An exploration of the relationship between motor skills difficulties and wellbeing, educational and social outcomes.

A thesis submitted to the University of Manchester for the degree of Doctorate in Education and Child Psychology in the faculty of Humanities

2016

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School of Environment, Education and Development (SEED)
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<tr>
<td>A&amp;C</td>
<td>Aiming and Catching</td>
</tr>
<tr>
<td>ADHD</td>
<td>Attention Deficit Hyperactivity Disorder</td>
</tr>
<tr>
<td>BSCI-Y</td>
<td>Beck Self-Concept Inventory for Youth</td>
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<tr>
<td>CO-OP</td>
<td>Cognitive Orientation to daily Occupational Performance</td>
</tr>
<tr>
<td>CYP</td>
<td>Children and Young People</td>
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<tr>
<td>DCD</td>
<td>Developmental Co-ordination Disorder</td>
</tr>
<tr>
<td>DCDQ</td>
<td>Developmental Co-ordination Disorder Questionnaire.</td>
</tr>
<tr>
<td>DfE</td>
<td>Department for Education</td>
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<tr>
<td>DoH</td>
<td>Department of Health</td>
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<tr>
<td>EBI</td>
<td>Evidenced Based Intervention</td>
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<tr>
<td>EBP</td>
<td>Evidenced Based Practice</td>
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<td>Evidenced Based Practice in Psychology</td>
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<tr>
<td>EHCP</td>
<td>Education, Health and Care Plan</td>
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<td>EP</td>
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<td>KS</td>
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<tr>
<td>M-ABC</td>
<td>Movement Assessment Battery for Children</td>
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<tr>
<td>M-ABC2</td>
<td>Movement Assessment Battery for Children (2nd Edition)</td>
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<tr>
<td>MAND</td>
<td>McCarron Assessment of Neuromuscular Development</td>
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<td>MD</td>
<td>Manual Dexterity</td>
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<td>MMSP</td>
<td>Manchester Motor Skills Programme</td>
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<td>OTs</td>
<td>Occupational Therapists</td>
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<td>NCTL</td>
<td>National College for Teaching and Learning</td>
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<td>PBE</td>
<td>Practice Based Evidence</td>
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<td>PRISMA</td>
<td>Preferred Reporting Items for Systematic Reviews and Meta-Analyses</td>
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<td>RCTs</td>
<td>Randomised Control Trials</td>
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<td>SDQ-I</td>
<td>Self-Description Questionnaire-I</td>
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<tr>
<td>Abbreviation</td>
<td>Description</td>
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<tr>
<td>SEN</td>
<td>Special Educational Needs</td>
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<td>SENCO</td>
<td>Special Educational Needs Co-ordinator</td>
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<tr>
<td>SEND</td>
<td>Special Educational Needs and Disabilities</td>
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<td>SES</td>
<td>Social and Emotional Skills</td>
</tr>
<tr>
<td>SPPA</td>
<td>Self-Perception Profile for Adolescents</td>
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<tr>
<td>SPPC</td>
<td>Self-Perception Profile for Children</td>
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<td>SSiS</td>
<td>Social Skills Improvement System</td>
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<td>SSSC</td>
<td>Social Support Scale for Children</td>
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<tr>
<td>TEP</td>
<td>Trainee Educational Psychologist</td>
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1. ABSTRACT

The University of Manchester

Katherine Lodal

Doctorate in Educational and Child Psychology (D.Ed.Ch.Psychol)

An exploration of the relationship between motor skills difficulties and wellbeing, educational and social outcomes.

2016

This thesis explores the relationship between motor difficulties and wider educational, social and emotional outcomes. The first two sections have been prepared in accordance with author guidelines of the journals proposed for submission.

The first paper presents a systematic review of the literature examining the effects of poor motor skills on self-esteem (global and/or domain specific) in children and adolescents. Four databases were searched for articles focusing on motor skills and self-esteem in children and adolescents. 26 potentially relevant studies were identified and from the 26, eight studies met the inclusion criteria. A synthesis of the studies reveals that there appears to be a relationship between motor skills and self-esteem, however this relationship is complex and likely to vary depending on age, gender and co-morbidity. Implications for EP practice are discussed.

The second paper is an exploratory product evaluation of the Manchester Motor Skills Programme (MMSP). A mixed methodology was used to explore outcomes for four KS2 children with motor skills difficulties who participated in the MMSP. The children’s motor skills, social skills, academic outcomes and self-esteem were assessed using standardized measures pre and post intervention and at follow up. Semi-structured interviews and a focus group were used to elicit the views of pupils, the class teacher and the group leader. Results indicated improvements in some motor skill domains which were sustained at follow up. Qualitative data highlights perceived improvement in children’s social skills, confidence, and use of meta-cognitive strategies. Further research is needed into outcomes of the MMSP on children’s social skills and self-esteem.

