. That is, hyperactivity and impulsivity are mutually exclusive as symptoms in children with ADHD, which is why they are referred to each other on the same ADHD dimension (Smith, Barkley, & Shapiro, 2010). Children who meet diagnostic criteria for the hyperactive symptoms of ADHD tend to also demonstrate many impulsive characteristics as well, and vice versa; therefore they are diagnosed as one subtype (hyperactive/impulsive) instead of two distinct behavioural groupings.

Combined type ADHD involves an equal number of symptoms of both inattention and hyperactivity/impulsivity. This includes difficulties with sustained inhibition, poor delay of gratification, little understanding of the benefits of delayed rewards, difficulty with obeying commands or request, and socially inappropriate behaviours (Smith, Barkley, & Shapiro, 2010). The diagnosis of ADHD varies depending on the degree to which individuals present with symptoms of inattention, hyperactivity or impulsivity, or an equal combination of behaviours

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(Weyandt et al., 2009). The DSM-IV-TR (and DSM-5) diagnostic criteria indicate that six or more symptoms from either (or both) category must persist for six or more months and be inconsistent with the developmental level of the child to qualify for a diagnosis of ADHD (American Psychiatric Association, 2000; Smith, Barkley, & Shapiro, 2010). The emphasis on developmental level is an important component of the criteria, as many behaviours that appear to be symptomatic of ADHD are typical developmental milestones and can persist for longer than six months, before new behaviour is learned. For example, it is developmentally appropriate for a preschool-aged child to colour outside the lines of a picture and produce sloppy or incomplete drawings, as it is probable that this task is novel to them, and their fine motor coordination skills are not yet fully established. Even though 'lack of attention to detail' and 'sloppy or incomplete work' are possible indicators of ADHD, the majority of children experience a developmental period in which this behaviour is normal and necessary and serves to strengthen their abilities and learn new skills. As such, clinicians must carefully evaluate behaviours with respect to typical development before making a diagnosis of ADHD.

Course. Largely represented as a childhood disorder, up to 67% of ADHD cases arise early in development, before seven years of age, with 98% or more developing by 16 years of age (Smith, Barkley, & Shapiro, 2010). Whereas DSM-5 maintains most of the diagnostic criteria for ADHD from the previous DSM-IV-TR, one significant change with respect to age of onset of the disorder has been included. Specifically, DSM-5 indicates that hyperactive-impulsive and inattentive behaviours must be present before the age of 12, as opposed to the age of 7, which was used as a cut-off point in previous editions of the DSM (American Psychiatric Association, 2000; American Psychiatric Association, 2013). The change to the age of onset criterion is supported by substantial research that has found no clinical differences between children identified by seven years versus later in terms of course, severity, outcome, or treatment response (American

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Psychiatric Association, 2013). An important similarity for both the DSM-IV-TR and the DSM-5 is that the behaviours must cause impairment in at least two settings (e.g., home and school) (American Psychiatric Association, 2000; Barkely, 2006; Groenwald, Emond, & Sayal, 2009; American Psychiatric Association, 2013). Within these two settings, there must be clear evidence of clinically significant impairment in social and academic functioning (American Psychiatric Association, 2013).

Contrary to previous widespread belief that ADHD would disappear shortly after adolescence, it is now clear that the disorder can persist well into adolescence and adulthood (Smith, Barkley, & Shapiro, 2010). Research has shown that the long-term trajectory for individuals with ADHD can include a wide range of impairments and negative outcomes. These impairments will be exacerbated by co-morbid disorders such as conduct disorder (CD), oppositional defiant disorder (ODD), a learning disorder or an anxiety/mood disorder if it remains unrecognized or untreated (Smith, Barkley, & Shapiro, 2010). Adolescents with ADHD are more likely to participate in risk taking behaviour, which can lead to car accidents, speeding tickets, early sexual activity, teenage pregnancy, incarceration or death (Smith, Barkley, and Shapiro, 2010; Biswas et al., 2011; Bellendiuk et al., 2012). Research with adults with ADHD indicates that they experience higher unemployment, more unstable relationships, fewer long-term friendships and a higher incidence of divorce (Bellendiuk et al., 2012; Ebejer et al., 2012; Smith, Barkley, & Shapiro, 2010). Reviewing these prognoses makes it clear that ADHD can have a negative impact on an individual's life, not only during early development, but also throughout the lifespan.

The Impact of ADHD on Social and Emotional Functioning

Attention Deficit Hyperactivity Disorder presents a major risk factor for a child's emotional and social life, with the risk increasing if the disorder is left undiagnosed and untreated

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(Groenwald, Emond, & Sayal, 2009). It is estimated that more than half of young students with ADHD face peer rejection and are more susceptible to bullying (Pelham & Bender, 1982; Mikami, 2010; Smith, Barkley, & Shapiro, 2010). Indeed, in a classic study conducted by Pelham and Bender (1982), findings indicated that children with ADHD are often rejected within minutes of meeting peers, even when medicated. A more recent study by Heiman (2005) that examined peer relationships in adolescents with ADHD as compared to their same-aged counterparts found that parents and teachers reported fewer friendships for youth with ADHD, whereas youth with ADHD self-reported poorer relationship quality in their friendships (Heiman, 2005; Mikami, 2010). Similarly, a study examining girls between the ages of 6 and 12 years diagnosed with ADHD found fewer friendships and decreased relationship stability across several months as compared to a control population (Blachman & Hinshaw, 2002; Mikami, 2010). These findings were consistent with both parent and teacher reports, as well as with children's self-reports on peer relationships (Blachman & Hinshaw, 2002). Research also shows that, even though children with ADHD tend to underestimate their social difficulties, they still recognize that their relationships are often instable, weak or fewer in number than their peers without ADHD (see Mikami, 2010 for an example).

There remains a distinction between the quality of peer relationships with children with ADHD as compared to typically developing children, a distinction that is clearly recognized by teachers and parents. In addition, teachers tend to rate ADHD children as having poorer social skills than their same-aged peers, based on their ADHD symptoms alone (Pelham & Bender, 1982; Mikami, 2010). In an in-depth exploration of this concept, Kypriotaki and Manolitsis (2010) administered a questionnaire to teachers, assessing their students' ADHD symptoms and possible influences that might impact a teachers' decision on whether or not a child might have the disorder. The questionnaire consisted of two sections; the first was an ADHD rating scale

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(adapted from a scale by DuPaul et al., 1998), which described various behaviours indicative of ADHD symptoms, such as interrupting and annoying others (Kypriotaki & Manolitsis, 2010). Participants were asked to rate, on a four-point scale, how frequently the students displayed the behaviour (ranging from never/rarely to sometimes, often, and very often). The second section of the questionnaire was a student behaviour survey that was comprised of items presented on a five-point rating scale, assessing the student's school achievement, their relationship with classmates, relationship with their teacher, quality of relationship in group activities, and quality of teachers cooperation with their parents (Kypriotaki & Manolitsis, 2010). The study found that a student's score on the ADHD scale was significantly influenced by teachers' judgement of the child's peer relationships (Kypriotaki & Manolitsis, 2010). That is, a student was more likely to be assessed as displaying symptoms of ADHD when the teacher perceived that they had poor social skills or did not get along well with their classmates. Although poor peer relations seem to be an antecedent to possible ADHD symptomology, the researchers also found, in the same study, that a significantly greater number of students than expected were diagnosed with ADHD, based on norms from a standardized ADHD ratings scale (Kypriotaki & Manolitsis, 2010). The authors concluded that teachers attribute more ADHD symptoms to students based on specific negative influences (such as weak peer relationships), regardless of whether the ADHD symptoms are valid or not (Kypriotaki & Manolitsis, 2010). Based on these findings, it is evident that not only do children with ADHD exhibit significant difficulty with social skills as well as establishing and maintaining peer relationships, but that many of the behavioural difficulties that lead to poor outcomes for children with the disorder are influenced by the way in which behaviours are perceived by others. The interplay between perceptions of weak social relationships, combined with acute difficulty with social interaction and the maintenance of relationships, are crucial factors that can have a major impact on a child's emotional stability and emotional growth. The social difficulties that

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children with ADHD often experience can lead to constant peer and adult conflicts (Kos, Richdale, & Jackson, 2004; Ohan, et al., 2008; Westerlund, Holmberg, & Fernell, 2011). The possibility exists that these peer and adult conflicts often occur inside the home.

The Impact of ADHD on Family Functioning

Studies have shown that families of children with ADHD experience increased or continued conflict in the home. (Smith, Barkley, & Shapiro, 2010). These families may be more disconnected and withdrawn from each other compared to families without a child with ADHD (McNamara, Willoughby & Chalmers, 2005). Similarly, studies have found that adolescents with ADHD have weaker relationships with both their parents compared to their typically developing peers (McNamara, Willoughby, & Chalmers, 2005; Johnston, Chen, & Ohan, 2006). Research indicates that, although many of the difficulties experienced by parents of children with ADHD are linked to child behaviours (Johnston et al., 2006), there is also an interactive effect such that problematic parenting contributes to the maintenance and exacerbation of ADHD and other disruptive behaviours. This interactive effect is demonstrated in studies investigating coercive processes in parenting style (see Patterson, 1976 and Eddy, Leve, & Fagot, 2001 for examples). This research demonstrates that problematic parenting style occurs when a child's disruptive or oppositional behaviour (typical in children with ADHD) is met with negative reinforcement from the parent (e.g., increasingly yelling at the child or making larger and larger demands). As the parent displays increased negative attention and displeasure, the child will lose his or her temper and escape or continue to refuse the request or demand. If these child behaviours effectively remove the undesired request, then the child will most likely continue to behave this way, as he or she is negatively reinforced to continue this behaviour by the parents' actions (Patterson, 1976; Eddy, Leve, & Fagot, 2001; Smith, Barkley, & Shapiro, 2010). The more uncooperative the child becomes, the less likely he or she is to receive positive attention from the frustrated parent

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(Patterson, 1976; Eddy, Leve, & Fagot, 2001). This coercive parenting style is common in parent-child interactions when ADHD is present, and can lead to increased family conflict. It appears that, consistent with findings that children with ADHD experience disrupted peer relationships, their relationships with parents and family members are also affected by the disorder.

Furthermore, these disrupted family relationships are hypothesized to be maintained by a coercive parenting cycle in which the perceptions and attributions for behaviour influence responses to behaviour.

The Impact of ADHD on School Functioning

In addition to distinct social, emotional, and familial risk factors, children with ADHD often experience significant difficulties in the academic environment as a result of the inattentive and hyperactive/impulsive symptoms of the disorder. Specifically, the traditional structure and expectations of most classrooms is not conducive to typical ADHD behaviours such as fidgeting, losing focus, talking loudly and out of turn, conflicts with peers, difficulty staying on task, disorganization, and fiddling with objects (Kos, Richdale & Hay, 2006; Kos, et al., 2004; Ohan, et al., 2008). A longitudinal study conducted by Ek, Westerlund, Holmberg and Fernell (2011) found that students with ADHD, even those with average or above average cognitive ability, tend to underachieve academically. This was most evident in their failure to pass written tests, high rates of grade retention, and lower scores on standardized achievement tests (Ek, Westerlund, Holmberg & Fernell, 2011). Learning disorders, which affect as many as 35-50 percent of children with ADHD, as well as unmanaged or untreated ADHD symptoms, are the primary causes behind these academic deficits (West, Taylor, & Houghton, 2005; Kos, Richdale, & Jackson, 2004; Ek, Westerlund, Holmberg & Fernell, 2011; Aro, Ahonen, Tolvanen, & Lyytinen, 1999).

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The findings noted above add credence to the suggestion that students with co-morbid ADHD and learning disorders may require even more extensive academic support compared to students with only a learning disorder, or their typically developing peers (McNamara, Willoughby, & Chalmer, 2005). This may be particularly true in secondary school, where sustained attention is critical in classes that can last up to an hour or more without breaks or active participation from students (McNamara, Willoughby, & Chalmers, 2005). In addition, students with ADHD are at a greater risk for not completing high school or going on to post secondary education at college or university (Molina and Pelham, 2001; Smith, Barkley, and Shapiro, 2010). This research emphasizes the need to alleviate as many of these impairments as possible, by recognizing, diagnosing and intervening with children and adolescents with ADHD. During the developmental period, these behavioural and learning outcomes can be best observed within the school system and home environment (Smith, Barkley, & Shapiro, 2010). For this reason, classroom teachers are frequently positioned as the frontline professionals who recognize the symptoms of ADHD and suggest referral for further assessment (Sherman, et al., 2008; Edmunds & Martsch-Litt, 2008; Groenwald, Emond, & Sayal, 2009). It is quickly becoming important that teachers be able to recognize the signs and symptoms of ADHD-typical behaviour for the purposes of referring the child for a further assessment. However, as previously mentioned, disturbances in the classroom affect not only the child with ADHD, but also the other students in the classroom and particularly the classroom teacher.

Teacher perceptions and knowledge of ADHD. Students with ADHD tend to struggle in multiple aspects of the classroom and need constant attention and guidance from the adults in their life (Ohan et al., 2008; Groenwald, et al., 2009). Although teachers are often expected to provide this extra guidance and programming within the school environment, many feel unprepared to effectively manage the academic, social and emotional needs of a student with ADHD (Ohan et

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al., 2008; Groenwald et al., 2009). Furthermore, teachers often report feeling pessimistic about having a child with ADHD in the classroom (Weyandt, et al., 2009). As noted previously, teachers are often considered to be frontline workers with respect to identifying many disorders and/or difficulties in students; therefore, the earlier and more efficiently referrals are made by teachers, the more positive the outcomes will be for the child with respect to long-term outcomes in the areas of social, emotional, and academic functioning. It follows that, if teachers feel uncomfortable having a child with ADHD in the classroom or if they do not feel confident in their ability to determine when a referral is needed, students with ADHD may not receive the programming they require to succeed at school. Children with ADHD are therefore at risk of not receiving a proper assessment or necessary accommodations when teachers are not confident enough to make a sufficient referral for children who might need one. This finding underscores the importance of assessing and increasing teacher knowledge of ADHD such that identification of symptoms and referrals to appropriate professionals are facilitated.

Teacher knowledge of ADHD. Increasing teacher knowledge of ADHD can have important implications for the academic success of students with the disorder. For example, in a study conducted by Ohan and colleagues (2008), the impact of teachers' knowledge of ADHD on their perceptions of children with ADHD, was examined using written vignettes and the Knowledge of ADHD Scale (Jerome et al., 1994). The study found that teachers with high and average knowledge about ADHD reported more helpful behaviours towards their students (e.g., help-seeking for their students), and more positive perceptions of ADHD in the classroom (e.g., recognizing the benefit of behavioural and educational interventions). This information is important because it indicates that that teacher knowledge has a direct impact on accessing intervention for children with ADHD in the classroom. The more knowledgeable a teacher is

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about the disorder, the more able he or she will be to recognize ADHD-typical behaviours and refer these students for further assessment and/or intervention.

Teacher knowledge of ADHD not only impacts the manner in which they interact with the student on a personal level, but may also impact the types of accommodations and adaptations offered to the student. Along with making an appropriate and timely referral, teachers must be willing to make accommodations for the child in the regular classroom and provide an inclusive experience for the child. This inclusivity responsibility of teachers has become more important in the last decade, with the introduction of the various Education Inclusion Acts within the provincial Departments of Education, such as Ontario's Equity and Inclusive Education Strategy (Kohen, Uppal, Khan & Visentin, 2010). This Ministry of Education strategy calls for "direction, support, and guidance to the education sector, so that every student has a positive learning environment to achieve their highest potential" (Ontario Government, 2009, p. 10). It also calls for school boards to develop inclusive education policies and to promote inclusive education regardless of disability or need of a student (Kohen, Uppal, Khan & Visentin, 2010; Ontario Government, 2009). In the study noted above, teachers with high or average knowledge of ADHD predicted children would be more disruptive in the classroom and reported having less confidence in their ability to manage these children (Ohan et al., 2008). Based on these results it appears that, although teachers understand the importance of support services and intervention for children with ADHD, they are wary and judgmental of ADHD behaviour in their own classrooms (Ohan et al., 2008).

Taken together, the evidence cited above indicates that children with ADHD are faced with a number of challenges, both in terms of behavioural outcomes and learning outcomes. Research increasingly shows that many of the behavioural difficulties that lead to poor outcomes for children with the disorder are influenced by the way in which behaviours are perceived by others in the child's environment. For example, parental attributions for behaviour may play a role

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in determining the parental response to and subsequent maintenance of that behaviour.

Specifically, attributions for the behaviour of children with problem behaviour is linked to negative emotions in parents of these children (McKee, Harvey, Danforth, Ulaszek & Friedman, 2004). This may result in decreased tendency to teach children control and discipline, thereby leading to increased negative behaviour in the future. Additionally, it appears that teacher attributions for the child's behaviour can also exacerbate the problem behaviour (Eddy, Leve, & Fagot, 2001; Smith, Barkley, & Shapiro, 2010). To investigate this phenomenon further, it is important to understand attribution theory and its application to clinical populations, such as children, families, and educators challenged by ADHD.

Attribution Theory

In general, attribution theory is used to define the individual's perception of him or herself and others and how these perceptions influence future actions (Miner, 2005; Brown, 2006). The current literature regarding parental attributions for child behaviour is largely based on theory developed by Bernard Weiner (Weiner, 1985; Dix, Ruble & Zambarano, 1989). Specifically, attributions made for others' accomplishments or failures are based on three areas: (1) locus of control (either internal or external); (2) controllability of the situation (controllable or not); and (3) stability of the person or environment to which the behaviour is being attributed (stable causes are attributed to the person and unstable causes are attributed to the environment) (Miner, 2005; Brown, 2006; Shaffer, 2009). Weiner (1985) hypothesized that attributions could be either internal (i.e., behaviour is controlled solely by the individual and all actions are of a personal nature) or external (i.e., behaviour is largely a result of reactions to the environment and very much out of the control of the individual) (see Miner, 2005; Brown, 2006). Research examining parental attributions for children's behaviour is necessary to understand why parenting techniques vary so widely both across parents and across child behaviors (Dix, Ruble & Zambarano, 1989).

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Specifically, it is important to study how parental attributions for behaviour affect children with problem behaviour, and whether the same attributions are made for the behaviour of children who have difficulty controlling their behaviour (e.g., children with ADHD) and that of typically developing children.