The third paper discusses the dissemination of the research, providing a summary of the research development implications from the research at, the research site and at a wider Local Authority level. A strategy for promoting the dissemination and impact of the research will be discussed.
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4. DEDICATION

I would like to dedicate this study to six very special people:

My husband, Fakhruddin, who has firstly supported me through everything I have chosen to do and secondly made me laugh when I have wanted to cry.

My daughters, Zahra and Yasmin, who will be so proud to tell people their Mum is a doctor even if they then have to explain that I cannot actually save lives. Thank you to you both for always giving me cuddles, making me laugh and being my best little friends. Thank you also for going to bed on time so that I could get my work done. Zahra you will now be able to stay up later, as requested.

My Mum and Dad for the lifetime of encouragement, proof reading, IT support and child care which has made this possible and last but not least my Brother in Law Habib for his invaluable IT support.
5. ACKNOWLEDGMENTS

I would like to say thank you to all the children and professionals who kindly agreed to take part in this research and gave up their valuable time. It is much appreciated. A special thank you to the group leader who ran the MMSP with such enthusiasm and dedication.

I would like to say a huge thank you to Caroline Bond, for her patience, advice and support. I could not have had a better supervisor. Thank you.
The Relationship between Motor Skills Difficulties and Self-Esteem in Children and Adolescents: A Systematic Literature Review
The Relationship between Motor Skills Difficulties and Self-Esteem in Children and Adolescents: A Systematic Literature Review

This project was funded through England’s Department for Education (DfE) National College for Teaching and Learning (NCTL) ITEP award 2013-2016

1. Abstract:
Research findings indicate that there appears to be a relationship between poor motor skills and self-esteem however this relationship is ambiguous. This review examines the effects of poor motor skills on global and/or domain specific self-esteem. Four databases, Google Scholar and the Manchester Online library were searched for articles focusing on motor skills and self-esteem in children and adolescents. A date range of between January 2000 and July 2015 was specified to ensure sufficient overlap with the most recent meta-analysis. From the database searches, 26 potentially relevant studies were identified and from these 26, eight studies met the inclusion criteria. A synthesis of the studies reveals that there appears to be a relationship between motor skills and self-esteem, however this relationship is complex and likely to vary depending on age, gender and co-morbidity. Implications for EP practice are discussed.

Keywords: Developmental Coordination Disorder; self-esteem; motor skills difficulties; children; adolescents; systematic literature review.

2. Introduction
The development of motor control and co-ordination is an important part of general development, (Bond, Cole, Fletcher, Noble & O’Connell, 2011). It was once considered that motor skills difficulties in childhood were of little importance and that young people would outgrow these difficulties in adolescence, however it is now widely acknowledged that children do not grow out of motor skills problems (Hill & Barnett, 2011).

Although developmental motor problems have been discussed by professionals in the field for many decades; there continues to be confusion in relation to terminology. Dyspraxia, clumsy child syndrome, sensory integration disorder and developmental coordination disorder are all terms which have been
used to describe this group of children (Bond, 2008). Developmental coordination disorder (DCD) is currently the preferred term for those displaying more severe levels of motor coordination difficulty. The definition of DCD given in the Diagnostic and Statistical Manual of Mental Disorders V (American Psychiatric Association, 2013) focuses on significant difficulties acquiring motor skills which persistently impacts upon daily living and is not attributable to another condition affecting movement. Children with DCD or poor motor skills are likely to have difficulties in one or more motor skill domain, for example, fine motor, gross motor, movement in a static environment and movement in a dynamic environment (Henderson, Sugden & Barnett, 2007). Individual profiles including the extent to which motor difficulties in one domain affect another may vary and change over time (Hill & Barnett, 2011).

Prevalence of DCD is 1.7% of seven to eight year olds, with a further 3.2% having probable DCD (Kirby, Sugden & Purcell, 2014) and it is more common in boys (Kadesjo & Gillberg, 1999). As many as 10% of children may have a milder degree of motor skills difficulty (Gibbs, Appleton & Appleton, 2007) which can affect their academic progress and social inclusion (Bond, 2008). For this reason this review included studies which investigate children with a formal diagnosis of DCD or children assessed to have significant motor difficulties.

Many children with poor motor skills have co-existing difficulties, such as speech and language difficulties or Attention Deficit Hyperactivity Disorder (ADHD) which can increase the risk of academic difficulties (Alloway & Archibald, 2008) and long term problems (Rasmussen & Gillberg, 2000). While exact figures on prevalence of co-existing difficulties are not known research suggests that around half of those diagnosed with DCD have coexisting difficulties (Kadesjo & Gillberg, 1999).