Attribution Research and ADHD

The impact of attributions for the behaviour of children with ADHD has been recognized as an important contributor to the negative parent-child relationships that often exist in families of children with ADHD. In a study conducted by Johnston and Patenaude (1994), all participants were mothers of children with ADHD, and were asked to read a series of vignettes describing inattentive-overactive (IO) or oppositional-defiant (OD) ADHD behaviours. The mothers were then asked to complete an attribution and reaction scale, which recorded the casual attributions and reactions to the child's behaviour in the vignette. Causal attributions included the "locus of control" (i.e., whether parents believed the behaviour to be caused by something about the child or something about their environment) and controllability of behaviour (i.e., how much control the child has over is or her own behaviour) (Johnston & Patenaude, 1994). These authors found that mothers of children with ADHD attributed internal, controllable causes for their more negative behaviour (e.g., refusing parental requests or acting socially inappropriate and disruptive). The greater negative reactions to ADHD-typical behaviours and the correlation of attributions between controllability and parent reaction, are consistent with the finding that family conflicts are more prominent in households of children with ADHD (Johnston & Patenaude, 1994). The results also suggested that parents were not able to distinguish between IO or OD behaviours when they were presented together, and that similar attributions were made for both types of behaviour. This failed distinction is another mechanism by which parental attributions for ADHD behaviour might lead to increased conflict and negativity between parents and their child (Johnston and Patenaude,

1994).

These findings were echoed in another study conducted by Johnston, Chen, and Ohan (2006), in which attributions for child behaviour were examined among mothers of boys with ADHD, boys with comorbid ADHD/Oppositional Defiant Disorder (ODD), and boys with no diagnosis. This study closely followed the procedure of Johnston's original attribution and ADHD study (Johnston & Patenaude, 1994), but also included *in vivo* (i.e., live) responses to their sons' behaviour when viewed through a two-way mirror. Results indicated that mothers of boys with co-occurring ADHD and ODD offered the most negative attributions for child behaviour. That is, they viewed their children's behaviour as internal, stable, and controllable (Johnston, Chen, & Ohan, 2006). Mothers of boys with ADHD made more negative attributions for child failure and success than did mothers of boys with no diagnosis (Johnston, Ohan, & Chen, 2006). That is, they attributed child failure or misbehaviour to internal and controllable causes and the child's success and compliance to uncontrollable or environmental factors (Johnston, Chen, & Ohan, 2006). It is evident that parents' causal attributions for children with ADHD negatively affect the way in which parents view their child's behaviour and choose to parent their children with ADHD.

It is evident from research examining the social, familial, and academic aspects of ADHD, that perceptions of the child's behaviour can clearly have implications in how the disorder is viewed or in how the child's behaviour is managed at home and school. Although there is a growing literature examining parent perceptions and attributions for behaviours in children with ADHD, less attention has been given to the attributions teachers make for the classroom behaviour of children with ADHD. This is a shortcoming in the current research, as teachers are often relied upon to observe their students' classroom behaviour for the purposes of making referrals for assessment and diagnostic services, meaning that their perceptions of and attributions of student behaviour could affect the classroom adaptations offered to students. Given that many

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education systems have made significant steps towards a model of inclusivity for all students over the last few decades, it is becoming increasingly important that students with emotional and behaviour disorders are better understood and better managed from within, by everyday classroom teachers. In addition, the social, academic, and emotional risk factors that have been identified for children diagnosed with ADHD make understanding the factors that influence management of ADHD behaviour essential, as this will lead to more favourable outcomes for children with ADHD across many areas of functioning.

CHAPTER TWO

Teacher Attributions for the Behaviour of Students with ADHD: The Role of Student Likeability

It is estimated that at least one child in every elementary school classroom has or will receive a diagnosis of Attention Deficit Hyperactivity Disorder, commonly known as ADHD (Barnett, Corkum, & Elik, 2011; Barkely, 2006; Kos, Richdale, & Jackson, 2004; Ohan, Cormier, Hepp, Visser, & Strain, 2008; Weyandt et al., 2009). Behaviours associated with ADHD are persistent and debilitating for a child in the classroom environment. Specifically, it is difficult for children with ADHD to sustain attention over long periods of time, to divide their attention among various classroom stimuli (e.g., the teacher and other students), to remain seated, and to refrain from speaking out of turn. In addition, or possibly as a result of ADHD-related problems, these students frequently experience academic struggles and social difficulties (Groenwald, et al., 2009; Kos, et al., 2004). It is estimated that as many as 30 – 50 percent of students with ADHD will also have other specific learning disabilities (West, et al., 2005). Attention Deficit Hyperactivity Disorder presents a major risk factor for a child's emotional, social, and academic life, with the risk increasing if the disorder is left undiagnosed and untreated (Groenwald, et al., 2009). For these reasons, it is essential that teachers are able to recognize the signs and symptoms of ADHD-typical behaviour for the purposes of making referrals for assessment and diagnostic services.

Many teachers are unprepared to effectively manage the academic, social and emotional needs of a student with ADHD. These students require constant attention and guidance from the adults in their life (Ohan, et al., 2008; Groenwald, et al., 2009). Furthermore, teachers often report feeling pessimistic about having a child with ADHD in the classroom (Weyandt, et al., 2009). Despite these feelings about managing a child with ADHD in the classroom, teachers are often relied upon to recognize symptoms of the disorder and make a referral for formal assessment.

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Indeed, teachers are considered to be front line workers with respect to identifying disorders and/or difficulties in students; therefore, the earlier and more efficiently referrals are made by teachers, the more positive the outcomes will be with respect to academic, social, and emotional outcomes for the child. It follows that, if teachers feel uncomfortable having a child with ADHD in the classroom or if they do not feel confident in their ability to determine when a referral is needed, students with ADHD may not receive the programming they require to succeed at school. ADHD children are put at risk of not receiving a proper assessment or necessary accommodations when teachers are not confident enough to make a sufficient referral for children that might need one.

In a recent study in which the impact of teachers' knowledge of ADHD on their perceptions of children with ADHD was examined using the Knowledge of ADHD Scale (Jerome et al., 1994) and vignettes, Ohan and colleagues (2008) found that teachers with high and average knowledge about ADHD reported more helpful behaviours towards their students (e.g., help-seeking for their students) and more positive perceptions of ADHD in the classroom (e.g., recognizing the benefit of behaviour and education treatments). This information is important because it indicates that that teacher knowledge has a direct impact on intervention for children with ADHD in the classroom. The more knowledgeable a teacher is about the disorder, the more able he or she will be to recognize ADHD-typical behaviours and refer these students for further assessment and/or intervention.

Along with making an appropriate and timely referral for services, teachers must be willing to make accommodations for the child in the regular classroom and provide an inclusive experience for the child. This inclusivity responsibility of teachers has become more important in the last decade, with the introduction of the various Education Inclusion Acts within the provincial Departments of Education, like Ontario's Equity and Inclusive Education Strategy (Kohen, Uppal,

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Khan & Visentin, 2010). In the study noted above, Ohan and colleagues (2008) found that teachers with high or average knowledge of ADHD predicted children would be more disruptive in the classroom and reported having less confidence in their ability to manage these children. Based on these results, it appears that, although teachers understand the importance of support services and intervention for children with ADHD, they are wary and judgmental of ADHD behaviour in their own classrooms (Ohan et al., 2008). This two-fold responsibility for classroom teachers means that they must be knowledgeable about ADHD and ADHD-typical behaviours, as well as keep bias out of their observations when attributing certain behaviours to a child in their classroom.

Some research has examined the relation between teacher perceptions of ADHD and referral to assessment and diagnosis services. For example, a study by Kypriotaki and Manolitsis (2010) found that teacher judgement in two distinct areas influenced the likelihood of ADHD detection in children (based on an ADHD evaluation ratings scale). First, judgement of the relationship the child had with their classmates affected the teachers' decision to refer the child for ADHD assessment. Specifically, it was more likely for a student to be assessed for ADHD when the teacher believed the student did not get along well with his or her classmates (Kypriotaki & Manolitsis, 2010). Second, and more interestingly, findings indicated that teachers were more likely to refer a student for ADHD if they believed there was a negative teacher-student relationship with the child in question (Kypriotaki & Manolitsis, 2010). The researchers posit that the "disturbed" teacher-student relationship could be a result of the child's actual ADHD symptoms, such as a short attention span in class, disruptive hyperactive activity or difficulty controlling the students' impulsive behaviour (Kypriotaki & Manolitsis, 2010). They also suggest that teachers who observe students with ADHD-like symptoms are more likely to attribute negative qualities to them and, therefore, a negative relationship and little connectivity with the

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student results (Kypriotaki & Manolitsis, 2010).

Given that the teacher-student relationship has been shown to have a direct impact on whether students are referred for an ADHD assessment, along with findings suggesting that teachers may have a tendency to “over identify” ADHD in students, it is possible that teacher attributions for ADHD have a role in determining the accuracy, efficiency and timeliness of the ADHD referral process in the classroom (Kypriotaki & Manolitsis, 2010). This suggestion is corroborated by findings from Ohan and colleagues (2011) in a study examining teacher and student teacher ratings of vignettes describing hypothetical children with ADHD. Whereas all vignettes described ADHD symptoms, half of the students were labelled as having ADHD and the other half were not labelled (Ohan et al., 2011). Results indicated that, although the ADHD symptoms were similar in all vignettes, children who were given the diagnosis of ADHD were perceived by student teachers as being more impaired and elicited more negative emotions and less confidence as compared to hypothetical students who were not labelled as having ADHD (Ohan et al., 2011). With respect to referral and treatment, Ohan et al. (2011) found that providing an ADHD diagnosis to hypothetical children increased participants’ willingness to implement treatment interventions.

The above studies provide valuable insight regarding teachers’ perceptions of students with ADHD and their behavioural presentation in the classroom. They also echo some of the findings from studies of parental attributions for behaviour (e.g., Johnston & Patenaude, 1994; Johnston, Chen, & Ohan, 2006); however, they do not examine teachers’ attributions for a child’s ADHD behaviour, as has been done in the parenting literature. Research examining parental attributions for the behaviours of children with ADHD suggests that these attributions play an important role in determining how parents respond to challenging behaviours in their children. Studies of parental attributions for behaviour in children with behaviour disorders such as ADHD

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and ODD indicate that more negative attributions are made for problem behaviour in children with ADHD as compared to similar behaviour in typically developing children (Johnston, Chen & Ohan, 2006; Johnston & Patenaude, 1994). These negative attributions can determine the type of support children with ADHD are given, based on whether their behaviour is viewed as controllable and therefore, “acting out” or uncontrollable and therefore, necessary to intervene and provide the child with support and accommodations (Johnston, et al., 2006; Johnston & Patenaude, 1994).

Although a solid body of literature supports the role of parental attributions for behaviour in children with ADHD, no studies (that we know of) have explicitly examined this phenomenon in teachers. This is a shortcoming in the literature, given that children spend a significant amount of time in the classroom and, as suggested earlier, teachers play an important role in both recognizing and managing behaviours consistent with ADHD. Therefore, further research is needed to examine whether findings from parental attribution studies (e.g., Johnston et al., 2006) can be replicated in teachers. Investigating the attributions teachers make for the behaviour of children with ADHD could potentially lead to a better understanding of how ADHD is managed in the classroom and how programming is designed and implemented for children with the disorder. It is entirely possible that the relation between child behaviour and teacher attributions for behaviour follows a similar pattern to that observed between parents and children. That is, child behaviour is maintained by the attributions made for that behaviour. In addition to the attributions made for a child’s behaviour, it is possible that child personality factors influence the manner in which teachers respond to students with ADHD in a classroom setting.

Child Personality and Temperament

Child personality is a constantly evolving area of research that goes as far back as Sigmund Freud’s psychoanalytic theory of personality (Freud, 1923; Shaffer, Wood, &

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Willoughby, 2005). Although Freud's original theory of personality comprising the id, ego, and superego is frequently noted as the basis for much of the current research in personality theory, it is more applicable to adult personality than to child personality (Shaffer, Wood & Willoughby, 2005). Indeed, the majority of researchers and clinicians in the area of child psychopathology believe that personality is not fully developed until later adolescence (De Pauw, Mervielde, & Van Leeuwen, 2009; De Pauw & Mervielde, 2011). This being said, child temperament style has been identified as one important component of child personality that impacts behaviour from an early age (Mash & Wolfe, 2005; De Pauw et al., 2009; De Pauw & Mervielde, 2011).

Temperament refers to a child's style of behaviour that occurs early in development (e.g., fussiness or anxiousness) and shapes a child's interactions with others and his or her environment (Mash & Wolfe, 2005). Temperament is often considered to be an early building block of personality, hence its importance to the study of child personality (Mash & Wolfe, 2005; De Pauw et al., 2009; De Pauw & Mervielde, 2011). Different temperament styles have been linked to both protective and risk factors associated with psychopathologies (Mash & Wolfe, 2005). For example, a fearful or uninhibited temperament style describes a child that is cautious in new situations and might have difficulties with emotional or self-regulation. Children fitting into this temperament style category could be predisposed to developing an anxious or compulsive personality as they mature into adolescence and adulthood (Mash and Wolfe, 2005). In contrast, a child with a positive affect temperament is generally approachable and adaptable in all environments. Children with this particular temperament are more likely to develop a likeable and social personality (Mash & Wolfe, 2005).

Likeability. Child likeability (i.e., the degree to which the child is liked by a teacher) may have the potential to influence teacher attributions for behaviours in students with ADHD. Child likeability, as associated with peer-to-peer likeability, is a substantially researched area of child

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development (Ciarrochi & Heaven, 2009). Overall, research on child likeability has shown that likeable children tend to be more associated with characteristics such as: intelligence, physical attractiveness, strong pro-social and athletic skills, and lower levels of aggressiveness towards peers (Newcomb, Bekowski, & Pattee, 1993; Ciarrochi & Heaven, 2009). Likeable children are also rated as more extraverted, emotionally stable, and agreeable, according to Van der Linden, Scholte, Cillessen, te Nijenhuis, and Segers (2010). Before discussing likeability further, it is important to make the distinction between perceived *popularity* and perceived *likeability* in children, as the two concepts are often interrelated in social contexts. Whereas perceived popularity of a child is measured by social dominance and both pro-social and antisocial behaviour, likeability is only associated with pro-social behaviour and is not necessarily tied to the child's popularity among peers (Xie et al., 2006; Ciarrochi & Heaven, 2009; Witvliet, 2010).

Child likeability has been linked to the Five Factor Model of Personality (Goldberg, 1990; Hofstee, de Raad, & Goldberg, 1992; Dyce, 1997; Asendorpf & Van Aken, 2003). The five-factor model of personality (FFM) uses five relatively independent and broad adjectives to explain the major categories that differentiate degrees of personality (Goldberg, 1990; Hofstee, de Raad, & Goldberg, 1992; Dyce, 1997; Asendorpf & Van Aken, 2003). The FFM consists of Extraversion, Agreeableness, Conscientiousness, Neuroticism, and Openness (see Table 1 for explanatory descriptions of each personality factor). Much research exists surrounding the comprehensiveness of the FFM and personality research, including studies that have examined the link between the FFM and likeability in youth. One such study by Jensen-Campbell and colleagues (2002) found that adolescents who scored high in agreeableness had higher levels of peer acceptance and more mutual friends (Ciarrochi & Heaven, 2009). Peer acceptance was also linked to higher extraversion and conscientiousness, further providing evidence that likeability in children is related to pro-social behaviour (Jensen-Campbell et al., 2002; Ciarrochi & Heaven, 2009). Not

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only do likeable children have more positive peer relationships, but some research also indicates that likeable children have more favourable outcomes in clinical settings (Cowan et al., 1983).

This early study in the area of child likeability examined positivity of first impressions and likeability for ‘maladapting’ children (i.e., children referred for school adjustment problems) as compared to typical children. Findings indicated that when school aides observed both groups of children for 30 minutes in a classroom environment, significantly more positive first impressions were formed about non-referred children. These findings have also been echoed by more research in the adult medical literature with respect to treatment implementation and outcomes in clinical settings.

Likeability has also been identified in the medical literature as one factor (in addition to treatability and manageability) that often determines whether or not the patient’s symptoms are perceived as severe or not (De Rudderre et al., 2011). In a study conducted by De Rudderre and colleagues (2011), researchers found that the less likeable the patient (i.e., patients with unlikeable personality traits such as “egoistic”, “hypocritical”, and “arrogant”), the less pain that patient was perceived as having, even when reported pain was identical to that of a patient perceived as likeable (i.e., having personality traits such as “friendliness”, “honesty” and “faithfulness”). Further, likeable patients were consistently referred for treatment over unlikeable patients, despite similar levels of pain, suggesting that this bias can significantly impact patient care (De Rudderre et al., 2011). Furthermore, likeability had a greater impact when pain intensity was more severe, leading the authors to hypothesize that, because higher pain intensity is often seen as being indicative of an exaggerated response, a less likeable patient is viewed suspiciously, whereas a likeable patient receives more sympathy and care.

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Likeability and ADHD. Extrapolating to the field of child behaviour disorders, it is possible that child likeability is a factor that may influence teacher attributions for the behaviour of students with ADHD. Children with ADHD often exhibit annoying and disruptive behaviour in the classroom; therefore, as in the medical setting, likeability may determine whether teachers and other professionals are likely to implement academic or behavioural programming for these students. That is, if the child is perceived as likeable, he or she may be more likely to receive learning and behaviour modifications and accommodations in the classroom. Similar to the De Rudderre and colleagues (2011) study discussed above, it is possible that ADHD behaviour could be perceived the same way as patient pain. That is, ADHD symptoms such as inattention, hyperactivity, and impulsivity could be viewed as being as exaggerated and attention seeking behaviour if the child is also perceived as being unlikeable, or as debilitating behaviour that requires sympathy and intervention from teachers if the child is perceived as being likeable. Anecdotally, professionals working in school environments often report that teachers appear more willing to intervene with a student or to provide understanding for a student's inattentive, impulsive or hyperactive behaviours, when the child is well-liked and exhibits pro-social behaviour in addition to the disruptive behaviours associated with ADHD. Although understandable, this bias is concerning, as children with ADHD often exhibit weak social skills that may lead to them being perceived as less likeable by peers and teachers. If teachers and school personnel exhibit a "likeability bias" towards students with ADHD, this could impact access to assessment and diagnostic services, as well as in-class adaptations and accommodations.

Research Objectives

With these questions in mind, the current study had two primary objectives. First, we sought to investigate teacher attributions for behaviour in hypothetical students with ADHD and teachers' helping behaviours for ADHD behaviour, in relation to the negative bias it may present

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in working with these students. Second, the study examined the role of child likeability in determining the attributions teachers make for behaviour in hypothetical children with ADHD and in determining the amount of intervention or confidence teachers present for these children in the classroom. Additionally, teachers' current knowledge of ADHD was examined.

Based on previous studies of parental attributions for behaviour of children with ADHD, it was expected that teachers would make the most negative attributions for ADHD behaviours of unlikeable children, seeing their behaviours as internal, uncontrollable and stable. That is, we predicted that unlikeable students with ADHD behaviours would receive lower ratings than likeable children with ADHD behaviour in the domains of locus and stability and the higher ratings in the domain of control, as assessed by an Attribution Ratings Scale. In contrast, it was hypothesized that teachers would make fewer negative attributions for likeable children without ADHD, perceiving their behaviours as being caused by external factors that were internally controllable and unstable. It was also predicted that the most negative attributions overall would be observed in ratings for unlikeable children, regardless of ADHD behaviour. It was hypothesized that teachers would be less willing to provide accommodations, less willing to make a referral, and would feel less confident in managing unlikeable students' behaviour. Finally, we predicted that children with ADHD would be more likely to be perceived as needing further referral and that teachers would feel less confident about managing ADHD behaviour.

Method

Participants

Participants were 31 elementary, middle and high school teachers who were employed as full time teachers. In keeping with the typical sex distribution of teachers in Canada (Statistics Canada, 2005), the sample was predominately made up of female teachers (87%; $n = 27$). The majority of the participants were recruited from the Toronto District School Board (TDSB), but

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teachers in public, private, and separate schools in the Greater Toronto Area (GTA) and the Halifax Regional Municipality (HRM) were also invited to participate in the study. For the purposes of this study, elementary school is defined as grades 1 through 5, middle school as grades 6 through 8 and high school as grades 9 through 12. Substitute teachers and student teachers were excluded from participation, as these teachers often do not teach a consistent group of students throughout the academic year and may not have had the opportunity to make consistent observations of children with ADHD. In addition, they are not responsible for decisions on accommodations and classroom inclusivity for children with ADHD, and instead follow the instructions left by the classroom teacher.

Participants were recruited using word of mouth, through personal email addresses, and notifications placed on social media websites. In addition, principals in the TDSB were contacted and asked to send an informative email with the survey website link to teaching staff at their school. According to guidelines mandated by the TDSB, five school principals were contacted and agreed to send the survey link to their teaching staff. The schools involved in TDSB recruitment included three elementary schools and two middle schools. The study was approved by the Mount Saint Vincent University Research Ethics Board and the Toronto District School Board External Research Review Committee.

Measures

Demographic questionnaire (see Appendix A). Teachers completed a brief online demographic questionnaire consisting of questions about themselves such as age range, sex, education, number of years of teaching experience, grade level currently taught, and the estimated number of students with mental disorders they have taught and/or referred for an assessment.

Vignettes (see Appendix B). Participants were asked to read a series of six vignettes depicting a classroom scenario. The vignettes were short, easy-to-read paragraphs, based on

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similar formats used in previous studies (Johnston, et al., 2006; Johnston & Patenaude, 1994; King, MacDonald & Chambers, 2010). Each vignette depicted a gender-neutral student named Jamie, who exhibited typical ADHD behaviours that might present in a classroom setting. Adjectives and specific behaviours were used in each vignette to depict ADHD symptoms. Two of the vignettes depicted an inattentive child (inattentive condition), who displayed inattentive behaviours such as “side-tracked”; “forgetful”; “not paying attention”; and “absent-minded”. A further two vignettes depicted a hyperactive-impulsive child (hyperactive-impulsive condition), who displayed hyperactive and impulsive behaviours such as running around the classroom (when not directed to by the teacher), being described as behaving “impulsively”, and accidental destruction of the teacher’s property. The final two vignettes described a child with no ADHD behaviours that served as a control condition. All vignettes presented the child, Jamie, in interaction with a teacher in a classroom setting. The behaviours used to describe each ADHD-typical quality were adapted from examples used in previous studies (e.g., Johnston, et al., 2006; Ohan, et al., 2008) and corresponded to the diagnostic criteria from the Diagnostic Statistical Manual of Mental Disorders, Fourth Edition, Text Revision (DSM-IV-TR; APA, 2000). The vignettes were similar in their word count (between 98-108 words each). Each vignette involved a direct interaction between the hypothetical student and another person (i.e., teacher and/or peer) in a classroom environment. The teacher was present and directly affected, either positively or negatively in each scenario. The consequences of behaviour for both Jamie and the teacher were equivalent in each vignette.

Child likeability was also varied among vignettes. One vignette from each category (inattentive, hyperactive-impulsive and control) described Jamie with likeable traits, and the other vignette from each category described Jamie with unlikeable traits. The personality traits were adapted from the adjectives used for likeability and unlikeability in the De Ruddere et al. (2011)

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and Cowen et al. (1983) studies described previously. These adjectives from the Cowen and colleagues study (1983) correspond to traits described in the Five Factor Model. Based on these previous studies, a series of adjectives were used to describe likeable and unlikeable traits in the hypothetical student. Nine adjectives were used to describe Jamie's likeable personality traits: alert; physically attractive; appealing; bright; winsome; outgoing; lively-bubbly; responsive; and warm. Eight adjectives were used to describe Jamie's unlikeable traits: sad; unhappy; crying out for help; shy; forlorn; anxious; lonely; and devilish. The format of the vignette was similar in all six versions, with each ADHD behaviour remaining constant and only the likeability factors varied within each category. Vignettes were written in third person and the participant was asked to put him or herself in the place of the teacher in the vignette. The child in each vignette was gender neutral (using a gender neutral name, Jamie), with gender-neutral pronouns ("the student" or "him/her"). A gender-neutral name and pronouns was used in an attempt to eliminate the confound of sex when reading the vignettes.

Attribution Rating Scale (adapted from Johnston et al., 1994, 1997, 2006; see Appendix C). After reading each vignette, participants were asked to complete an Attribution Ratings Scale (ARS). The ARS consisted of six items, each with a 5-point Likert scale and a "written response" section. Participants were asked to imagine themselves as the teacher, and Jamie as their student in each of the vignette scenarios. Participants rated the cause of Jamie's behaviour on six dimensions. These dimensions were presented on a Likert scale, ranging from 1 (least desirable response) to 5 (most favourable response). The first three dimensions assessed teachers' causal attributions for Jamie's behaviour. The first dimension explored was *locus of control* (referred to in this study as Locus), with Likert ratings ranging from (1) something directly caused by Jamie to (5) something directly caused by the environment. The second dimension explored was *controllability of behaviour* (referred to in this study as Control), with

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Likert ratings ranging from (1) completely within the child's control to (5) not at all within the child's control. The third dimension used in the scale was *stability of behaviour* (referred to in this study as Stability), with Likert ratings ranging from (1) it will definitely happen again to (5) it seems like a one time occurrence. The final three dimensions assessed teachers' reactions to the described behaviour and the degree to which they would intervene with helping behaviours. The fourth dimension explored was *referral potential* (referred to in this study as Referral), or how likely it was that the participant would refer Jamie for further assessment, with Likert ratings ranging from (1) not at all likely to (5) definitely make a referral. The fifth dimension explored was *accommodations benefits* (referred to in this study as Accommodations), which examined whether participants thought Jamie would benefit from accommodations provided in the classroom, with Likert ratings ranging from (1) absolutely no benefit to (5) direct benefit. The final dimension explored participant's perceived confidence in *future manageability* (referred to in this study as Manageability) of Jamie's behaviour in the classroom, with Likert ratings ranging from (1) not at all confident to (5) extremely confident. To comply with Lime Survey software restrictions, each Likert scale point on all six dimensions was given a qualitative descriptor.

A second section in which written responses to open-ended questions was also included as part of the ARS. In this optional section, participants were given the opportunity to explain their causal attributions for each vignette by responding to the question, "In your opinion, based on the evidence from the scenario you just read, why do you think Jamie was acting this way? Please provide as much or as little detail as possible in your explanation." This section is modeled on Johnston and colleagues (2006) think-aloud procedure, in which mothers were able to verbalize their reasons for attributing their child's behaviour to either internal or external factors. Although vignettes are helpful in ensuring control over attribution stimuli and uniformity in data collection and analysis, they do not directly assess the specific cause that the participant is thinking of when

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completing the ratings scale (Johnston, et al., 2006). For this reason, the written response section was included as a way for participants to provide reasoning behind their responses and a chance to explain their attribution choices based on their own teaching experience. Open-ended responses were left as optional, so as not to discourage participation in the survey, as research shows a higher refusal rate and higher cost to participant per open-ended item on a questionnaire (Iarossi, 2009). That being said, the open-ended response format was included because past research demonstrates that open-ended questions are important in pilot studies, such as this one (Iarossi, 2009). They allow unique participant reactions to questions and allow participants to identify optimal measures or research design flaws, details to which close-ended, ratings scale format cannot provide (Iarossi, 2009).

Knowledge of Attention Deficit Disorder Scale (KADDS; Scuitto & Feldhamer, 2000; see Appendix D). The KADDS was used to determine participants' current knowledge of ADHD and to determine the impact their knowledge might have on their decisions made during the ARS. The KADDS was presented to the participants as the final scale to be completed, thus ensuring that participants were not influenced by the items pertaining to ADHD in advance of reading the vignettes. The KADDS is a 36-item rating scale that uses a true (T), false (F) or don't know (DK) format. This format allows differentiation between what participants *do not know* versus misinformation they might carry about the diagnosis, characteristics, and treatment of ADHD. To assess for a negative response bias, KADDS items refer to both positive and negative indicators of ADHD. Therefore, some negative behaviour items in the scale (e.g. stealing, inflated self-esteem) are characteristic of other psychological disorders and not of ADHD. In addition, because the scale examines participants' misconceptions about ADHD, the instructions asked the participants not to guess, but instead respond DK to any questions of which they were unsure. According to studies conducted by Scuitto and Feldhamer (2000), Small (2003), Kos, et al. (2004), and

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Kleynhans (2005), the KADDS is an efficient and easy to administer test with strong reliability and internal consistency (Cronbach's alpha = .81). Studies conducted by Scuitto and colleagues (2000, 2000a, 2004) also show evidence of good validity, as the KADDS appears to be sensitive to knowledge gained by direct interaction with ADHD children.

Procedure

Principals from five schools in the TDSB were contacted by telephone and asked to distribute the research study and survey login information to their faculty (see Appendix E for a copy of the telephone script). Participants were also contacted through word of mouth procedures and were provided with necessary study and survey information through recruitment flyers and emails (see Appendix F for a copy of the teacher recruitment flyer and Appendix G for a copy of the teacher recruitment email). Participants were given a URL address to access Lime Survey online, in their own time, to complete the study. After reviewing information about the study and providing informed consent by clicking on a box indicating their agreement to participate (see Appendix H for a copy of the consent form), participants were presented with the series of questionnaires described above. First, participants filled out the demographic questionnaire. Secondly, they were asked to read the series of six vignettes and to complete the ARS. Following completion of the ARS, participants were asked to fill out the optional, open-ended question that asked them to provide explanations for their ARS responses. All participants viewed the vignettes in the same order, as the Lime Survey software does not allow for digital and automatic item randomization. Therefore, to approximate randomization, each vignette was randomly assigned a number prior to being entered into the survey and were presented in this order to all participants. This "pseudo-randomization" allowed the investigators to control the vignette presentation such that two vignettes in the same category (inattentive, hyperactive-impulsive, and control) were not presented consecutively to a participant. Upon completion of all vignettes, participants were asked

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to respond to the KADDS. Each questionnaire was given one at a time, and participants were not able to alter their responses once they had completed each questionnaire. Participants were also required to complete the survey in its entirety, as opposed to saving their work and coming back to the survey at an alternate date or time. Altogether, the study took approximately 25-35 minutes to complete. Participants were not provided compensation for completion of the survey and all participation was conducted on a voluntary and anonymous basis.

Results

Overview

Results will be presented as follows: frequencies and descriptive statistics for demographic questionnaires, teacher attributions for student behaviour, teacher ratings of helping behaviours, a qualitative discussion of responses to open-ended questions, and correlations between teacher knowledge of ADHD and teacher ratings of student behaviour and helping behaviour.

Demographic Characteristics of the Sample

Initially, 58 participants began the survey; however, not all participants completed the entire survey. Therefore, the final sample consisted of 31 participants (N = 27 females) recruited from the Toronto District School Board, and several other public and separate school boards in the Greater Toronto Area (GTA) and Halifax Regional Municipality (HRM). Participation in the study was anonymous and therefore participants were not required to indicate their current teaching position. As such, it is unknown how many participants were recruited from the TDSB as compared to participants from the various other school boards included in the participant pool (see Table 2 for a comprehensive summary of demographic characteristics of the final sample). Refer to Table 3 for means, medians, standard deviations and ranges for specific demographic statistics. An option of 'Other' was available for participants within the demographic item of 'Grades Taught', as only grades Primary through to High School were included in the item set. Five (16%)

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participants indicated they have taught in a context other than Elementary, Middle or High school. Two (6%) participants indicated they have taught an English as a Second Language course (for adults and children of various ages), one (3%) participant indicated they have taught in 'Teacher training' courses and two (6%) participants indicated they have taught special education classes (including one 'special needs' class and one Autism program). Regarding participants' educational background, a concurrent degree indicates that participants received their teaching degree during the course of their four-year, undergraduate Bachelors degree, as opposed to attending a teacher training program following completion of the undergraduate degree and receiving a separate Education degree. Three (10%) participants indicated 'Other' educational background, which included one PhD degree and two concurrent Masters degree plus teaching degree programs. Participants' classroom experience with students with a disability or mental health disorder was varied. Twenty-six (83%) participants indicated that they had experience teaching a student with ADHD, 24 (77%) had experience teaching a student with a learning disability, 21 (68%) had experience teaching a student with Asperger's Syndrome and/or Autism Spectrum Disorder, 14 (45%) had experience teaching a student with oppositional defiant disorder and/or conduct disorder, 13 (42%) had experience teaching a student with an anxiety disorder and/or separation anxiety disorder, 35% (n = 11) had experience teaching a student with mental retardation (often referred to as developmental disability in the school system), 29% (n = 9) had experience teaching a student with depression, while 7% (n = 2) of participants indicated to their knowledge, they have never taught a child with a disability or disorder. Given the small sample size and the fact that the current study is focused on findings relevant to ADHD, only two categories from this demographic item (teaching experience with an ADHD student and no teaching experience with a disability or disorder) will be used in statistical analysis.

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Pearson's correlations were conducted to examine the relation between specific demographic factors and participant scores for each condition on the Attribution Ratings Scale. Specifically, five demographic factors were correlated with the ARS scores; age, education level, years of teaching experience, experience with students with ADHD, and whether or not the participant had made a referral for a psychoeducational assessment in the past. Results showed no significant correlations between demographic factors and teacher ratings on the ARS.

Attributions for Student Behaviour

To determine whether teachers made more negative attributions for the behaviour of unlikeable students with ADHD behaviours, teachers' mean ratings on each attributional dimension (i.e., locus, control, stability) were compared using a series of two-way within-subjects repeated measures analyses of variance (ANOVA), with behaviour type and likeability used as within-subjects variables. Group means and standard deviations for each dimension are presented in Table 5.

Locus. A 3 (Behaviour Type: ADHD-inattentive, ADHD-hyperactive-impulsive, ADHD-none) x 2 (Likeability: likable, unlikeable) within-subjects repeated measures ANOVA was conducted to examine attributions for locus (i.e., internal vs. external causes for behaviour). Results indicated a significant Behaviour Type x Likeability interaction, $F(2, 60) = 3.51, p < .05$, partial $\eta^2 = .11$. Follow-up paired samples t-tests on each variable separately indicated that teachers rated hyperactive-impulsive, likeable behaviour as more likely to be caused by internal factors, whereas hyperactive-impulsive, unlikeable behaviour was rated as more likely to be caused by external (i.e., environmental) factors ($t(30) = -2.56, p < .05$). Results also indicated a significant main effect of Behaviour Type, $F(2, 60) = 7.91, p < .05$, partial $\eta^2 = .21$. Posthoc testing indicated that teachers rated students in the control condition as having behaviour caused

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by more internal factors, whereas inattentive and hyperactive-impulsive behaviour was rated as being more likely to be caused by external factors.

Control. A 3 (Behaviour Type: ADHD-inattentive, ADHD-hyperactive-impulsive, ADHD-none) x 2 (Likeability: likable, unlikeable) within-subjects repeated measures ANOVA was conducted to examine attributions for control (i.e., controllable vs. uncontrollable). Results indicated a significant Behaviour Type x Likeability interaction, $F(2, 60) = 3.80, p < .05$, partial $\eta^2 = .11$. Follow-up paired samples t-tests on each variable separately indicated that teachers rated control/likeable behaviour as being more controllable by the student, whereas they rated control/unlikeable behaviour as being less controllable by the student ($t(30) = -3.38, p < .05$). Results also indicated a significant main effect of Behaviour Type, $F(2, 60) = 35.95, p < .05$, partial $\eta^2 = .55$. Posthoc testing indicated that teachers rated the behaviour of children in the hyperactive-impulsive condition as being least controllable by the child, followed by inattentive behaviours, and children with no diagnosis as being most in control of their behaviour.

Stability. A 3 (Behaviour Type: ADHD-inattentive, ADHD-hyperactive-impulsive, ADHD-none) x 2 (Likeability: likable, unlikeable) within-subjects repeated measures ANOVA was conducted to examine attributions for stability (i.e., stable vs. unstable). Results indicated a significant main effect of Likeability, $F(1, 30) = 4.74, p < .05$, partial $\eta^2 = .14$. Posthoc testing indicated that teachers rated unlikeable students as having more stable behaviours than likeable children. No other significant main effects or interactions were found.

Helping Behaviours

To determine whether teachers were less likely to display helping behaviours toward unlikeable students with ADHD behaviours, teachers' mean ratings on each helping behaviour dimension (i.e., likelihood of making a referral, benefit of accommodations, confidence in ability to manage behaviour) were compared using a series of within-subjects repeated measures analyses

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of variance (ANOVA), with behaviour type and likeability used as within-subjects variables.

Group means and standard deviations for each dimension are presented in Table 5.

Likelihood of referral for further assessment. A 3 (Behaviour Type: ADHD-inattentive, ADHD-hyperactive-impulsive, ADHD-none) x 2 (Likeability: likable, unlikeable) within-subjects repeated measures ANOVA was conducted to examine whether teachers would be likely to refer the hypothetical student for further assessment. Results indicated a significant Behaviour Type x Likeability interaction, $F(2, 60) = 7.15, p < .05$, partial $\eta^2 = .19$. Follow-up paired samples t-tests on each variable separately indicated that teachers would be more likely to make a referral for inattentive, unlikeable children ($t(30) = -2.52, p < .05$) and control, unlikeable children ($t(30) = -2.97, p < .05$). No group differences were observed in the hyperactive vignettes. Results also indicated a significant main effect of Behaviour Type, $F(2, 60) = 23.37, p < .05$, partial $\eta^2 = .44$. Posthoc testing indicated that teachers were least likely to make a referral for hypothetical students with no ADHD behaviour, followed by inattentive behaviour, and most likely to make a referral for students with hyperactive-impulsive behaviour.