There is a growing body of evidence suggesting that motor skills development has an impact on many other areas of academic performance and later psychological difficulties (Losse et al., 1991). Given the high correlation between poor motor skills and academic difficulties, along with the long term social and emotional impact of motor difficulties, motor co-ordination should be an area of interest for Educational Psychologists. The development of good motor skills is an area where EPs can offer support and guidance (Bond, 2013).
Gross and fine motor skills difficulties impact on everyday activities; difficulties in these areas are highly visible to others and subsequently could impact on a child’s self-esteem. Low self-esteem, has been reported in children with DCD and can be evident from as young as four years old (Piek, 2009).

It is thought that self-esteem plays a role in maintaining psychological wellbeing (Ebbeck & Weiss, 1998; Renouf & Harter, 1990) and poor self-esteem is a risk factor for greater levels of anxiety and depression in children (Harter, 1987). The increasing prevalence of mental health difficulties in children (Jane-Llopis & Braddick, 2008) has led to an increasing focus on the role of schools in supporting children’s psychological wellbeing (DfE and DoH, 2014). Given that children who experience difficulties in the area of motor skills are at risk of social and emotional problems (Piek, 2009) behavioural difficulties (Davis, Ford, Anderson, & Doyle, 2007) and being socially rejected (Kauer & Roebers, 2012), it is important to consider the potential relationship between motor difficulties and self-esteem.

‘Self-esteem is a construct which has a long history in western culture’ (Buhrmester, Blanton & Swann, 2011) and Harter (1990) describes self-esteem as a general evaluation of one’s worth as a person. Over the last ten years many terms have been used in the research literature to describe children’s self-esteem, for example; self-perception (Ekornas, Lundervold, Tju & Heimann, 2010), self-concept (Peens, Pienaar & Nienaber, 2008), self-esteem (McWilliams, 2005) and self-worth (Piek, Dworcan, Barrett & Coleman, 2000). This ambiguity around the terminology is one of the major difficulties with the concept of self-esteem (Shavelson, Hubner and Stanton, 1976).

Hattie (1992) suggests that the terminology of self-concept is synonymous with self-estimation, while self-esteem, self-worth and self-perception are synonymous with self-evaluation. Given this distinction, for the rest of this paper the terminology self-esteem will be used because it is synonymous with self-evaluation and is therefore most likely to influence psychological wellbeing. Self-esteem is also thought to be the most appropriate term to cover all measurements of self (Miyahara & Piek, 2006).

The measurement of self-esteem causes further challenges. Initial measures were based on a unidimensional model of self-esteem where self-esteem was considered as a single construct (Piers & Harris, 1969). Although most
unidimensional scales include different aspects of the self they argue that the combination of these produce an accurate measure of global self-esteem.

Harter (1987) and Marsh and Hattie (1996) believe that self-esteem should be seen as multidimensional, as it is too broad a construct to be conceptualised as a single global measure. Harter (1982) believed that children’s sense of competence in areas of importance, for example, physical or scholastic ability appears to be crucial in the development and maintenance of self-esteem, this is reflected in measures such as the Perceived Competence Scale for Children (Harter, 1982).

Although there is a lack of agreement regarding terminology and measures of self-esteem, studying the relationship between poor motor skills and self-esteem is still worthwhile given the evidence indicating the importance of self-esteem for children with DCD/significant motor difficulties.

Children from eight years of age and above can make judgments about their overall self-esteem and more specific judgements about their competencies in areas of athletic ability and scholastic ability (Harter, 1986). By age eight, most movement skills are also in place (Piek, Hands & Licari, 2012) making children aged seven and over an ideal age range for researching the relationship between motor skills and self-esteem.

A previous meta-analysis by Miyahara and Piek (2006) dated from 1970 to 2003 analysed the self-esteem of children and adolescents with minor and major physical disabilities. The study appears to indicate that the effect of minor physical disabilities such as DCD on the self-esteem domain of physical competence was large and the effect on global self-esteem was moderate.

Miyahara and Piek (2006) found that most of the research in this field did not report on the details of co-existing conditions. Miyahara and Piek (2006) concluded that future research should consider comorbidity for children with minor motor difficulties. They also allude to the possibility of gender bias affecting the domain of perceived physical appearance, as many of the studies included in their meta-analysis had a higher male to female ratio.

3. Scope and methodology
This review aims to investigate the relationship between motor difficulties and self-esteem (global and/or domain specific) and, following on from Miyahara and
Piek, evaluates whether the more recent research from 2000 – 2015 considers the co-existing difficulties faced by children with poor motor skills. Visser (2003) highlights that very few attempts have been made to select pure samples and, although some studies give prevalence rates of comorbidities, the possibility that the children in the sample had multiple difficulties is not often considered.