Benefit of classroom accommodations. A 3 (Behaviour Type: ADHD-inattentive, ADHD-hyperactive-impulsive, ADHD-none) x 2 (Likeability: likable, unlikeable) within-subjects repeated measures ANOVA was conducted to examine whether teachers believed the student would benefit from classroom accommodations. Results indicated a significant main effect of Behaviour Type, $F(2, 60) = 36.11, p < .05$, partial $\eta^2 = .55$. Posthoc testing indicated that teachers rated students exhibiting hyperactive-impulsive behaviours as benefitting most from classroom accommodations, followed by students exhibiting inattentive behaviours, with students displaying no ADHD behaviours as benefitting the least from classroom accommodations. Results indicated a significant main effect of Likeability, $F(1, 30) = 17.36, p < .05$, partial $\eta^2 = .37$. Posthoc testing

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indicated that teachers rated unlikeable students as being more likely to benefit from classroom accommodations.

Confidence in managing behaviour in the classroom. A 3 (Behaviour Type: ADHD-inattentive, ADHD-hyperactive-impulsive, ADHD-none) x 2 (Likeability: likable, unlikeable) within-subjects repeated measures ANOVA was conducted to examine teacher confidence in managing behaviour in the classroom. Results indicated a significant Behaviour Type x Likeability interaction, $F(2, 60) = 11.49, p < .05$, partial $\eta^2 = .28$. Follow-up paired samples t-tests on each variable separately indicated that teachers would feel more confident managing the behaviour of inattentive, likeable students as opposed to inattentive, unlikeable students ($t(30) = 3.65, p < .05$) and the behaviour of control, likeable students as opposed to control, unlikeable students ($t(30) = 4.62, p < .05$). No group differences were observed for hyperactive-impulsive students.

Results also indicated a significant main effect of Behaviour Type, $F(2, 60) = 14.30, p < .05$, partial $\eta^2 = .32$. Posthoc testing indicated that teachers felt most confident in managing the behaviour of students with no ADHD behaviours, followed by inattentive behaviours, with teachers feeling least confident about managing the behaviour of students with hyperactive-impulsive behaviour. There was a significant main effect of Likeability, $F(1, 30) = 12.42, p < .05$, partial $\eta^2 = .29$. Posthoc testing indicated that teachers felt more confident in managing the behaviour of likeable students than unlikeable students.

Open-ended Responses

To allow participants the opportunity to provide additional rationale for their specific ARS responses, an optional open-ended question section of the survey was included following the ratings scale for each vignette. As described earlier, this open-ended concept was adapted from Johnston and colleagues' (2006) study, which asked mothers to participate in a 'think-aloud' task

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to explain their responses on an attribution ratings scale. Originally, there had been plans to analyse these responses as per Johnston et al. (2006), however, due to the fact that only 17 out of the 31 participants (54%) provided responses to all open-ended questions, with another 9 participants providing responses to some open-ended questions, it was not possible to conduct statistical analyses on these responses. For these reason, we will provide a qualitative overview of these open-ended responses, with the goal of collecting more data and completing statistical analyses in a future study. See Table 6 for themes, frequencies and example statements of open-ended responses of qualitative data.

Identification of sex. Examination of the open-ended responses found that four (15%) of the 26 participants who completed the entire open-ended question portion of the survey ($n = 26$) used a masculine pronoun when describing Jamie's behaviour. All other participants ($n = 22$) who completed the open-ended response section used sex-neutral pronouns to describe Jamie (they/them, or him/her), which was how Jamie was described in the vignettes. No participants described Jamie using feminine pronouns.

Need for further information. Overall, 12 (46%) participants provided at least one response that suggested more information was needed about Jamie to determine the causes of the behaviour and necessary follow-up. For example, participants made comments such as, "I find it difficult to determine why Jamie was acting this way with the limited information provided," or "Without more context and history (and the child's age), it's difficult to assess a single incident". Many participants proposed specific questions that would assist them in providing ratings, such as "How old is Jamie?" or "How often does this behaviour occur?".

Identification of ADHD. In total, seven (27%) participants used the word "ADHD" at least once to describe Jamie's behaviour, while 16 (62%) participants used an ADHD symptom to describe Jamie. Specifically, after examination of the open-ended responses for the hyperactive-

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impulsive vignettes, 16 (62%) participants identified Jamie as impulsive and/or displaying “impulsive behaviour issues”. In terms of the inattentive vignettes, nine (35%) participants identified Jamie as having difficulties with attention and/or demonstrating inattentive-like symptoms. For the control vignettes, majority of participants (61%) commented that Jamie’s behaviour (in both likeable and unlikeable vignettes) was typical and appropriate for students, although five participants (19%) who provided open-ended responses to the control/unlikeable vignette noted that Jamie might have “possible ADHD”, “behavioural”, and/or “oppositional” problems. These findings indicate that our vignettes accurately depicted different types of ADHD behaviour, and teachers were able to recognize certain symptoms and behaviours without being explicitly instructed that these children had ADHD.

Attributions for behaviour. Participants reported a variety of attributions for Jamie’s ADHD behaviour in their written responses to all six vignettes. With respect to internal (i.e., child-focused) attributions, participants provided responses such as attention seeking behaviour, internal control over behaviour, defiant behaviour, behaviour that likely occurs often, “acting out”, disrespectful behaviour, poor work habits, lack of respect for teacher or class rules, and implicating Jamie as the cause/source of the problem. With respect to external (i.e., environmental) attributions, participants provided responses such as loss of control, uninteresting class environment, harsh teacher reactions to behaviour, unstable home environments, inappropriate classroom expectations, and lack of sleep. Similar attributions were observed in all three behaviour conditions (i.e., hyperactive-impulsive, inattentive, and control). A particularly interesting observation during examination of the open-ended response section was that participants made many more internal, negative attributions for Jamie in the unlikeable vignettes as compared to the likeable vignettes. Specifically, 42% of responses for the unlikeable conditions contained a direct reference to a negative, internal attribute as a cause for Jamie’s behaviour,

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whereas only 18% of responses for likeable vignettes contained this type of attribute (see Table 7 for themes, frequency and example statements of responses to likeable and unlikeable conditions). In contrast, 21% of responses for the likeable conditions directly attributed Jamie's behaviour to external causes, whereas 16% of unlikeable condition responses did the same. Finally, 20% of responses for likeable conditions gave internal, positive attributions for Jamie's behaviour, and the same statements were only seen 1% of the time in the unlikeable conditions.

Knowledge of ADHD

Responses to KADDS. See Table 8 for medians, standard deviations, and percentages of correctly answered items on KADDS overall scale and subscales. In general, participants were able to correctly respond to approximately half of the items on the KADDS, indicating a moderate level of knowledge of ADHD. Based on their responses to items on this questionnaire, teachers were most knowledgeable about ADHD symptoms and diagnosis (on average, participants answered 67% of items correctly) and least knowledgeable about ADHD treatment (on average, participants answered 46% of items correct). Examination of individual KADDS items shows the most common correctly answered item was Item 3 ("ADHD children are frequently distracted by extraneous stimuli") with 29 (94%) participants responding to this item. The most common incorrectly answered item on the KADDS was Item 4 ("ADHD children are typically more compliant with their fathers than with their mothers), with 14 (45%) participants responding incorrectly (responding 'False' instead of 'True') to this item. Item 4 was also the most common incorrectly answered item overall, with 94% (n = 29) of participants' incorrectly answering this item (Either answering 'False' instead of 'True' or answering 'Don't Know'). The KADDS item that was most commonly answered "I Don't Know" was Item 37 ("Research has shown that prolonged use of stimulant medications leads to increased addiction (i.e. drug, alcohol) in adulthood"), with 25 (81%) participants responding "I Don't Know" for this particular item.

Correlations between KADDS and Demographic Factors. Pearson's correlations were conducted to examine the relation between KADDS total scores and five demographic factors (i.e., sex, age range, education level, years of teaching experience, experience with a student with ADHD, and experience making a referral). Results indicated that there was a positive correlation between KADDS total score and participants who had made a psychoeducational referral, $r = .421$, $p < .05$. (see Table 9). No other demographic factors were found to be significantly correlated with KADDS scores.

Correlations between KADDS and ARS responses. Pearson's correlations were conducted to investigate the relation between KADDS total score and teacher ratings on the ARS for each behaviour type. Results indicated a positive correlation between KADDS total score and Locus in the control, likeable condition, $r = .36$, $p < .05$ and Control in the hyperactive-impulsive, unlikeable condition, $r = .42$, $p < .05$. Results also indicated a positive correlation between the KADDS Associated Features subscale total score and Control in the hyperactive-impulsive/unlikeable condition, $r = .452$, $p < .05$. The KADDS Symptoms and Diagnosis subscale total score was positively correlated with Control in the hyperactive-impulsive, unlikeable condition, $r = .376$, $p < .05$, whereas the KADDS Treatment subscale total score was positively correlated with both Locus in the control, likeable condition, $r = .476$, $p < .05$ and Control in the control//unlikeable condition, $r = .452$, $p < .05$. No other significant correlations were observed between KADDS scores and any other items on the Attribution Ratings Scale.

Discussion

The current study had two main objectives. First, the study sought to replicate and extend findings from studies of parental attributions by investigating teacher attributions and helping behaviours for ADHD behaviour. Second, the study sought to examine the role of student likeability in determining both the attributions teachers make for behaviour, and the degree to

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which this student personality variable relates to teachers' helping behaviours in the classroom. Additionally, teachers' current knowledge of ADHD was examined to determine whether this affected their response pattern on measures of behavioural attributions and helping behaviours.

Relation between Demographic Characteristics and Attributions for Student Behaviour

Demographic questions included as part of the survey allowed for examination of the relation between teacher factors such as length of time in the profession and previous experience with students with ADHD and their attributions for student behaviour. Correlational analyses indicated no significant relations between any of the demographic factors included in this study and teacher attributions for student behaviour. There are a number of reasons that could possibly account for this finding. First, it is possible that stronger relations between variables may have emerged had a larger sample size been used in the current study. Secondly, these findings could provide evidence for the fact that teacher attributions for student behaviour are influenced less by "concrete" demographic factors such as years of experience or experience with children with ADHD and more by "abstract" factors such as cultural/ethnic background or innate personality factors. For example, Arcia and colleagues (2000) found that teachers felt confident in managing a student with ADHD in their classroom regardless of teaching experience or how many students' with ADHD they had previously taught. Similarly, Johnston and colleagues (2006) and Mah and Johnston (2007) found that parents held similar beliefs about ADHD in their children regardless of age or socioeconomic status. Additionally, Kos and colleagues (2004) found that years of teaching experience did not predict a greater sense of control in the classroom or greater knowledge of ADHD with elementary-school teachers.

Given that previous research provides support for the current findings, it is possible that research may need to focus beyond the "standard" teacher demographics to determine factors that affect teacher attributions for student behaviour. For example, it may be more effective to

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examine the ethnicity or cultural background of teachers as a determinant of behaviour attributions. A study by Mah and Johnston (2007) examined the effect of cultural beliefs on attributions for ADHD behaviour between Euro-Canadian and Chinese immigrant mothers and found that Chinese mothers viewed children with ADHD as being less responsible for their pro-social behaviours as compared to Euro-Canadian mothers (Mah & Johnston, 2007). This study echoes finding of previous research that found many minority groups (in comparison to Euro-North American population) view behaviour disorders from a broader perspective that includes spiritual, moral and metaphysical causes (Flaskerud, 1984). It is possible that teachers with non-European-Canadian backgrounds make more external attributions for ADHD children, or that improvements in behaviour of ADHD children could be attributed to factors other than teacher or student effort. Given Canada's increasingly multicultural population, the importance of investigating both teacher and student cultural factors as they relate to attributions for classroom behaviour becomes more important. As such, it may become important to include education about the nature of behaviours associated with neurodevelopmental disorders such as ADHD in teacher training programs and diversity training.

Another important "demographic" field to consider in teacher attribution studies is personality/teaching styles and their effect on perceptions of students with ADHD. Studies conducted by Mah and Johnston (2007) and Johnston and Freeman (1997), found that mothers distribute more parental blame or credit for children with non-ADHD behaviour, as compared to children exhibiting ADHD behaviour. This shows that mothers form a self-serving bias in their attributions of ADHD behaviour, as they assign less blame to themselves when children with ADHD display disruptive behaviours (Johnston & Freeman, 1997; Mah & Johnston, 2007). Researchers describe this as a type of coping style for parents with children with ADHD, and it would be interesting to determine whether teachers develop a similar coping style when working

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with students with ADHD in their classrooms. Eliminating negative and ineffective parenting styles in the home has been shown to have a significant effect on improvement of school outcomes for children with ADHD (McKee et al., 2004), and this research could extend to examining the interplay between teacher personality/teaching style and behavioural and academic outcomes for students with ADHD. Indeed, previous studies have found that teacher personality style has an effect on student success and student perception (Kos et al., 2004; Sherman, Rasmussen & Baydala, 2008; Garcia, Kupczynski, & Holland, 2011). Specifically, teachers who demonstrate patience, teamwork skills, and a positive attitude towards children with special needs have been shown to have a positive impact on success in students with ADHD (Sherman et al., 2008; Garcia et al., 2011). Given that teacher personality style has been shown to have an effect on test scores, teacher-student relationship, and student outcome in the classroom (Sherman et al., 2008), it is not unreasonable to hypothesize that these personality factors may also impact the types of attributions teachers make for the behaviour of students with ADHD.

Attributions for Student Behaviour

As shown in studies of parent attributions for children's problem behaviour, more negative attributions are typically made for behaviour in children with ADHD as compared to similar behaviour in typically developing children (Johnston & Freeman, 1997; Johnston et al., 1998; Johnston, et al., 2006; Mah & Johnston, 2007). These negative attributions can determine the type of support children with ADHD are given, based on whether their behaviour is viewed as controllable and therefore, intentional misbehaviour, or uncontrollable and therefore, in need of intervention in the form of support and accommodations (Johnston et al., 2006; Johnston & Patenaude, 1994). Results of the current study provided some support for previous findings, but were also inconsistent in some respects. Results with respect to teacher attributions, helping

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behaviours, and correlations between knowledge of ADHD and attributions/helping behaviours will be discussed in turn.

Locus. In this domain, results indicated an interaction behaviour and likeability in the hyperactive-impulsive behaviour condition, such that the hyperactive-impulsive/unlikeable student was rated as having behaviour that was more likely to be caused by external factors as compared to the hyperactive-impulsive/likeable student. This is not entirely surprising, as the hyperactive-impulsive behaviour observed in students with ADHD has often been found to be the most difficult for teachers to manage in the classroom setting, due to the disruption this type of behaviour causes to both the teacher and to the other students in the class (Scuitto et al., 2004; Ohan et al., 2008; Ohan et al., 2010). Students who exhibit high levels of hyperactive-impulsive behaviour are referred for assessment, diagnostic, and intervention services more often than children who exhibit the inattentive behaviours associated with ADHD or other internalizing symptoms (Scuitto et al., 2004). It follows, then, that if a child who exhibits hyperactive-impulsive behaviours has a likeable characteristic, teachers may be more likely to rate that child as being more in control of his or her behaviour. A second possible explanation of these findings is that the ARS did not ask teachers to account for internal attributes that were positive (i.e. taking responsibility for one's actions, apologizing for a mistake, characteristics such as caring or kind used to describe Jamie). These positive, internal attributes could be a reason why the locus ratings on the hyperactive-impulsive, likeable condition were rated as more internally caused, as participants perceived the likeable traits in the vignette as attributed to internal causes, whereas the unlikeable traits would most likely not be attributed to positive, internal attributes.

With respect to the main effect of behaviour type on teacher ratings of locus, teachers did not differ in their attribution ratings of the loci of causes for behaviours associated with ADHD behaviours (i.e., hyperactive/impulsive and inattentive behaviours), although findings indicated

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that teacher attributions for behaviour differed significantly between ADHD behaviour and typical (i.e., control) behaviour. Teachers rated behaviour in the control condition as more internally caused (i.e., child-focused), compared to ADHD behaviours, which were more likely to be attributed to external factors (i.e., environmentally-focused). This finding conflicts with previous studies and was contrary to the hypotheses presented earlier, as previous research in this area tends to show that mothers of children with ADHD rate behaviour as being more child-focused (i.e., internal locus), compared to typically developing children (Johnston & Patenaude, 1994; Johnston et al, 1998). Interestingly, studies by Johnston and colleagues (2006), Collett and Gimpel (2004), and Johnston and Freeman (1997) did not find any significant differences in maternal ratings of locus in children with ADHD as compared to typically developing children, suggesting that locus may be a particularly difficult construct to assess in this population. Nevertheless, there are a number of possible explanations for the finding in the current study.

First, because situational determinants (e.g., background history, classroom management strategies) of the hypothetical student's behaviour were not established in the vignettes, it is possible that teachers "filled in the blanks" and hypothesized that Jamie's disruptive behaviour was a result of environmental causes. Indeed, our evaluation of responses to open-ended questions suggested that teachers were curious about the classroom environment and questioned whether an external factor may have contributed to the student's behaviour. Given that teachers receive education and information about the nature of disruptive behaviour in students and are often instructed to make environmental changes to ameliorate student behaviour as part of student behaviour support plans, it is not surprising that many teachers tend to attribute difficult behaviour to a lack of fit between the student and his or her classroom environment (Kos et al., 2004). These findings, although inconsistent with our initial hypotheses, are encouraging, as they indicate that many teachers have a good understanding of the effects of the environment on students' observed

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behaviour. A second explanation of these findings is that the tendency to attribute ADHD behaviours to external factors could be a type of coping strategy for teachers who encounter difficult behaviour in their classroom. Specifically, unlike parents, teachers must follow school and school board policies with respect to delivery of curriculum as well as behaviour management in their classroom, meaning that they have less control over a student's behaviour (and its consequences) than the child's parent might. As a result, attributing disruptive or "off-task" behaviour to situational or environmental factors might reflect a degree of cognitive dissonance, in that this would be a way for teachers to cope with the potential stress of having a student with ADHD in the classroom. Anecdotally, this would be similar to an employer attributing a newly hired employee's lateness to traffic problems (i.e., an external factor) rather than to laziness (i.e., an internal factor), so as to affirm the choice to hire the employee and to potentially avoid having a confrontation in the workplace. Although this hypothesis is purely speculative, it opens the possibility of research to further explore this domain and its interaction with teacher attributions for the behaviour of students with ADHD.