**a. Review process**

The review report adheres to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines (Moher, Literati, Tetzlaff & Altman, 2009) (see appendix 1). Between May and July 2015 the following databases were searched for relevant articles: Web of Science, PsychInfo, SPORTDiscus, Google Scholar, ERIC and the Manchester Online library. Reference harvesting was also carried out from the journal articles found. Key search terms included: motor skills, motor skills difficulties, poor motor skills, DCD, Developmental Coordination Disorder, self-esteem, self-concept, self-worth and self-perception. Searches were conducted using single and combined terms. To ensure that no studies were missed, a date range of between 2000 and 2015 was specified, so that this overlapped by three years with the date range of Miyahara and Piek’s (2006) meta-analysis. From the database searches, 26 potentially relevant studies were identified (see appendix 3).

Eight studies met the inclusion criteria (see appendix 2) which focused: on empirical investigations which primarily evaluated the relationship between motor skills difficulties and self-esteem in children and adolescents from 7 – 18 years old with a diagnosis of DCD or motor skills difficulties as measured with a standardised motor skills assessment. The included studies also used a measure of self-esteem and were published in English.

**b. Quality and relevance of the review studies**

The characteristics of the eight included studies are reported in table 1. The data provided in table 1 was extracted directly from the studies.

The studies were evaluated using a two-step process. Firstly they were evaluated for coherence and integrity of the evidence in its own terms. To assess coherence and integrity, the studies were reviewed using the review framework from Wallace and Wray (2011).
Secondly the studies were screened using a review specific judgement about the methodological relevance of the studies in answering the review question: to what extent do motor skills difficulties impact on children or adolescent’s self-esteem? Evaluations took account of the use of valid and reliable motor skills and self-esteem measures and the extent to which mediating factors such as age, gender and co-existing difficulties were considered. A study scored high if both of these points were fully addressed; medium if one of these factor’s was addressed for example: measures were valid and reliable or there was consideration of mediating factors and low if measures had lower reliability and validity and no consideration of mediating factors (see appendix 4).

All of the studies in the review were evaluated as reporting at least medium quality research and relevance to the research question, which suggests that a reasonable level of confidence may be placed in their findings.