Furthermore, there was no significant main effect of child likeability on teacher ratings of locus in the current study. Given that very little research actually examines the role of child likeability with respect to attributions for behaviour, it is difficult to speculate on the relevance of this finding. On first glance, this finding is somewhat encouraging, as it suggests that teachers make attributions in the domain of locus solely based on the student's behaviour rather than on their personal feelings about that student. However, further examination of responses to open-ended questions indicate that there was a higher overall quantity of external attributions made for the behaviour of the likeable student and a higher quantity of negative, internal attributions made for the behaviour of the unlikeable student. Although these findings were not reflected in teacher responses on Likert ratings, similar differences between more "naturalistic" (i.e. open-ended

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response) studies versus ratings scale studies have been found in past literature. For example, Johnston and Freeman (1997) found differences between locus ratings of ADHD and control groups on “think-aloud” measures with real children, but not on analogue questionnaires.

Johnston & Freeman (1997) believed that this was the case because parents are better able to understand or speculate about reasons for behaviour when the behaviour is unfolding directly in front of them (as in the case with a real child), or when they are able to use verbalizations to articulate their opinions (as is in the case with “think-aloud” measures). Therefore, it is possible that the constrained nature of written vignettes and Likert-scale response options used in the current study may have contributed to the lack of main effect for student likeability in the domain of locus, as rating scales are not able to capture the subtle nuances of the rater’s opinions about the causes of child behaviour.

Control. A significant interaction between behaviour type and likeability was observed in the domain of Control, such that teachers rated the student in the control/unlikeable condition as being more in control of his/her behaviour than the student in the control/likeable condition. Negative attributions regarding controllability of behaviour were much stronger for unlikeable than likeable children in the control condition only. This leads to the speculation that the child likeability is more important with respect to attributions for control when assessing the behaviour of typical children, rather than the behaviour of children with ADHD. This is an interesting finding, as it suggests that children with ADHD and typically developing children are held to different standards when making attributions for controllability of behaviour. Specifically, children with ADHD, whether they are likeable or not, are perceived by teachers as being less able to control their behaviour, whereas typically developing children are perceived differently depending on whether or not they are likeable. This pattern could potentially affect referrals for services or classroom management of behaviour, as, consistent with findings from studies of

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student personality, teachers may be more likely to attribute the behaviour of typical children to low conscientiousness, higher levels of aggression and uncooperativeness (Asendorpf & Van Aken, 2003; Van der Linden et al., 2010; Zijlmans et al., 2012). Indeed, teachers of typically developing students who are unlikeable may perceive that student as one who purposefully misbehaves, resulting in harsh consequences and increased demand for referral and/or services for a child who does not require this.

Results indicated a significant main effect of behaviour type on teacher ratings of control. That is, teachers rated the hyperactive-impulsive student as having the least amount of control over his/her behaviour, followed by the inattentive student and, finally, the typically developing child was rated as having the most control over their behaviour. This finding was consistent with our initial hypotheses and with previous studies examining parental ratings of control for ADHD children (e.g., Dix, Ruble, & Zambarano, 1986; Johnston & Freeman, 1997; Johnston et al., 2006). Although not all studies have found significant differences in ratings of control for the different subtypes of ADHD behaviour as the current study found, all previous research (that we know of) has found that children's ADHD behaviour is generally perceived as being less controllable than non-ADHD behaviour. The current finding fits well within current conceptualizations of ADHD, in that typical ADHD symptoms are impulsive, reactive behaviours that occur within a short attention span (Barkley, 2006). A child who exhibits this behaviour would most likely appear unable to control his or her impulses and unable to manage his or her hyperactivity. In addition, the more overt, disruptive behaviour exhibited in a hyperactive-impulsive child could be seen as more out of control than inattentive behaviour, because of the amount of perceived energy and destruction that often occurs with hyperactive behaviour (Barkley, 2006; Johnston et al., 2006).

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However, another possible explanation for the current findings with respect to attributions for control is that, by rating ADHD behaviour as more uncontrollable, teachers are demonstrating a self-serving bias for students, as well as for themselves. Specifically, teachers are taking the blame for behaviour away from the students, since they view the ADHD behaviours as uncontrollable and therefore, no direct fault of the child. At the same time, teachers are taking the responsibility of providing intervention and support away from themselves, since it could be argued that uncontrollable behaviour could not, or would not, benefit from learning or behaviour strategies (Johnston & Freeman, 1997). These types findings in the domain of control support the need for school board policies such as school-wide Student Support Meetings and Individual Education Plans, that explicitly mandate classroom accommodations teachers must put in place for students in need.

Stability. Contrary to previous parental studies (Johnston & Freeman, 1997; Johnston et al., 2006; Mah & Johnston, 2007) and to our own predictions, ratings for stability of causes did not differ among behaviour conditions. Interestingly, some previous studies (e.g., Johnston & Freeman, 1997 and Johnston et al., 2006) indicate that an increased degree of stability is often attributed to children with comorbid ADHD and oppositional behaviours, as opposed to ADHD-only behaviour. Researchers suggested that attributing undesirable child behaviours to stable factors was associated with harsher parenting styles and greater parental distress (Johnston & Patenaude, 1994; Harrison & Sofronoff, 2002 in Johnston et al., 2006; Johnston et al., 2006). This is because the child's oppositional behaviour is perceived by mothers as being more stable, and therefore leads them to develop a more negative view of the child's ADHD behaviour. Conversely, the opposite may be true, in that mothers' negative attributions may lead the child to develop a stable pattern of oppositional and disruptive behaviours (Johnston & Patenaude, 1994; Johnston & Freeman, 1997; Johnston et al., 2006). It is possible, then, that stability is more salient

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when examining oppositional behaviours rather than the hyperactive-impulsive and inattentive behaviours more commonly associated with ADHD-only students.

Child likeability had a significant effect on attributions for behaviour in the domain of stability. Specifically, results indicated that unlikeable children were perceived by teachers as having more stable behaviour (i.e., behaviour that is more likely to occur again), whereas likeable children were perceived as having more unstable behaviour (i.e., the behaviour was seen as a one-time occurrence). It is possible that teachers viewed unlikeable traits in students with ADHD in a similar manner to the mothers in the previously described studies of oppositional children; that is, their negative behaviours were seen as internal characteristics of disrespect, rudeness or uncooperativeness. This may have caused teachers to develop more negative views of unlikeable students, regardless of behaviour type, and therefore led teachers to assign lower stability ratings. Given the small sample and pilot nature of the current study, however, future research should attempt to clarify the relation between likeability and ratings of stability.

Impact of Student Behaviour on Teacher Helping Behaviours

Likelihood of referral for further assessment. Not surprisingly, a main effect of behaviour type was found in the helping domain of likelihood of referral for psychoeducational assessment, such that teachers were more likely to refer the hyperactive-impulsive student, followed by the inattentive student, and were least likely to refer the typical student. This finding supports our predictions and is somewhat expected, given that hyperactive-impulsive behaviours are more disruptive to the classroom environment and therefore require more time, management and attention from teachers. Unfortunately, in a typical classroom with many different students, teachers rarely have the time or resources to manage the special needs of one child, without some input or consultation from an Educational Assistant, a School Support meeting or use of

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Psychological support services. Making a referral is most likely the obvious, and best option for these disruptive children.

Interestingly, the hypothetical students in the inattentive condition were rated lower on the referral rating scale than the hyperactive-impulsive condition, although both sets of vignettes depicted a student with clinically significant symptoms of ADHD. Previous studies have shown that teachers view hyperactive-impulsive behaviour as more problematic than inattentive or withdrawn behaviour, because inattentive behaviours are perceived as less disruptive and are believed to have a better prognosis than hyperactive-impulsive behaviours (Li, 1985 as cited in Kos et al., 2004; Kos et al., 2004). Therefore, teachers may view children who present with inattentive ADHD symptoms as less of a priority than a student in the same class with more externalizing, disruptive behaviours. A potential concern that arises from this finding is that students with the predominately inattentive subtype of ADHD may be overlooked for an assessment and therefore may not be diagnosed with ADHD until much later in their schooling. This tendency may be one of the factors contributing to higher age of onset for children with the predominately inattentive subtype of ADHD, as compared to other subtypes (see Waschbusch, King, Gregus, and Northern Partners in Action for Child and Youth Services, 2007). This is an important consideration, given that research shows that the all symptoms of all ADHD subtypes continue to affect school and employment outcome throughout adolescence and adulthood; therefore, it is clear that early intervention is important, and that the symptoms and behaviour concerns of ADHD will not disappear as the student ages (Smith, Barkley, and Shapiro, 2010; Biswas et al., 2011; Bellendiuk et al., 2012). It is essential for teachers and school personnel to be knowledgeable about all symptoms and presentations of ADHD, and to recognize the bias that might occur when faced with a student that exhibits more subtle, inattentive behaviours.

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Although likeability alone did not impact teachers' likelihood of referring the child for further assessment, a significant interaction was found, such that the child in the inattentive/unlikeable condition and the control/unlikeable condition was more likely to be referred over their likeable counterparts. One explanation is that teachers perceive likeable children as more pro-social, more cooperative and more agreeable than children perceived as unlikeable (Asendorpf & Van Aken, 2003; Van der Linden et al., 2010; Zijlmans et al., 2012). Even in the presence of ADHD behaviour, teachers may be more willing to personally accommodate and manage the behaviour of likeable children as opposed to that of unlikeable children. Also, since negative personality traits are more often associated with behaviour disorders, it is possible that teachers view unlikeable children as being at higher risk for a mental health diagnosis, and therefore, are more likely to be referred for a psychoeducational assessment over likeable children.

Although this can be viewed as a benefit for a specific group of children, this finding highlights the dangers with making referrals based on likeability. Teachers' lack of ADHD knowledge (see Scuitto, Terjesen, & Bender Frank, 2000; Small, 2003; Kos et al., 2004), combined with a possible likeability bias, suggests that likeable students may be overlooked in the referral process, even when their symptoms and intervention needs are equal to a child who is viewed as unlikeable. De Ruddere and colleagues (2011) reported similar findings in their study on perceived pain and likeability, in that more unlikeable patients were perceived as having less pain than likeable patients, even though their actual degree of pain was identical. This meant that unlikeable patients received less support from medical practitioners, a finding that has serious and potentially life-threatening implications. Although perhaps not as life-threatening, the same pattern applies to our current findings on referral ratings; teachers may perceive likeable children with undiagnosed ADHD as more easy to manage on an individual, classroom basis, meaning that

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they are more likely to provide the student with assistance to manage his or her behavioural difficulties in the classroom, whereas unlikeable children are less likely to receive this teacher support and are sent to a different professional for assessment. This is dangerous for two reasons: (1) likeable children who may require further assessment and diagnosis may not receive it, as teachers believe they can manage the difficulties themselves, and (2) unlikeable children may be placed on lengthy waiting lists for services and will not benefit from teacher-based classroom support strategies. Although in both cases, teachers likely have the best intentions, undiagnosed ADHD has the potential to lead to more negative school outcomes and risk of school drop-out, risk-taking behaviours or additional, undiagnosed comorbid disorders (e.g., learning disorders or depression) (Smith, Barkley, and Shapiro, 2010; Biswas et al., 2011; Bellendiuk et al., 2012).

Benefit of classroom accommodations. A main effect of behaviour type was observed with respect to teacher ratings of the benefits of classroom accommodations. Teachers indicated that the hypothetical student exhibiting hyperactive-impulsive behaviour would benefit most from accommodations, followed by the student exhibiting inattentive behaviour. Teachers indicated that students exhibiting no ADHD behaviours (i.e., control) would benefit the least from accommodations. This finding confirms our hypothesis, and also fits with the general understanding that teachers tend to be most concerned about ADHD behaviours that involve control, discipline, and disruptiveness (Barkley, 2006; McNamara et al., 2005; Kos et al., 2004) and provide greater structure and routine in their approach to teaching as a result of this type behaviour (Kos et al., 2004). This finding is encouraging, as research suggests that children with ADHD have better academic outcomes in a highly structured, curriculum-modified classroom that includes routine and minimal sensory distractions (Kos et al., 2004; McNamara et al., 2005). The current study provides evidence that teachers recognize the benefits of accommodations in the classroom for students with ADHD. Although results indicated a relatively small effect size, it is

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still important to note that teachers saw a greater benefit of accommodations for hyperactive-impulsive students as opposed to inattentive students, even though both these groups of students exhibited clinically significant ADHD symptoms. Teacher training programs focused on mental health and ADHD should attempt to highlight the importance of accommodations and intervention for all subtypes of ADHD, even though students with inattentive symptoms might appear easier to manage. Overall, the research overwhelmingly shows that similar, negative outcomes (e.g., decreased academic achievement, increased school drop-out rates, bullying and social issues, and greater risk taking behaviour and substance abuse) can result from undiagnosed and untreated ADHD, no matter the subtype (Mikami, 2010; Smith et al., 2010; Biswas et al., 2011; Bellendiuk et al., 2012; Ebejer et al., 2012).

Student likeability significantly impacted teacher ratings of the benefit of classroom accommodations. Teachers rated students in the unlikeable conditions as being more likely to derive benefit from classroom accommodations as compared to likeable children, regardless of ADHD behaviour type. This finding was inconsistent with our hypothesis, as we initially speculated that teachers would be more willing to provide and would see more benefit in providing accommodations for likeable students with ADHD as compared to unlikeable students with ADHD. A possible explanation for this finding is that teachers felt more equipped to handle the behaviours of a likeable child, as these children are generally perceived as being more prosocial and accommodating (Asendorpf & Van Aken, 2003; Van der Linden et al., 2010; Zijlmans et al., 2012) and therefore felt unlikeable children were more in need of accommodations. This being said, ‘accommodations’ were not explicitly defined in the vignettes used in the current study, meaning that there was likely variability in teachers’ understanding of the term. That is, teachers may have interpreted the term to mean intensive interventions such as modification of curriculum, as opposed to modifications to teaching style and the classroom

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environment, which are useful in ameliorating ADHD behaviour. They might have felt that likeable children do not need intensive accommodations (because of their cooperative and pro social traits, despite ADHD behaviours) and therefore, rated these students as less in need of accommodations. This is only a working hypothesis, as most studies suggest that teachers are more willing to provide support for those perceived as likeable (Ciarrochi & Heaven, 2009; Mikami, 2010; De Rudder et al., 2011). Future research in this area should focus on determining the role of specific likeability on teacher accommodations for students in need, as there is a possibility that student likeability could have an impact on whether teachers provide appropriate accommodations to students in need.

Confidence in managing behaviour in the classroom. The current findings present an interesting dilemma for teachers who teach students with ADHD. It appears that teachers recognize the benefits of providing accommodations for these children, and are willing to implement accommodations in their own classrooms, as ratings for accommodations were highest for the student exhibiting hyperactive-impulsive behaviour. The problem occurs when examining teachers' confidence their ability to manage ADHD behaviour. Findings in the current study indicated that teachers felt least confident in managing the hyperactive-impulsive behaviours, followed closely by the inattentive condition, and were the most confident in managing typical (i.e., non-ADHD) behaviour. Although this may seem an obvious conclusion, it also suggests that there may be a discrepancy between teachers' knowledge about the need for accommodations and the accommodations that may work best for various types of student difficulties; however, they indicate that they lack confidence in implementing these accommodations. These findings are consistent with studies by Ohan and colleagues (2008), Kos and colleagues (2004) and Arcia and colleagues (2000), which found that even when teachers are knowledgeable about ADHD and

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recognize the importance of accommodations support, they still exhibit negative attitudes towards children with the disorder and are wary of having students with ADHD in their classrooms.

In addition, it is important to note that the hyperactive-impulsive behaviours were seen as most difficult to manage in a classroom, as compared to inattentive behaviours. This finding is consistent with the findings discussed above, indicating that teachers would be more willing to make a referral and more likely to provide accommodations for hyperactive-impulsive students, than for inattentive students. Although vignettes in both conditions described typical ADHD behaviours, the perception that hyperactive-impulsive symptoms are more severe and impairing allows for the development of some preliminary conclusions with respect to a comprehensive theory of teacher helping behaviours for students with ADHD. Specifically, it appears that teachers view hyperactive-impulsive behaviours of ADHD as more disruptive, harmful, and unmanageable in a classroom setting. The overt, external, and sometimes destructive nature of hyperactive-impulsive symptoms lends credence to this view, as teachers' perceptions of ADHD are often proved correct by these behaviours (McNamara et al., 2005; Barkley, 2006). Therefore, teachers view these specific ADHD behaviours as more unmanageable, and these children as more in need of support. As discussed previously, this is an asset to students with ADHD who exhibit hyperactive-impulsive behaviours, as they are most likely to receive an early referral and accommodations, even amongst teachers with little knowledge of ADHD. In contrast, students who exhibit inattentive symptoms could be less likely to receive diagnosis and intervention when compared to other students, and therefore, be at higher risk for poor academic and social outcomes in the future (Arcia et al., 2000; Scuitto et al., 2004; Kos et al., 2004; Kleyhans, 2005; Ohan et al., 2010).

Despite the findings suggesting that teachers lack confidence in their ability to manage the behaviour of students with ADHD, it should be noted that the disorder is extremely complex, and

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symptoms profiles vary widely among children with the disorder, with many researchers and clinicians even suggesting that no two children with ADHD present the same way (Arcia et al., 2000; West et al., 2005; Barkley et al., 2006; Sherman et al., 2008; Smith et al., 2010; Biswas et al., 2011). The complex and constantly developing symptom profiles associated with ADHD mean that even experienced teachers could struggle with managing ADHD behaviour in the classroom (Arcia et al., 2000). Additionally, teachers with previous experience teaching a student with ADHD could encounter a new student with the disorder who presents with very different symptoms or perhaps responds negatively to accommodations that have been applied successfully to other students in the past. This experience could cause even experienced teachers to feel unconfident in their abilities and to question their ability to manage these challenging behaviours.

Student likeability could have played a greater role in teacher confidence than previously expected. Results from the current study showed that there was a significant effect of likeability on teacher ratings of confidence in their ability to manage the behaviour. Teachers felt less confident managing the behaviour of unlikeable children as compared to likeable children, and felt the least confident in managing the behaviour of hyperactive-impulsive/unlikeable students. It is possible that all teachers (even those who had taught for many years or had previous ADHD experience) felt unconfident in managing ADHD behaviours, because the students were also perceived as unlikeable. This explanation mirrors that of Rizzo and Vispoel (1991, as cited in Kos et al., 2004), which found that the more competent a teacher felt, the more favourable their attitudes were regarding teaching students with a disorder. Scuitto and colleagues (2004) also found that likeability bias in teacher perceptions may influence referral and helping decisions in the classroom. It is possible that teachers had more negative perceptions of the unlikeable children (regardless of ADHD behaviour), and therefore these negative attitudes led to less confidence in classroom management of these unlikeable students.

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Given the nature and frequency of the disruptive behaviours exhibited by students with ADHD, it is not surprising that teachers often feel unconfident about managing the behaviour of children with the disorder (Arcia et al., 2000; Kos et al., 2004). It is important to use this knowledge to develop more comprehensive and effective training programs for teachers, so that they feel better able to manage ADHD behaviours in the classroom. In addition, schools must work on providing open access, familiarity, and ease of communication between classroom teachers and mental health support services (e.g., school psychologists, social workers, and medical personnel), to ensure that teachers feel supported and confident in their management of ADHD behaviour.

Overall, the current findings both support and contradict previous studies examining parental attributions for the behaviour of children with ADHD (Johnston & Freeman, 1997; Johnston et al., 1998; Johnston et al., 2006; Mah & Johnston, 2007). These differences between the current study and parent literature highlight the importance of future studies that focus specifically on teacher attributions for ADHD behaviour. Future research examining teacher attributions and teacher management of ADHD will allow for direct comparisons between parent and teacher attributions for behaviour. This research will benefit clinicians and school personnel, in that it will increase understanding regarding the manner in which ADHD behaviour is managed and perceived in two very important settings in a child's life. Future research in this area will also aid in the design and use of referral techniques, treatment programs, and intervention for children with ADHD both at home and at school.

Participants' Open-Ended Responses to the Attribution Ratings Scale

Despite the low number of participants who provided responses to the open-ended questions following each vignette, the responses provided valuable additional insight into teachers' rationale for their ratings. First, it is interesting to note that, of the participants who provided partial responses (i.e., those who provided written responses to only some of the vignettes), all of them provided responses to the unlikeable vignettes in each behaviour condition. There are a number of possible explanations for this pattern. It is possible that this response style is simply an artefact of the study design, as unlikeable vignettes were randomly assigned to be presented first for each behaviour condition. This presentation format may have led to participants becoming bored or restless when filling out the surveys. Previous research on design methods for questionnaires has shown that participants exhibit a higher refusal rate and a higher cost to participant per open-ended question on a survey (Iarossi, 2006). This suggests that participants might have opted to skip over the written response option for the likeable vignettes, as they were randomly chosen to be the three last vignettes displayed in the survey, and therefore, the three final open-ended response questions.

On the other hand, it is possible that participants felt the need to explain their ratings scale answers more clearly when the student was perceived as unlikeable. A study by Johnston and colleagues (1998) found that mothers engage in more cognitive processing and self-talk when making attributions for negative, oppositional behaviour as opposed to pro-social behaviour. As previously discussed, unlikeable children are perceived by others as having weak pro-social skills (Newcomb et al., 1993; Ciarrochi & Heaven, 2009), therefore, it could be the case that participants felt the need to further interpret and explain the negative behaviour of the unlikeable student as compared to the likeable student. Results from the current study indicated that teacher

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attribution ratings for the behaviour of likeable children were indeed more positive in the domains of stability, accommodations and manageability. Therefore, participants might have not found as much of a need to explain their more positively rated attributes of Jamie's behaviour, as opposed to their more negatively rated attributes of Jamie's behaviour in unlikeable vignettes. In the instances in which likeability did not have a significant main effect on attributions or helping behaviour (i.e., in the domains of locus, control, and referral), it is possible that participants continued to explain their rating responses based on lack of information provided in the vignettes. More neutral responses on the ratings scale (i.e., participants who selected a '3', which indicated a very neutral or undecided response) could have led to further explanation of their indecisiveness in the open-ended section, as opposed to providing explanation based on perception of likeability. Although it is unclear why teachers had a tendency to explain their ratings of unlikeable children, our findings suggest that future studies incorporating open-ended questions or "think-aloud" tasks could be useful in understanding the reasoning behind teacher attributions for student behaviour. Future studies could benefit from incorporation of a mandatory, open-ended response format that could be analyzed quantitatively and qualitatively as has been done in studies of parental attributions for child behaviour (e.g., Johnston, et al., 1998; Johnston et al., 2006). Incorporating an *in vivo* "think-aloud" task would be even more useful, as it would allow participants to speak freely rather than being limited to typing or writing responses in an online or paper and pencil format, which can become tiresome.

Secondly, although the participants did not seem to differ in their positive or negative attributions relating to the different ADHD behaviour groups, examination of responses to open-ended questions indicated that they made many more negative attributions for the vignettes in which Jamie was portrayed as unlikeable as compared to the vignettes in which Jamie was portrayed as likeable. Specifically, more internal and stable attributions were made for the

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unlikeable student, whereas more external and controllable attributions were made for the unlikeable student. These qualitative observations regarding attributions for likeable and unlikeable children support previous literature that suggests teachers feel more comfortable with children they perceive as likeable (Cowan et al., 1983; Newcomb, et al., 1993; Ciarrochi & Heaven, 2009; Kypriotaki & Manolitsis, 2010; Van der Linden, et al., 2010). Participants appeared more willing to find fault in themselves, others or the environment for Jamie's impulsive or inattentive behaviour when Jamie was a likeable child, suggesting that they were more accepting of Jamie's behaviour and recognized that it may not be caused by internal factors.

Third, some participants identified Jamie's behaviour in the control/unlikeable condition as "ADHD type", even though no ADHD-type symptoms or behaviours were depicted in the vignette. This could be because children perceived as unlikeable elicit a negative response from others, and are seen as being less in control of their behaviour and therefore having a "behaviour problem" (Cowan, 1983). A study by Kypriotaki and Manolitsis (2010) found that a student's score on the ADHD scale was significantly influenced by teachers' judgement of the child's peer relationships, and a student was more likely to be assessed as displaying symptoms of ADHD when the teacher perceived that they had poor social skills or did not get along well with their classmates. This is similar to what has been observed in other studies of child personality and teacher perceptions, as well as in studies of teachers perceptions of ADHD (see Koss et al., 2004 for several examples). Another possible explanation is that because the control conditions were presented in the same survey as the ADHD conditions, participants were transposing Jamie's previous ADHD behaviour to Jamie's negative, unlikeable traits in the control condition. Participants might have perceive the hypothetical student as one, fluid character and might have associated Jamie's negative behaviour in the unlikeable vignette as supporting ADHD symptoms in previous vignettes. Indication of each vignette as a separate scenario (with a novel child) in

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future studies could prevent this possibility from occurring, as this result cannot be ruled out in the current study.

A final interesting observation from the open-ended response section was that a small portion of participants who completed this portion of the survey used a masculine pronoun when describing Jamie's behaviour. It is possible that teachers' perceptions of Jamie as a male student could stem from the ADHD behaviours depicted in the vignettes. Epidemiological research has consistently shown a higher incidence of ADHD among boys, although this sex difference could be based on a disproportionate number of ADHD referrals for males. (Edmunds & Martsch-Litt, 2008; Kos, et al., 2004; Scuitto et al., 2004). Scuitto and colleagues (2004) suggested that teachers' gender bias in behavioural perception of male students versus female students may also contribute to a bias seen in ADHD referrals. That is, their study found that teachers were more likely to refer a boy with ADHD symptoms than a girl, especially if the described symptoms were of an extroverted and hyperactive nature. We perceive boys as being more boisterous and inattentive as a gender trait, and therefore, persistent and excessive behaviours typical of ADHD symptoms are referred more in male students than female students (Scuitto, et al., 2004).

Teachers' Knowledge of ADHD

Results from the current study found that, on average, teachers were able to respond correctly to approximately half of the items on the KADDS, suggesting that they may need increased education about ADHD if they are expected to be working with and making referrals for this population of children. Specifically, teachers tended to have most difficulty responding to items related to treatment of ADHD, as the majority of participants responded correctly to fewer than half of the items in this domain. These questions pertained specifically to treatment methods of ADHD including therapeutic practices, medication, and effectiveness of treatment in managing the disorder (Scuitto & Feldhammer, 2000). Teachers tended to have most knowledge in the area

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of symptoms and diagnosis of ADHD, as the majority of respondents provided correct responses to over half of the items in this domain. These questions pertained specifically to symptoms or criteria outlined in the DSM-IV. These findings parallel those of previous studies examining ADHD knowledge using the KADDS, including studies by Small (2003), Scuitto and colleagues (2000), Kleynhans (2005) and Perold and colleagues (2010). Specifically, the significantly higher scores on the Symptoms and Diagnosis subscale support previous studies concerning teachers' ability to recognize ADHD symptoms (Kos et al., 2006; Small, 2003; Scuitto et al., 2000; and Perold et al., 2010). The mental health training that teachers are provided through postgraduate education usually consists of highlighting characteristics of ADHD and providing teachers with current DSM diagnostic criteria, which has been suggested as the most likely reason as to why teachers are more knowledgeable about this specific ADHD information (Kos et al., 2004). Furthermore, lower scores found on the remaining two subscales corroborate the suggestions that teachers have a poor understanding of ADHD treatment, course and prognosis, most likely because these topics are not addressed in length during teaching courses or training programs (Ohan et al., 2008). In addition, previous studies have indicated that teachers' knowledge of ADHD primarily comes from media or 'word of mouth', which may explain why their knowledge of ADHD is not broad or accurate (Kypriotaki & Manolitsis, 2010). The lack of ADHD knowledge is troublesome when we consider that it is these very same teachers who will likely be teaching a student with ADHD in the near future (Kos et al., 2004; Barkley, 2008). Accurate and effective knowledge about ADHD is likely to improve if teacher education on mental health (and ADHD in particular) is increased in teacher training programs, as well as through in-service procedures to keep teachers up-to-date on current diagnostic criteria and new scientific research on evidence-based practice in the area of ADHD.

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No significant correlations between KADDS score and participant age or years of teaching experience were found, therefore, it seems unlikely that being a young and inexperienced teacher impacted the low scores seen on the KADDS. In fact, studies vary on whether years employed as a teacher has any effect on teacher knowledge of ADHD. For example, Kos and colleagues (2004) found no links between overall teaching experience and ADHD knowledge, Scuitto and colleagues (2000) found that years employed as a teacher and ADHD knowledge *were* positively correlated, while Jerome and colleagues (1994) found that teaching experience only had a positive effect on teacher knowledge of ADHD in Canadian teachers and not in American teachers. In summary, participants' overall low scores on the KADDS in the current study adds to the already large body of literature demonstrating that a large portion of teachers are under informed with respect to child mental health and ADHD in particular.

Similarly, there was no significant relation between KADDS scores and teachers' experience with ADHD-diagnosed students. These results are in stark contrast to studies conducted by Scuitto and colleagues (2000) and Kos and colleagues (2004), which found positive correlations between ADHD knowledge and experience with students with ADHD. The current study did find some notable, significant results with respect to the demographic factor of 'referral experience' and ADHD knowledge. Specifically, teachers who had past experience with making a psychoeducational referral had significantly greater knowledge of ADHD than those teachers who had never made a referral. It is possible that teachers who have made past referrals for psychoeducational assessments are better able to recognize associated features of ADHD, and therefore have greater overall knowledge of ADHD as reflected on the KADDS. Another possible explanation is that teachers with past referral experience have had a more integral part in the mental health process that occurs during psychoeducational assessments and consequently, were able to correctly answer more of the diagnosis and treatment items on the KADDS, therefore

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obtaining a higher score than those without referral experience. Teachers who possess greater knowledge of child development and mental health (which could include ADHD knowledge) could lead those teachers to make more referrals in their classroom and therefore, have more referral experience than those teachers who are less confident in their mental health knowledge. These are only possible explanations as to the connection between psychoeducational referrals and ADHD knowledge. Regardless, it appears that these significant results demonstrate the importance of teacher mental health knowledge in providing accurate and confident referrals for students.

Strengths and Limitations

The current study provides preliminary evidence of the importance of teacher attributions and student likeability with respect to understanding the classroom experience of children with ADHD. First, this study is one of very few (that we know of) to examine teacher attributions for the behaviour of students with ADHD. Even fewer studies have examined the role of student likeability with respect to the attributions that teachers make for students' behaviour, as well as their decision to enact various helping behaviours for that student. For these reasons, this study provides a foundation for future research, perhaps involving *in vivo* experimental tasks such as those developed by Johnston and colleagues to examine parental attributions for child behaviour.

Second, results from the current study were consistent with some previous findings from studies of parental attributions, but inconsistent with others (Johnston & Patenaude, 1994; Johnston et al., 1998; Johnston & Freeman, 1997; Johnston et al., 2006). This indicates that teachers may differ from parents with respect to the types of attributions they make for child behaviour. This study provides a foundation from which to move forward examining this interesting finding. For example, future research should consider directly comparing teacher and parent attributions in the same study to more carefully tease apart the differences in attribution

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style between these groups. It is possible that teachers' experiences with a large, varied child population allow them to generalize child behaviour in a different manner than parents, who likely base their attributions on experiences with only a few children (such as siblings of their child with ADHD). A third strength of this study is that, unlike many studies of teacher attitudes and knowledge that recruit pre-service teachers as participants, the current study only recruited practicing teachers as participants, thereby increasing the likelihood of findings that reflect the current teaching population. Finally, an online survey method allowed for an efficient procedure and manageable survey pace, enabling the researchers to reach a wide population of teachers from which to draw the sample. The addition of the open-ended response section following the Attribution Ratings Scale mitigate the limitations of using a survey design and allowed participants to provide detailed and unique information regarding the rationale for their responses.

Although the current study had several strengths and provides a strong foundation from which to build upon this research, it is important to acknowledge a number of limitations. First, time and Research Ethics Board constraints prevented the expansion of the overall sample and prohibited the recruitment of additional participants. Specifically, due to the requirements of the school board ethics committee, it was only possible to recruit teachers from five schools, thereby limiting our sample size. Recruitment was also limited by the fact that data collection occurred in the latter half of the school year, resulting in decreased ability to actively recruit more participants. Teachers are often extremely busy in the final few months of the academic year, meaning that time constraints may have prohibited many interested participants from taking part in this research. Smaller sample sizes often result in under-powered studies; however, it should be noted that, in the current study, effect sizes were often within the moderate range, based on Cohen's criteria. Additionally, given our small sample, it was not possible to conduct between

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group comparisons of ratings, meaning that correlational data were used to examine some responses.

Second, although the online format of the study was efficient for participants and was a convenient method to deliver the survey to a wide range of teachers, it was a cumbersome and often times ineffective tool for the researchers. For example, it was difficult to construct a survey that would allow for a between-subjects design, as it was not possible to randomize participants to read a specific type of vignette. Although the results of the current study were consistent with some results of previous studies, it would have been preferable to compare findings using similar designs. Also, as noted in the results section, 58 participants started the survey, but only 31 finished; this may have been due to another design flaw of the survey software. Specifically, it was not possible to create a survey that could be saved, meaning that participants needed to complete the survey in one session. It is possible that participants stopped completing the survey after realizing that they did not have adequate time to finish and therefore their data could not be used. It would have been useful to have a “Save Work” option to allow participants to return to the survey and complete it at a later date; however, the survey software did not offer this option. Third, due to limited number of participant response, the open-ended response section of the survey was not coded and quantitatively analyzed. This additional step could have provided important, additional significant results to our study, and future studies should strive to take this additional step and focus on the quantitative analysis of open-ended responses.

Future Directions

To eliminate bias, the hypothetical child was described in a sex-neutral manner in each vignette. The current study chose not to examine gender bias and instead portrayed the student in each vignette, Jamie, as a sex-neutral (neither male or female) child. Additional research on teacher attributions for ADHD behaviour should examine the connection between teacher

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attributions and child sex, and whether different attributions are made for ADHD behaviour from a male student as opposed to a female student. This type of study would add to the ever-expanding literature surrounding sex differences and ADHD.

Future research on teacher attributions of ADHD behaviour should build from the current study and take a more in-depth approach to examining teacher attributions. More specifically, future studies could replicate the Johnston and colleagues (2006) study more closely, by instructing teachers to observe real students displaying ADHD (as well as non-ADHD) behaviours. Conversely, a future study could instruct teachers to fill out similar attribution ratings scales and ADHD knowledge scales (as used in the current study) for students in their class who have already received a diagnosis of ADHD and compare ratings with ratings for students with no diagnosis. Given that the current study has already shown significant findings in the attributions teachers make for ADHD behaviours in fictional vignettes, a real world adaption of the study would have the potential to provide further, and more accurate results. Additionally, examination of responses to open-ended questions in the current study indicated that several teachers had difficulty providing responses to rating scale questions, as indicated by comments suggesting that they required more information to make a decision about causes of the behaviour or the need to follow-up. Therefore, a future study in which participants complete ratings based on *in vivo* observation of children might strengthen the findings of the current study and provide more reliable and valid evidence of teacher attribution styles.

Future directions of attribution research and ADHD should examine comparisons between teacher and parent attributions. Whereas some studies in the past have examined differences between teacher and parent knowledge of ADHD (and see West and colleagues (2005) for an example), future studies should include comparisons of parent and teacher attributions for ADHD, and whether a significant difference exists. Whereas some results from the current study are

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consistent with past parent studies (see Johnston and colleagues, 1994, 1998, 2006, 2008 for examples), there were also some inconsistencies, and therefore, it will be important for future research to clarify the distinction between parent and teacher attributions of ADHD. This research would allow us to better understand whether different environments (i.e. school or home) have an effect on the way ADHD is perceived and if so, how can those environments be managed effectively for the benefit of both child and adult.

Future studies on teacher attributions of ADHD behaviour should adapt maternal attribution studies that examine differences between oppositional-defiant children with ADHD, non-oppositional children with ADHD and a control sample. Johnston and Patenaude (1994), and Johnston and colleagues (2006) found significant differences in attributions for control for oppositional children with ADHD versus children with ADHD-only. The behaviour of oppositional ADHD children was seen as being less controllable than their ADHD-only counterparts. Based on evidence from these past studies, combined with participant reports in the open-ended response section that described Jamie as “oppositional”, and significant findings that hyperactive-impulsive behaviours were given more negative attributions overall, it is clear that future studies should examine teacher attributions based ADHD as compared to other behaviour disorders, such as Oppositional Defiant Disorder (ODD). This examination would provide a greater understanding of how teachers perceive ADHD in the classroom and possible misconceptions that are associated with ADHD students and oppositional behaviour.