4. Findings
Eight quantitative investigations are included in the review; six originated from Australia, one from Finland and one from Scotland. Sample size range from 30 to 327 participants aged seven to sixteen. Five studies included male and female participants, two studies included only males and one study included only females.
<table>
<thead>
<tr>
<th>Author and country</th>
<th>Sample age, gender</th>
<th>Study design</th>
<th>Motor skills measures</th>
<th>Self-esteem measures</th>
<th>Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cocks, Barton &amp; Donelly, (2009)</td>
<td>30 participants 7 – 12 years old. Male</td>
<td>Quantitative investigation. Boys referred to an OT service over an 18 month period.</td>
<td>Movement ABC (Henderson and Sugden 1992)</td>
<td>SDQI (Self-Description Questionnaire-I (SDQ-I) (Marsh 1990)</td>
<td>Boys with DCD significantly lower mean scores for self-concept in physical abilities and peer relations compared to test norms. Boys with DCD and ADHD significantly poorer self-concept for general school and total academic compared to boys with DCD. Poor motor abilities significantly associated with low self-concept for physical abilities and reading. Moderate positive correlation between self-concept for physical abilities and positive self-concept for physical appearance, peer relations, parent relations and general self.</td>
</tr>
<tr>
<td>Piek, Dworcan, Barrett, Coleman, (2000)</td>
<td>72 participants Age range 8.0 and 12.11, 34 females and 38 males 36 DCD and 36 matched controls</td>
<td>Matched between subjects design Quantitative investigation.</td>
<td>Movement ABC Self-perception profile for children Harter 1985a (SPPC) and The social support scale for children Harter 1985b (SSSC)</td>
<td>DCD group significantly lower than controls in athletic competence. Physical Appearance uniquely contributed a significant proportion of variance in global self-worth. DCD group self-worth primarily accounted for by perceived scholastic competence followed by physical appearance. Group and gender interaction was statistically non-significant suggesting additive effects for group and gender.</td>
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</tr>
<tr>
<td>Reference</td>
<td>Location</td>
<td>Sample Size</td>
<td>Participant Details</td>
<td>Methodology</td>
<td>Instruments</td>
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<tr>
<td>Piek, Barrett, Allen, Jones &amp; Louise, (2005)</td>
<td>Australia</td>
<td>86 participants</td>
<td>7 – 11 year olds, 46 Male, 40 female</td>
<td>Quantitative Investigation – matched control sample, Children excluded if estimated verbal IQ &lt; 80; from non-English speaking backgrounds or had a co-occurring disorder.</td>
<td>McCarron Assessment of Neuromuscular Development (MAND) (McCarron 1997)</td>
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<tr>
<td>Piek, Baynam &amp; Barrett, (2006)</td>
<td>Australia</td>
<td>265 participants across seven schools</td>
<td>164 (7 – 11) (80 females and 84 males), 101 (12 – 15)(64 females and 37 males)</td>
<td>Quantitative investigation</td>
<td>MAND</td>
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<tr>
<td>Study</td>
<td>Participants</td>
<td>Age</td>
<td>Gender</td>
<td>Study Type</td>
<td>Motor Ability</td>
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<tr>
<td>Poulsen, Johnson &amp; Ziviani, (2011)</td>
<td>60 participants</td>
<td>10 – 13 years</td>
<td>Male</td>
<td>Quantitative Cross Sectional investigation.</td>
<td>Movement ABC</td>
</tr>
<tr>
<td>Skinner &amp; Piek (2001)</td>
<td>218 participants</td>
<td>8 – 10 years</td>
<td>40 females and 18 males</td>
<td>Quantitative investigation (matched controls)</td>
<td>M-ABC</td>
</tr>
<tr>
<td>Study</td>
<td>Participants</td>
<td>Methodology</td>
<td>Measures</td>
<td>Results</td>
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<tr>
<td>Viholainen, Aro, Purtsi, Tolvanen &amp; Cantell (2014)</td>
<td>Finland</td>
<td>327 participants (12 – 16 year olds, Female)</td>
<td>Quantitative investigation (Developmental Coordination Disorder Questionnaire, Self-report adolescent version (DCDQ: Wilson, Kaplan, Crawford, Campbell and Dewey, 2000), Strengths and Difficulties Questionnaire SDQ (Goodman, Meltzer &amp; Bailey 1998), Self-Concept of ability scale (Nicholls 1978))</td>
<td>Good motor skills associated with higher psychosocial wellbeing; poor motor skills associated with poor psychosocial wellbeing. School related self-concept mediated the association between motor skills and peer problems. Direct association between motor skills and psychosocial wellbeing stronger than that found for maths, reading and physical education mediators.</td>
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<tr>
<td>Watson &amp; Knott (2006)</td>
<td>Scotland</td>
<td>30 participants (8 – 12 years, 3 females and 12 males in DCD and control group)</td>
<td>Quantitative investigation (M-ABC Beery Buktenica Developmental test of visual motor integration (Beery, Buktenica &amp; Beery, 1987), Draw a person test (Naglieri, 1988), SPPC Harter 1985a)</td>
<td>Children with DCD’s global self-esteem not lower than a comparison group. DCD group rated themselves lower on scholastic competence and athletic competence; athletic competence and global self-esteem were significantly related; no other significant correlations.</td>
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</tbody>
</table>
The aim of the review was to determine whether poor motor skills affect a child/young person’s self-esteem. Although there appears to be a relationship between motor skills and self-esteem this relationship is complex; this complexity comes partly from the mixed findings regarding which self-esteem domain is identified to be affected by poor motor skills. Some studies found that children with motor skills difficulties did not appear to have significantly lower global self-worth than the control groups (Piek et al., 2006; Watson and Knott, 2006); other studies however found that those with poor motor skills reported significantly lower self-perceptions and lower global self-worth (Skinner and Piek, 2001). It is important to consider that variability in samples and the range of measures may account for the variability in findings.

As shown in table one, five studies measured self-esteem using the SPPC (Harter, 1985a) and two of these studies also used the SPPA (Harter, 1988). Two of the included studies used the SDQI (Marsh, 1990) and the remaining study used the self-concept of ability scale (Nicholls, 1978). In relation to motor skills five studies measured motor skills using the Movement ABC (Henderson & Sugden, 1992) which has been validated against other similar instruments (Barnett and Henderson, 1992; Riggen, Ulrich and Ozmun, 1990) and has a test-retest reliability of 0.75 and an interrater reliability of 0.70 (Henderson & Sugden, 1992). Two studies used the MAND, which has a test-retest reliability ranging from 0.67 to 0.98 (McCarron, 1997); has been found to be a good measure for the identification of motor impairment and has good specificity and sensitivity (Tan, Parker and Larkin, 2001).

Viholainen et al. (2014) used an adolescent version of the DCDQ, a self-report questionnaire. The DCDQ is widely used for motor skills screening and has sufficient psychometric properties (Schoemaker, Flapper, Reinders-Messelink and de Kloet, 2008). It is important to consider that a self-report is subjective rather than objective however as Viholainen et al. (2014) point out there is some evidence to suggest that adolescents are fairly accurate in evaluating their own motor skills (McKiddie & Maynard, 1997). Donaldson and Ronan (2006) suggest that self-perception of skills are more relevant for psychosocial wellbeing than objectively measured skills.

This variety of measures may account for some of the differences between studies and makes it more difficult to directly compare findings.
As already stated the relationship between motor skills and self-esteem is complex; the findings of the included studies suggest that the relationship may vary depending on the sample.

In relation to gender, Cocks et al. (2009) and Poulsen et al. (2011) investigated the relationship between motor skills difficulties and self-esteem in boys. They chose male participants due to the higher prevalence rates of DCD in boys (Kadesjo & Gilberg, 1999). Whereas Viholainen et al. (2014) focused their study on adolescent girls because psychosocial problems tend to rise in frequency during adolescence for girls.

Poulsen et al. (2011) found that boys with fine motor, ball skills, balance and co-ordination difficulties had poor physical abilities self-concept. It is important to consider that the research involved a very small sample, which makes it difficult to generalise, however this finding does appear to support the findings of larger studies such as Piek et al. (2006). Poulsen et al. (2011) also found that boys with poor performance on manual dexterity and low participation in informal physical activity had low peer relations self-concept. Similarly Cocks et al. (2009) found that boys with DCD had significantly lower mean scores for self-concept in physical abilities and peer relations.

Viholainen et al. (2014) found that poor motor skills were associated with poor psychosocial wellbeing in girls. They found that school related self-concept mediated the association between motor skills and peer problems however the direct association between motor skills and overall psychosocial wellbeing was stronger than that found for the mediators. Self-concept in physical education had the strongest association with the subscales of psychosocial wellbeing especially peer problems.

Piek et al. (2005) investigated the relationship between peer-victimization and self-worth in children with DCD finding that there was a statistically significant negative correlation between global self-worth and peer victimization. They also found that verbal victimisation had a significant impact on the self-worth of girls with DCD. Piek et al. (2006) found that for females with and without DCD, scholastic competence, linked with fine motor ability and was important for their self-worth. Perceived athletic competence linked with gross motor ability and was also seen to contribute to self-worth in females with DCD.

Skinner and Piek (2001) did not analyse gender differences, however as their study had a large proportion of females this may have impacted on the findings that the
DCD group viewed themselves to be less competent in scholastic ability, athletic ability, physical appearance, self-worth and social acceptance. Conversely, Watson and Knott (2006) found that the correlation between global self-worth and scholastic competence in the DCD group was not significant; only perceptions of athletic competence correlated positively with global self-worth in the DCD group. This finding might be affected by the higher proportion of boys in their study.

Age is another potential mediating factor. Four studies in the review included participants within the age range of seven to twelve years. Two studies compared seven to eleven year olds with twelve to sixteen year olds and two further studies looked at the age range ten to sixteen. The two studies which compared children and adolescents were: Piek et al. (2006) and Skinner and Piek (2001).

Piek et al. (2006) found that adolescents had a poorer perception of their scholastic ability than the younger group. Skinner and Piek (2001) found that adolescents reported significantly lower global self-worth than the younger children and that those in the older age group perceived themselves as having significantly less social support than younger children.

Seven studies did not explicitly consider co-occurring difficulties. Some studies excluded those with a dual diagnosis (Watson and Knott, 2006), others included those within a stated IQ range (Piek et al., 2000; Piek et al., 2005; Piek et al., 2006). The only study to consider dual diagnosis was Cocks et al. (2009) whose study excluded pupils with language disorders, pervasive developmental disorder, those attending a special school or those who had contact with an occupational therapy service in the last 12 months. Out of the 30 boys in the study, 47% had an existing diagnosis of Attention Deficit Hyperactivity Disorder (ADHD) and 23% were taking stimulant medication. Although this study considers co-existing difficulties and highlights clearly an inclusion and exclusion criteria the small sample size makes it difficult to draw conclusions which can be generalised.

In relation to anxiety as a mediating factor, Skinner and Piek (2001) found that those with poor motor skills were significantly more anxious than the control group and that adolescents were significantly more anxious than their younger counterparts. Viholainen et al. (2014) also found that poor motor skills were associated with poor psychosocial wellbeing in females.
5. Discussion

Synthesis of the findings from the included studies has shown that although there appears to be a relationship between motor skills and self-esteem the relationship is complex and may vary depending on age, gender and other co-morbidities.

Miyahara and Piek (2006) suggested the possibility of gender bias affecting variability in the domain of perceived physical appearance in their meta-analysis. This review of more recent studies seems to support Miyahara and Piek’s reflections. The evidence suggests that the impact poor motor skills can have on a child/young person’s self-esteem is influenced by gender. It appears that males with DCD can experience poor athletic abilities self-concept and poor peer relations self-concept (Piek et al., 2000; Piek et al., 2006; Skinner & Piek, 2001; Watson & Knott, 2006). However the picture is somewhat more concerning for female adolescents with poor motor skills as their self-esteem in athletic ability and scholastic ability can impact on global self-esteem (Piek et al., 2006) and on their psychosocial wellbeing (Viholainen, 2014). Piek et al. (2005) suggest that peer relations and social acceptance are also important factors to consider when supporting females with motor skill difficulties. Overall these results appear to demonstrate that motor skills can be an important factor in female adolescent’s psychosocial wellbeing. This is also supported by Rose, Larkin and Berger (1997) who found that girls with poor coordination had the lowest perceptions of self-worth. The findings of this systematic review highlight the need for future research to clarify the relationships between motor skills and self-esteem in males and females.