Based on examination of responses to open-ended questions in the current study, additional research should be conducted to examine the differences in attributions for likeable and unlikeable children. That is, as it appears more internal, negative attributions for made for the unlikeable vignettes (regardless of ADHD group), further studies should continue to explore this domain of child personality and how it might relate to classroom management, as well as to

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mental health and childhood disorders. Qualitative examination of these participants' open-ended responses provided interesting insights into rationale for responses on rating scale questions. It appears that providing participants with a Likert rating scale and an open-ended question format produces the most comprehensive results, and also provides an in-depth look into teachers' critical thinking and decision making processes when evaluating students in their classroom. Future studies should use a quantitative approach to open-ended responses, so that a statistical analysis can be conducted similar to Johnston and colleagues (2006) study with mothers of ADHD children. As the study of likeability as it is related to teachers, ADHD, and helping behaviours is a fairly novel topic of study, a broader scope of literature will provide a more complete understanding of this field of research. Furthermore, as the current study found significant differences between likeability conditions, even in the absence of ADHD (i.e. differences between the control conditions), it is clear that future likeability research should examine more broad, teacher-student relationships, as opposed to just focusing on children with ADHD.

Clinical Implications

The main findings from the current study suggest that ADHD behaviour is more linked to negative teacher attributions for behaviour control than is non-ADHD behaviour, and that ADHD behaviour elicits less teacher confidence in student management and increased recognition of student benefit for assessment referral and classroom accommodations. These are important findings, as they have implications for understanding teacher-student relationships and teachers' role in ADHD intervention in the classroom. The second main finding suggests that unlikeable traits in students are more linked to negative teacher attributions of behaviour stability than likeable traits, and that while teachers feel less confident in managing unlikeable students in the classroom, they see unlikeable students as receiving greater benefit of learning accommodations than likeable children. These findings are important when considering classroom management of

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the behaviours associated with ADHD. These results imply that when teachers perceive students with ADHD as unlikeable, they may view the behaviour a pattern of stable, negative behaviour and therefore feel unprepared to manage the behaviour on an ongoing basis in the classroom.

Although the current study suggests that teachers recognize the need to provide accommodations to children exhibiting ADHD behaviour (even when these children are perceived as unlikeable), their lack of confidence in classroom management of these children could lead to hesitance in implementing strategies, thereby increasing the likelihood of poor outcomes for the student. Also, results that show decreased confidence in managing the behaviour of unlikeable students with ADHD could suggest that teachers are not equipped with the proper training and resources to provide an inclusive classroom for all students. It is important that teacher-training programs provide a strong foundation of classroom management strategies in the context of mental health, such that teachers feel more confident in managing difficult behaviours, while also being capable of recognizing when a student is in need of additional support services such as classroom accommodations or a psychoeducational referral. Furthermore, the conclusion that participants in the current study recognized ADHD behaviour as uncontrollable suggests that they may believe these behaviours cannot be handled in the classroom. This belief could result in both negative and positive consequences for the student in question. It could lead some teachers to attempt removal of the student from their classroom, or cause them to simply ignore the child's behaviour, as opposed to providing the student with resources and strategies to manage their ADHD behaviour.

Taking a different approach, the current study's findings show that a significant amount of participants recognized a combination of child-focused and environmental factors as contributing to the ADHD behaviour (locus), as well as the need for assessment referral and classroom accommodations to support children with ADHD. This implies a potentially important (albeit

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small) change in teachers' understanding of ADHD, because it differs from previous studies on parent and teacher attributions for ADHD behaviour, which saw much more negative perceptions and implications of ADHD behaviour (Johnston et al., 1994; Arcia et al., 2000; Kos et al., 2004; and Johnston et al, 2006). This finding suggests that teachers are perhaps becoming less negative about their perceptions of mental health, and are more willing to provide an inclusive learning experience for children with mental health issues, but still lack the knowledge and training needed to make these important changes.

Previous studies have indicated that teachers' knowledge of ADHD is lacking and primarily comes from unscientific sources (e.g., the popular press or anecdotal evidence from colleagues); this has the potential to lead to inconsistent referrals and missed diagnoses (Arcia et al., 2000; Scuitto, Terjesen, & Bender Frank, 2000; Eisenberg & Schneider, 2007; Kypriotaki & Manolitsis, 2010; and Barnett, Corkum, & Elik, 2011). These issues can contribute to the recurrent failure of a student who desperately needs intervention inside the classroom but is being overlooked (Kleynhans, 2005; Kos, Richdale, & Hay, 2006; Edmunds & Martsch-Litt, 2008; Groenewald, Emond, & Sayal, 2009; and Kypriotaki & Manolitsis, 2010). The current study supports these findings, as KADDS scores demonstrated teachers' limited knowledge of ADHD. In addition, as many of the participants had only recently completed their education, whereas others has completed post-graduate education, it illustrates the possibility that teachers are currently not receiving enough education on mental health, referral and assessment procedures, or best practices when encountering students with disorders or disabilities. An implication of the current study is that it provides additional evidence in the expanding body of literature suggesting that teacher-training programs need detailed and comprehensive mental health education. As teachers' responsibility to recognize and refer increases, so should their knowledge of common mental health disorders like ADHD. As discussed in previous studies, low KADDS scores

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illustrate the need to further develop and enhance teacher understanding of ADHD. This means that teacher education about ADHD (and in turn, discussion of common childhood disorders and relevant mental health topics) should be expanded to include more discussion on best practices for treatment, prognosis of the disorder and work at expelling any myths on general ADHD information (Scuitto et al., 2000; Small, 2003; Kleynhans, 2005; Kos, Richdale, & Hay, 2006; and Weyandt, 2009).

Implications for School Psychologists

There are also important implications for psychologists working in the education sector. The indication that teachers have inaccurate and minimal knowledge of ADHD increases school psychologists' responsibility to provide education in the school setting. As part of their training in specialized Master's and Doctoral programs, school psychologists become familiar with unique characteristics and policies of the school system and bring specialized understanding of child development (Mureika, 2007). They are also able to collaborate and consult with school staff on best practices to assist students with mental health and learning concerns (Mureika, 2007). Mental health professional development for teachers needs to be considered a necessity amongst the duties of a school psychologist. In the current education climate this is difficult, as school psychologists are primarily viewed as 'assessors' and consultants, with little time left over to provide professional development and a broader range of resources to teachers (Corkum et al., 2007; French & Mureika, 2002; Natasi, 2000; Sheridan & Gutkin, 2000). Results from this study, combined with previous studies, contribute to advocating for additional funding in school-board psychological services from the provincial and federal governments. With additional funding, more school psychologists can be hired throughout the country and therefore can concentrate their efforts on a wider range of intervention and development, with a smaller population. School psychologists, education boards, and organizations like the Canadian Association of School

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Psychologists (CASP) need to take the lead in unifying school psychologists under one standard of practice, that allows for schools to recognize the importance of psychologists' providing the best possible mental health education for teachers (Jordan et al., 2009; Woolrich, 2004). By providing knowledge from a scientific and clinical viewpoint about the symptoms, treatment and best model practices for disorders such as ADHD, teachers may be able to recognize distressed students in a more efficient and confident manner.

Although primarily designed as a pilot study, the current research provided a foundation from which to explore many of the issues described above. As a result of continued research examining teacher perceptions of children with ADHD, it will be possible to provide educational initiatives to ensure that teachers are not only able to make competent referrals but that they also feel confident in managing the behaviour of students with ADHD in the classroom. Through continued research and knowledge translation, it will be possible to ensure the best possible outcomes for children challenged by ADHD.

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Table 1

Descriptions of the Big Five (Five Factor Model of Personality)

Extraversion = extraverted, assertive, bold, active, spontaneous, vigorous

Agreeableness = warm, empathetic, courteous, generous, flexible, moral

Conscientiousness = orderly, efficient, precise, persistent, cautious, industrious

Neuroticism = anxious, uptight, nervous, guilt-prone, agitated, excitable

Openness = intellectual, deep, insightful, creative, curious, sophisticated, artistic

Note. The above description of the Big Five is adapted from Dyce (1997) and notes adjectives frequently associated with each personality factor. A full description of the FFM would also include a listing of adjectives that are interstitial to the Big Five factors (see Hofstee, de Raad, & Goldberg. 1992).

Table 2

Descriptions of the Attribution Ratings Scale (ARS) Variables

ARS Variable	Description Question	Internal Cause	External Cause
Locus of Control	What is the cause of behaviour?	Caused by individual	Caused by environment
Controllability	How controllable is the behaviour?	Controlled by individual	Controlled by environment
Stability	How stable is the behaviour?	Stable	Unstable

Note: Attribution Ratings Scale variables adapted from Weiner's (1985) study on attribution theory.

ADHD and Teacher Attributions

Table 3

Demographic Statistics for the Total Sample

	N	%
Sex		
Male	4	13
Female	27	87
Age Range (years)		
20 – 30	21	68
31 – 40	5	16
41 – 50	2	6
51 – 60	3	10
61 +	0	0
Level of Education		
Bachelor + Teaching degree	14	45
Concurrent degree	5	16
Master + Teaching degree	9	29
Other	3	10
Teaching Experience (years)		
1 – 2	15	48
3 – 5	5	16
6 – 10	4	13
11 – 20	5	16
20 +	2	6
Grades Taught*		
Primary/Kindergarten	13	42
Grade 1	14	45
Grade 2	14	45
Grade 3	10	32
Grade 4	12	39
Grade 5	14	45
Grade 6	10	32
Grade 7	5	16
Grade 8	4	13
High school (grades 9 – 12)	8	26
Other	5	16
Taught an ADHD student?**		
Yes	26	84
No	5	16
Made a psychoeducational assessment referral?		
Yes	13	42
No	18	58

*Note: Participants were able to select multiple answers as deemed necessary

**Note: It is possible that teachers in both the 'yes' and 'no' category have taught students with other mental, physical or behavioural difficulties.

Table 4

Median, Mean, SD, and Range for Demographic Factors

Demographic Factor	<i>Central Tendency</i>	<i>SD</i>	<i>Range</i>
Age	Median = 1.00	0.99	1 – 4
Teaching Experience	Median = 2.00	1.37	1 – 5
Referrals Made	Mean = 9.33	7.29	3 – 30
Grades Taught	Mean = 3.74	2.71	0 – 9

Note: Age measured in year ranges (1 = 20 – 30 years, 2 = 31 – 40 years, 3 = 41 – 50 years, 4 = 51 – 60 years), grades measured in numeric grade level (Primary/Kindergarten = 0, High school = 9), referrals made measured in numerical order; teaching experience measured in year ranges (1 = 1 – 2 years, 2 = 3 – 5 years, 3 = 6 – 10 years, 4 = 11 – 20 years, 5 = 20 years or more).

Table 5

Means and SD for Attribution Ratings Scale Behaviour Measures by Condition

Behaviour Measures	<u>HI UN</u>		<u>HI LI</u>		<u>IN UN</u>		<u>IN LI</u>		<u>Control UN</u>		<u>Control LI</u>	
	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD
Attribution												
Locus (internal to external)	3.03	0.66	2.52	0.99	2.61	0.80	2.77	0.76	2.13	1.204	2.16	0.934
Control (controllable to uncontrollable)	3.16	0.78	3.13	1.09	2.58	0.81	2.65	0.92	2.03	0.983	1.52	0.677
Stability (stable to unstable)	2.16	0.52	2.52	0.63	2.26	0.73	2.55	0.62	2.45	0.925	2.55	1.091
Helping Behaviour												
Referral (not at all to definitely)	2.42	0.89	2.71	0.97	2.29	0.90	2.00	0.76	1.87	1.024	1.29	0.529
Accommodations (no benefit to direct benefit)	3.42	1.29	2.74	1.21	2.52	1.15	2.13	0.99	1.94	1.063	1.32	0.559
Manageability (not confident to very confident)	3.58	0.81	3.39	1.02	3.52	0.81	4.10	0.75	3.74	0.773	4.48	0.626

Note: Attribution Ratings Scale scores measured in numerical values, based on a scale from 1 to 5. HI = Hyperactive/Impulsive ADHD behaviours, IN = Inattentive ADHD behaviours, Control = No ADHD behaviours, UN = Unlikeable traits, LI = Likeable traits

ADHD and Teacher Attributions

Table 6

Themes, Frequency and Example Statements from the Open-ended Response Qualitative Data

Theme	Frequency	Examples
More information needed	10	It is also hard to assess this specific behaviour, especially when there is no background behavioural history of the child. (Participant 4), to answer them best, I would be INVESTIGATING the history of the child and chatting with the parents, child, previous teacher(s)...(Participant 7), More information and interactions are required before I could come to a decision. If this were my first interaction with this student, alarms would be sounding in my head (Participant 39), It would depend on how often this type of behaviour had been witnessed in the past. (Participant 43), Without more context and history (and the child's age), it's difficult to assess a single incident. (Participant 45)
Reference to ADHD symptoms	15	adhd.....distracted by stimuli. he needs clear, direct instructions with minimal distractions (Participant 19), I am quite certain that Jamie has some degree of ADHD. (Participant 24), Maybe inattentive ADHD (Participant 32), He could have adhd and oppositional disorder. I have encountered this same behaviour with a child that I had in my classroom last year. (Participant 44), may have an attention disorder.(Participant 57)
Internal (child-focused) attributes	16	Jamie's behaviour would definitely have to be managed (Participant 4), his environment had changed and he was unprepared for it. the blocks were stimulating him and he lost control (Participant 19), Jamie is egocentric and thinking only of themselves. (Participant 27), It seems that Jaime is being both defiant and disrespectful on purpose. (Participant 30), Absent minded, easily distracted from the day to day tasks (Participant 41)
External (environmental) attributes	11	The student may feel like he is not challenged enough by the work or the classroom environment. The boredom that results leads to a careless attitude when it comes to school work. (Participant 36), Jamie was probably feeling victimized by the teacher (Participant 42), perhaps lack of sleep... (Participant 54), the homework is too challenging, too easy, etc. Is there another reason it is not getting done and what can I do better to help support his learning? (Participant 59), Maybe the fly was incredibly large and more interesting to look than you...(Participant 43)

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Table 7

Themes and Frequency of total Open-ended Responses to Likeable and Unlikeable conditions

Theme	Likeable Conditions		Unlikeable Conditions	
	Frequency	Examples	Frequency	Examples
Internal Attributes (Negative)	12	Attention from his classmates; issues with impulse control; challenges with impulsivity; Jamie was just acting up; This leads me to wonder if it's attention-seeking, because he wants to be the expert; It sounds like he has some trouble with impulse control; he may have some motor control issues or impulsive behaviour issues; He/she is impulsive	30	Jamie's behaviour would definitely have to be managed; It seems that Jaime is being both defiant & disrespectful on purpose; Jamie is egocentric and thinking only of themselves; Behaviour issues; lack of respect for authority or consequences; Absent minded, easily distracted; He could be oppositional
Internal Attributes (Positive)	13	The student is obviously smart, curious and kind; Jamie clearly had no malicious intent in this scenario; It could be an accident; This could be an isolated incident for Jamie, given his sincere apology; Jamie was behaving in a socially acceptable manner; shows good citizenship and caring by returning things (even though you may want them) to their rightful owners	1	I believe Jamie didn't mean to knock over the tower
External Attributes	14	unstructured activities; I would start to think that there are circumstances in the home; If something comes along that is more interesting than homework than they may find it challenging; not challenged enough by the work or the classroom environment; Good family values taught at home; Jamie may have been tired	11	Perhaps he had a bad morning, or there is a situation going on at home; just a regular child have a bad day; It sounds like there were many distractions at home; Does Jamie live in a low socio-economic situation? Is Jamie a hungry kid

Note: Frequency is based on total amount of responses for each condition.

Table 8

Median, SD, and Percentages of Correctly Answered Items on KADDS overall scale and subscales

	Median	SD	%
Total KADDS score	20	6.8	51
Associated Features subscale	7	2.1	49
Symptoms & Diagnosis subscale	6	2.5	66
Treatment subscale	6	2.5	46

Note: KADDS = Knowledge of Attention Deficit Disorder Scale (Scuitto & Feldhammer, 2000).

ADHD and Teacher Attributions

Table 9

Pearson's Correlations for Demographic Factors and KADDS subscale scores

	Previous referral		ADHD experience		Years of experience		Level of education		Age in years	
	r	p	r	p	r	p	r	p	r	p
KADDS Total Score	0.42	0.02	-0.40	0.83	0.28	0.88	-0.26	0.16	0.28	0.22

Note: KADDS = Knowledge of Attention Deficit Disorder Scale (Scuitto & Feldhammer, 2000)

Correlation is significant at the 0.05 level (1-tailed).

Appendix A

Demographic Questionnaire

Please fill out the entire questionnaire.

1. Age

20 – 30

30 – 40

40 – 50

50 – 60

60 +

2. Sex

Male

Female

3. Educational Background

Bachelor Degree + Education Degree

Concurrent Bachelor Degree and Education Degree

Masters Degree + Education Degree

Other (please explain) :

4. Years of Teaching Experience

1 – 2

3 – 5

6 – 10

11 – 20

20 +

5. Grades Taught (check all that apply)

Primary/Kindergarten

ADHD and Teacher Attributions

Grade 1 – 2

Grade 3 – 4

Grade 5 – 6

Grade 7 – 9

Grade 10 – 12

Other (please explain) :

6. Have you ever taught a student with an emotional, behavioural or developmental disability/disorder (e.g. Autism, ADHD, Depression, Anxiety, Learning Disability)?

Yes _____ approximate # of times No

Check all that apply:

Autism

Attention Deficit/Hyperactivity Disorder

Depression

Anxiety

Learning Disability

Other

7. Have you ever referred a student for a psychoeducational assessment?

Yes _____ approximate # of times

No

If yes, please state the reason(s) why you referred the student:

Appendix B

Student Behaviour Vignettes

Vignette 1 – ADHD (Inattentive), Unlikeable

As you are reviewing last night's homework with your class, one of your students, Jamie, tells you that their homework is missing. Jamie explains that they became side-tracked when a relative came over last night with a new puppy and forgot to put the homework in their backpack. When you ask Jamie what the classroom rules for forgetting homework are, Jamie is absently staring at a fly buzzing around the classroom and not paying attention. When you reiterate your question in a calm manner, Jamie gets a devilish look in their eye and rolls their eyes at you.