The evidence suggests that the effect of poor motor skills on self-esteem also varies depending on age. Miyaraha and Piek’s meta-analysis included only two studies which investigated this relationship in adolescents (Losse et al., 1991; Skinner & Piek, 2001). This review also includes Skinner and Piek (2001) and two further studies which investigated the relationship between motor skills and self-esteem in adolescents (Viholainen et al., 2014; and Piek et al., 2006). Drawing from the limited research it appears that adolescents with poor motor skills report significantly lower global self-esteem. These findings are in line with findings by Losse et al. (1991). Rasmussen and Gilberg (2000) found that motor coordination difficulties continue into adulthood, which suggests that the impact of motor problems on self-esteem and psychosocial wellbeing may potentially be long lasting. The findings of this systematic review suggest that poor motor skills can affect self-esteem and psychosocial well-being in
adolescents, which warrants concern. Further research into the effect poor motor skills can have on the self-esteem of adolescents is required.

As highlighted in the introduction, difficulties such as speech and language impairment and ADHD frequently co-exist with symptoms of DCD and while exact figures on prevalence are not known, research suggests that around half of those diagnosed with DCD have coexisting difficulties (Kadesjo & Gillberg, 1999; Kaplan et al., 1998). Miyahara and Piek (2006) question why the self-esteem studies included in their meta-analysis did not report details of comorbid conditions. They emphasize that future research needs to ‘detangle the complex interplay of comorbid disabilities and domain specific self-esteem’ (2006:230). Almost ten years on it is disappointing to note that the studies included in this review have only paid fleeting attention to comorbid conditions. Cocks et al. (2009) was the only study included in this review which had clear inclusion and exclusion criteria. Further research with clear inclusion or exclusion criteria regarding comorbidity is needed in order to gain a comprehensive picture of the complex relationship between poor motor skills and global and/or domain specific self-esteem.

Miyahara and Piek (2006) called for more studies to use multi-dimensional measures of self-esteem. It is positive to see that all of the studies in this review used multidimensional measures of self-esteem (see table 1). However three different measures of self-esteem have been used. This could cause discrepancies between the findings, and future studies may wish to consider which measure is used most frequently for such investigations in order to ensure that studies are more comparable. Similar issues apply to the measurement of motor skills within the included studies.

The findings of this systematic review demonstrate that those with poor motor skills, particularly adolescents and females are ‘at risk’ of lower self-esteem, poor psychosocial outcomes and greater levels of anxiety. Tsang, Wong and Lo (2012) report that poor psychosocial wellbeing and mental illness are both strong predictors of adverse health outcomes. It is therefore important for Educational Psychologists to be able to identify groups that are particularly ‘at risk’ of poor psychosocial wellbeing, with the goal of preventing the onset of mental illness (Druss, Perry, Presley-Cantrell & Dhingra, 2010). As self-esteem is thought to play a role in maintaining psychological wellbeing (Renouf & Harter, 1990; Ebbeck & Weiss, 1998; Harter, 1987; Piek et al., 2006) aspects which can negatively affect self-esteem need to be understood by those working with children and young people. There is an important role here for the
Educational Psychologist in terms of contributing to other professionals and parent/carers’ understanding of the possible impact of motor skills difficulties for children and adolescents.

The included studies highlight some interesting considerations in terms of possible ‘risk’ and ‘protective’ factors, for example Poulsen et al. (2011) suggest that low participation in ‘out of school’ activities can be particularly detrimental to children and young people with motor skills difficulties. Witkowski and Steinsmeier-Pelster (1998) refer to the ‘withdrawal of effort’ attribution as an important mechanism in self-esteem protection theory and avoidance. Watson and Knott (2006) found that children with DCD used the coping strategy of ‘social withdrawal’ more often than the control group. Conversely, Poulsen et al. (2011) claim that participation in ‘out of school’ activities might act as a protective factor. Piek et al. (2000) also suggest that scholastic competence may mediate the impact of poor motor performance on self-worth. This finding is supported by Piek et al. (2006) who found that poor fine motor skills and poor gross motor skills in females affected both their perceived scholastic competence and perceived athletic competence which impacted on their global self-esteem.