Vignette 2 – ADHD (Inattentive), Likeable

As you are reviewing last night's homework with your class, one of your students, Jamie, tells you that their homework is missing. Jamie explains that they became sidetracked when a relative came over last night with a new puppy and forgot to put the homework in their backpack. When you ask Jamie what the classroom rules for homework are, Jamie is absently staring at a fly buzzing around the classroom and is not paying attention. When you reiterate your question in a calm manner, Jamie turns to you in a responsive manner, and sincerely apologizes for misplacing the homework.

Vignette 3 – ADHD (Hyperactive/Impulsive), Unlikeable

You build a model with blocks to demonstrate a lesson you are teaching in class that day. You had to come into school earlier than usual to build the model and it took longer than you expected, but you believe it is an important visual aid for the students. You encourage the students to walk around and observe the model. Jamie, one of your students, impulsively runs into the model and

ADHD and Teacher Attributions

knocks it over. When another student in the classroom blames Jamie for knocking over the model, Jamie starts to cry and whine that the other student is lying. Jamie does not apologize for knocking over the model.

Vignette 4 – ADHD (Hyperactive/Impulsive), Likeable

You build a model with blocks to demonstrate a lesson you are teaching in class that day. You had to come into school earlier than usual to build the model and it took longer than you expected, but you believe it is an important visual aid for the students. You encourage the students in your class to walk around and observe the model. Jamie, a student in your class, correctly answers some tough questions about the model and compliments you on how great the model was built. Jamie then impulsively runs into the model and knocks it over. Jamie warmly apologizes for knocking over the model.

Vignette 5 – No ADHD (Control), Unlikeable

A student in your classroom, Jamie, sits down at a desk and takes out a textbook to begin reading. Jamie reaches down to tie their shoe, finds two loonies on the floor and excitedly picks them up and places them in their pocket. You notice that when another student asks if they can share the loonies, Jamie refuses to share and instead teases them about the fact that they found money and the other student can't have any of it. You tell Jamie that you would like to hold onto the loonies until lunch, just in case someone in the class lost them. Jamie refuses to hand over the loonies.

Vignette 6 – No ADHD (Control), Likeable

A student in your class, Jamie, sits down at a desk and takes out a textbook to begin reading. Jamie reaches down to tie their shoe, finds two loonies on the floor and excitedly picks them up. You notice that when Jamie's friend asks if they can share the money, Jamie pats their friend on

ADHD and Teacher Attributions

the back and comments that she/he is happy to share so they can both buy a snack from the vending machine at lunch. You tell Jamie and the friend that you would like to hold onto the loonies until lunch, just in case someone in the class lost them, and Jamie reluctantly but obediently complies.

Appendix C

Attribution Ratings Scale

Imagine you are the teacher in this scenario you've just read, and the described child Jamie is one of your students.

Please fill out this scale, reflecting on how you feel about the child and what interpretations you made while reading it – just provide your best opinion when answering each question. Please circle only one response for each individual scale.

There is a section at the bottom of each scale for your own personal reflection. Please read the instructions and fill it out accordingly.

1. What is the direct cause of Jamie's behaviour in the scenario?

1 -- 2 -- 3 -- 4 -- 5

- 1 = Something directly caused by Jamie
- 2 = Something caused somewhat by Jamie
- 3 = Something caused equally by Jamie and the environment
- 4 = Something caused somewhat by the environment
- 5 = Something directly caused by the environment

2. How in control would Jamie be of the behaviour witnessed in this scenario?

1 -- 2 -- 3 -- 4 -- 5

- 1 = Completely within the child's control
- 2 = Most likely within the child's control
- 3 = Somewhat within the child's control
- 4 = Most likely not within the child's control
- 5 = Not at all within the child's control

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3. How likely is it that Jamie's behaviour will occur again?

1 -- 2 -- 3 -- 4 -- 5

1 = It will definitely happen again

2 = It will most likely happen again

3 = It might happen again

4 = It most likely will not happen again

5 = It seems like a one time occurrence

4. How likely would you be to refer Jamie for further assessment?

1 -- 2 -- 3 -- 4 -- 5

1 = Not at all likely

2 = Most likely would not

3 = I would look into it

4 = Quite likely

5 = Definitely make a referral

5. How much would Jamie benefit from accommodations made in the classroom?

1 -- 2 -- 3 -- 4 -- 5

1 = Absolutely no benefit

2 = Somewhat benefit

3 = Moderate benefit

4 = Probably benefit

5 = Direct benefit

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6. How confident would you be in successfully managing Jamie's behaviour in the future?

1 -- 2 -- 3 -- 4 -- 5

1 = Not at all confident

2 = Fairly unconfident

3 = Somewhat confident

4 = Mostly confident

5 = Extremely confident

In your opinion, based on the evidence from the scenario you just read, why do you think Jamie was acting this way? Please provide as much or as little detail as possible in your explanation.

Appendix D

ADHD Knowledge Scale

Please answer the following questions regarding Attention-Deficit/Hyperactivity Disorders (ADHD). If you are unsure of an answer, respond Don't Know (DK), **DO NOT GUESS**.

True (T), False (F), or Don't Know (DK) (circle one):

T	F	DK	Most estimates suggest that ADHD occurs in approximately 15% of school age children.
T	F	DK	Current research suggests that ADHD is largely the result of ineffective parenting skills.
T	F	DK	ADHD children are frequently distracted by extraneous stimuli.
T	F	DK	ADHD children are typically more compliant with their fathers than with their mothers.
T	F	DK	In order to be diagnosed with ADHD, the child's symptoms must have been present before age 7.
T	F	DK	ADHD is more common in the 1st degree biological relatives (i.e. mother, father) of children with ADHD than in the general population.
T	F	DK	One symptom of ADHD children is that they have been physically cruel to other people.
T	F	DK	Antidepressant drugs have been effective in reducing symptoms for many ADHD children.
T	F	DK	ADHD children often fidget or squirm in their seats.
T	F	DK	Parent and teacher training in managing an ADHD child are generally effective when combined with medication treatment.
T	F	DK	It is common for ADHD children to have an inflated sense of self-esteem or grandiosity.
T	F	DK	When treatment of an ADHD child is terminated, it is rare for the child's symptoms to return.
T	F	DK	It is possible for an adult to be diagnosed with ADHD.
T	F	DK	ADHD children often have a history of stealing or destroying other people's things .

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T	F	DK	Side effects of stimulant drugs used for treatment of ADHD may include mild insomnia and appetite reduction.
T	F	DK	Current wisdom about ADHD suggests two clusters of symptoms: One of inattention and another consisting of hyperactivity/impulsivity.
T	F	DK	Symptoms of depression are found more frequently in ADHD children than in non-ADHD children.
T	F	DK	Individual psychotherapy is usually sufficient for the treatment of most ADHD children.
T	F	DK	Most ADHD children "outgrow" their symptoms by the onset of puberty and subsequently function normally in adulthood.
T	F	DK	In severe cases of ADHD, medication is often used before other behavior modification techniques are attempted.
T	F	DK	In order to be diagnosed as ADHD, a child must exhibit relevant symptoms in two or more settings (e.g., home, school).
T	F	DK	If an ADHD child is able to demonstrate sustained attention to video games or TV for over an hour, that child is also able to sustain attention for at least an hour of class or homework.
T	F	DK	Reducing dietary intake of sugar or food additives is generally effective in reducing the symptoms of ADHD.
T	F	DK	A diagnosis of ADHD by itself makes a child eligible for placement in special education.
T	F	DK	Stimulant drugs are the most common type of drug used to treat children with ADHD
T	F	DK	ADHD children often have difficulties organizing tasks and activities.
T	F	DK	ADHD children generally experience more problems in novel situations than in familiar situations.
T	F	DK	There are specific physical features which can be identified by medical doctors (e.g. pediatrician) in making a definitive diagnosis of ADHD.
T	F	DK	In school age children, the prevalence of ADHD in males and females is equivalent.

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T	F	DK	In very young children (less than 4 years old), the problem behaviors of ADHD children (e.g. hyperactivity, inattention) are distinctly different from age-appropriate behaviors of non-ADHD children.
T	F	DK	Children with ADHD are more distinguishable from normal children in a classroom setting than in a free play situation.
T	F	DK	The majority of ADHD children evidence some degree of poor school performance in the elementary school years.
T	F	DK	Symptoms of ADHD are often seen in non-ADHD children who come from inadequate and chaotic home environments.
T	F	DK	Behavioral/Psychological interventions for children with ADHD focus primarily on the child's problems with inattention.
T	F	DK	Electroconvulsive Therapy (i.e. shock treatment) has been found to be an effective treatment for severe cases of ADHD.
T	F	DK	Treatments for ADHD which focus primarily on punishment have been found to be the most effective in reducing the symptoms of ADHD.
T	F	DK	Research has shown that prolonged use of stimulant medications leads to increased addiction (i.e., drug, alcohol) in adulthood.
T	F	DK	If a child responds to stimulant medications (e.g., Ritalin), then they probably have ADHD.
T	F	DK	Children with ADHD generally display an inflexible adherence to specific routines or rituals.

Appendix E

Telephone Script

Hi, my name is Laura Cousineau and I am a Masters student in the School Psychology program at Mount Saint Vincent University in Halifax, NS. I am currently working under the supervision of Dr. Sara King, assistant professor of School Psychology at Mount Saint Vincent University. Is this a convenient time to talk to you about a study we are hoping to conduct with your school?

If **NO**:

I'm sorry to bother you, although I would be very interested to discuss this study with you. Is there a better time for me to call?

***Call back time _____ and date _____**

If **YES**:

Great! Dr. King and I are collaborating with your school to find out more about teachers and how they understand and respond to children with Attention Deficit Hyperactive Disorder (or ADHD) in the classroom. We are hoping that by completing this study, it will also give us a clearer understanding about how teachers' interpret a child's classroom behaviour and whether this interpretation has any relation with their knowledge of ADHD. It will also allow us to determine whether further instruction about assessment referrals and classroom resources needs to be given to teachers during their education years.

Our study has been approved by the Mount Saint Vincent University Research Ethics Board and the TDSB. Our study involves teachers filling out an anonymous, online survey. The survey requires teachers' to read some classroom scenarios and answer short questions based on these scenarios and how they would react to them in their own classroom. The survey takes about 30 – 40 minutes to complete and can be completed in the teachers' spare time.

Do you have any questions about the study so far?

(Answer questions if applicable)

If you choose to participate, we are asking that you circulate the study flyer and website link to the teachers in your faculty. The survey can completed by any full-time teacher employed at the school, with the exception of substitute or student teachers. We would also ask that, if possible, you could post a copy of the study flyer in the teachers' lounge at your school. I also want to remind you that all of the teachers' answers will be kept confidential and no one will know who has decided to complete the survey. Also, the teachers' names and other identifiable information will not be kept or published. All of the data collected will be kept under lock and key at Mount Saint Vincent University, Dr. King's office, who is my primary supervisor.

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Any questions at this time?

(Answer questions if applicable)

Would you be interested in having your school participate in this study. Again, I want to remind you that this study would be completed in the teachers' free time and that no other involvement from the school would be required.

If **YES:**

Great! I can send you the recruitment email and website link that you can forward to your faculty. What would be the best email to contact you?

Contact Information: _____

Thank you so much for your time and for participating. Have a great day. If you have any further questions about the study, please do not hesitate to contact my supervisor, Dr. Sara King or myself. I can pass along our contact information at your request.

Dr. Sara King (902-457-6552, sara.king@msvu.ca)

For researcher to complete on day of phone call:

Principal

School

Date

Investigator

Date

Appendix F

Teacher Recruitment Flyer

Full-Time Teacher Participants Needed for Online Survey

We are currently conducting a study at Mount Saint Vincent University (Halifax, Nova Scotia) to find out more about teachers and how they understand and respond to children's behaviour in the classroom. We are hoping that your contribution to this study will allow us to determine whether further instruction about assessment referrals and classroom resources is needed for future teachers during their education years.

Our study has been approved by the Mount Saint Vincent University Research Ethics Board and the TDSB. Participation in the study consists of completing an online survey made up of short answers and questionnaires. The survey takes about 30 – 40 minutes to complete and can be completed at home. Participation in the study is completely anonymous, and neither the school board nor the investigators will be aware whether you decide to participate or not.

If you are interested in participating, please take one of the tabs below for more information. Thank you for your interest.

Sincerely,

Laura Cousineau, BA
MA School Psychology Student
Mount Saint Vincent University

Sara King, PhD, RPsych
Assistant Professor
Faculty of Education
Mount Saint Vincent University

(Tabs will include Principal Investigator's email address and the URL for the research study website).

Appendix G

Teacher Recruitment Email

Dear Teacher,

My name is Laura Cousineau and I am a Masters student in School Psychology Mount Saint Vincent University. Together with my supervisor, Dr. Sara King, we are conducting a study to find out more about teachers and how they understand and respond to children's behaviour in the classroom. Participation in the study consists of completing an online survey made up of short answers and questionnaires.

If you would like to learn more about this study, please click on the link below, which will bring you to a secure website on the Mount Saint Vincent University server. This does not mean that you have to participate in the study, only that more information will be given to you. Once reading this information, you can decide whether or not you would like to participate in the study. The study takes about 30-40 minutes to complete and is completely confidential.

The survey can be completed at home or at work in your spare time. Participation in the study is completely anonymous, and neither the school board nor the investigators will be aware whether you decide to participate or not.

If you would like more information about the study or have any questions or concerns, please do not hesitate to contact the investigators.

Sincerely,

Laura Cousineau, BA
MA School Psychology Student
Mount Saint Vincent University
Email: Laura.cousineau@msvu.ca

Sara King, PhD, RPsych
Assistant Professor
Faculty of Education
Mount Saint Vincent University
Email: sara.king@msvu.ca
Phone: (902) 457-6552

Appendix H

Information and Consent Form for Teachers

Study Title: Teachers' Understanding of Student Behaviour

Principal Investigator:

Laura Cousineau, BA
Graduate student in School Psychology
Mount Saint Vincent University

Supervisor:

Sara King, Ph.D R.Psych
Assistant Professor of School Psychology
Mount Saint Vincent University

Introduction

You have been invited to take part in a research study. This form gives you information about the study. Before you decide if you want to take part, it is important that you understand the purpose of this study. Taking part in this study is voluntary (your choice). Informed consent starts with the initial contact about the study and continues until the end of the study. If you have any questions or concerns that this form does not answer, the principal investigator and research supervisor will be happy to give you further information. You do not have to take part in this study and you may withdraw from this study at any time.

Purpose of Study

We are currently conducting a study at Mount Saint Vincent University (Halifax, Nova Scotia) to find out more about teachers and how they understand and respond to children's behaviour in the classroom. We are hoping that your contribution to this study will allow us to determine whether further instruction about assessment referrals and classroom resources is needed for future teachers during their education years. We are asking full-time teachers employed through the public school system to participate in this study. Our study has been approved by the Mount Saint Vincent University Research Ethics Board.

Study Design

If you decide to participate in this study, you will be asked to fill out a series of online questionnaires (that will be accessed through the website on which you are currently reading this form). The website was designed on a secure server through Mount Saint Vincent University. The first questionnaire will ask you a series of questions about your education and career as a teacher, and will include multiple choice and short answer questions. This will take about five minutes to complete. The second part of the questionnaire will ask you to read a series of vignettes about a fictional student, and then ask you to answer questions based on the vignettes you read. The questions are in multiple choice (scale format) and short answer formats. This section will take approximately 20 minutes to complete. The last part of the series will ask you to complete a questionnaire concerning your knowledge of children's behaviours. The questionnaire is in a true/false format and will take approximately 15 minutes. All participants will be filling out the same questionnaire series.

Potential Harms

We do not foresee any risks or harm for you in taking part in this study. If any issues do arise as a result of your participation in our study, you are encouraged to contact the principal investigator, Laura Cousineau, at laura.cousineau@msvu.ca or the research supervisor, Dr. Sara King, at (902) 457-6552 or sara.king@msvu.ca.

Potential Benefits

There will be no direct benefits to you from taking part in the study. However, you will be helping the researchers to learn more about developing education, teaching and training programs for teachers and other education professionals. What we learn through this study may help future teachers and future students.

Alternatives to Study

Participation in this study is completely voluntary (your choice). You *do not* have to take part in this study.

Withdrawal from Study

You may decide to withdrawal from this study at any time. There are no risks involved with withdrawing from this study at any point. Your teaching career or current teaching position will not be affected by this study. If the study is changed in any way, which could affect your decision to continue, you will be told about the changes and you may be asked to sign a new consent form. Should you decide to withdraw from the study, all data collected up to that point will be discarded and not used in the study. However, once the online survey is complete, it will not be possible to remove your data. If you decide that you no longer wish to participate, you should exit the survey before hitting “submit”.

Costs and Reimbursements

The study will be at no cost to you.

Confidentiality

Your confidentiality (privacy) will be protected throughout the study and after the study is complete. You will not be named in any reports or publications based on this research. Only an ID number will be used on the questionnaires you complete. No member of your affiliated school or school board will be aware whether or not you decide to participate in the study. All information collected from you will be stored in a locked cabinet at Mount Saint Vincent University (in the research supervisor’s office). Computer-based data will be password protected and encrypted to ensure privacy. Only researchers immediately involved in the research will have access to the information you give us. All studies conducted at Mount Saint Vincent University are subject to a potential audit by the Mount Saint Vincent University Research Ethics Board. Should an audit be conducted, your privacy will continue to be protected to the maximum extent of the law. If the results of the study are published in a scientific journal, the publication will not contain any identifiable information.

Please note that, if any issues do arise as a result of you participation in our study, you are encouraged to contact Dr. Sara King at (902) 457-6552 or sara.king@msvu.ca.

Research Rights

By clicking on the box below, you show that you have understood to your satisfaction the information regarding participation in the research project, and agree to participate in the study. In no way does this waive your legal rights nor release the investigator(s) or involved institution from their legal and professional responsibilities. You are free to withdraw from the study at any time without jeopardizing your teaching position within your affiliated school board.

If you have questions about research in general or this particular research study, at any time during or after your participation, you may contact Laura Cousineau (laura.cousineau@msvu.ca) or Dr. Sara King (902-457-6552 or sara.king@msvu.ca). You also have the option of contacting the University Research Ethics Board (UREB) at Mount Saint Vincent University. The UREB contact information is 902-457-6350 or brenda.gagne@msvu.ca

Following completion of the study, study results can be made available upon request. Please contact the principal investigator, Laura Cousineau, at laura.cousineau@msvu.ca, if you wish to have a copy of the results.

Contact Information

The Primary Investigator is Laura Cousineau. If you have any questions or comments concerning your enrolment in the study, please email Ms. Cousineau at laura.cousineau@msvu.ca. Dr. Sara King is the Research Supervisor and can be reached at her Mount Saint Vincent University office at (902) 457-6552.