An important contribution for Educational Psychologists could be to support children and adolescents by encouraging participation in out of school activities and ensuring learning difficulties are identified and addressed. As children with motor skills difficulties are a heterogeneous group it is also important for EPs to promote better understanding of the relationship between poor motor skills and self-esteem; assist schools in identifying and implementing interventions to support children and young people with poor motor skills and support schools in addressing secondary effects of motor difficulties.

This systematic review suggests that there may be particular ‘at risk groups’, these groups appear to be adolescents (Skinner and Piek, 2001; Piek et al., 2006) females (Piek et al., 2006; Viholainen et al., 2014; Piek et al., 2005) and boys with ADHD. (Cocks et al., 2009). These are areas which require further research.

Readers should consider that the review’s inclusion criteria meant some studies which focused broadly on low self-esteem and included poor motor skills among a number of mediators were excluded (Ekorna, Lundervold, Tjus & Heimann, 2010; Rigoli, Piek & Kane, 2012). The review also includes only quantitative investigations as searches did not uncover any relevant qualitative studies, however studies offering more qualitative insights into the relationship between motor difficulties and self-
Esteem would be helpful in understanding these mediating factors more fully. Methodological relevance was considered specifically in relation to the review question and findings should not be generalised beyond the scope of the review question.

This review has served to highlight that those with 'poor motor skills' are not a homogeneous group and further investigations are necessary to identify the effect motor skills difficulties can have on self-esteem with careful consideration of the variables of gender, age and co-existing difficulties.

6. References


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An Exploratory Product Evaluation of the Manchester Motor Skills Programme.
An Exploratory Product Evaluation of the Manchester Motor Skills Programme.

This project was funded through England’s Department for Education (DfE) National College for Teaching and Learning (NCTL) ITEP award 2013-2016

1. Abstract
This study is an exploratory product evaluation of the Manchester Motor Skills Programme (MMSP). A mixed methodology was used to explore intended, unintended, positive and negative outcomes for four KS2 children with motor skills difficulties who participated in the MMSP. The children’s motor skills, social skills and self-esteem were assessed using standardized measures pre and post intervention and at follow up. Semi-structured interviews and a focus group were used to elicit the views of pupils, the class teacher and the group leader. Results indicated positive yet variable improvements in motor skill domains which were sustained at three month follow up. Qualitative data highlights some perceived improvement in children’s social skills, confidence and use of meta-cognitive strategies and an unintended perceived outcome for one child with co-existing speech and language difficulties. The responses of this group highlight some individual factors which practitioner EPs should consider when planning motor skills interventions with schools.

Keywords: motor skills; intervention programme; primary school; exploratory outcome evaluation

2. Introduction
Children with motor skills difficulties experience problems with a variety of everyday activities, such as handwriting, dressing, eating and early play skills. Although motor skills difficulties have been referred to in a variety of ways the current preferred term for those displaying more severe levels of motor coordination difficulty is Developmental Co-ordination Disorder (DCD). DCD refers to significant difficulties acquiring motor skills which persistently impacts upon daily living and is not attributable to another condition affecting movement (Diagnostic and Statistical Manual of Mental Disorders 5, American Psychiatric Association, 2013).
The study of motor skills is challenging not only because of the ambiguity which has surrounded terminology but also because little is known of the aetiology of the disorder (Mandich, Polatajko, Macnab & Miller, 2001) and assessment tools aimed at measuring degrees of DCD have been found to produce inconsistent results (Crawford, Wilson & Dewey, 2001).

Despite these difficulties the study of DCD is worthwhile for many reasons. DCD is a common disorder with prevalence rates at around 5% of the school population (Kirby, Sugden & Purcell, 2014) with as many as 10% of children having a milder degree of motor skills difficulty (Gibbs, Appleton & Appleton, 2007). There is a growing body of evidence demonstrating the broader impact of motor skills difficulties on areas such as self-esteem, academic performance, school attendance and later psychological wellbeing, (Cantell, Smyth & Ahonen, 1994; Losse et al., 1991). Many children with poor motor skills also have co-existing difficulties such as speech and language and ADHD (Wilson, 2005). Research suggests that co-existing difficulties can increase the risk of long term motor difficulties and associated psychosocial difficulties (Moffitt, 1990; Rasmussen & Gillberg, 2000). These studies illustrate that there is a need for intervention for children with motor difficulties in order to reduce the direct impact of poor motor skills and their associated effects.

Historically there have been two main approaches to motor skills intervention. ‘Bottom up’ approaches focus on the problems underlying motor difficulties, these include: sensory integration (Ayres, 1989) and perceptual motor training. ‘Top down’ approaches (Sugden & Chambers, 2005) focus on improving motor performance and include the cognitive motor approach (Henderson and Sugden, 1992) and Cognitive Orientation to daily Occupational Performance (CO-OP) (Misiuna, Mandich, Polatajko & Malloy-Miller, 2001). A meta-analysis by Smits–Engelsman et al. (2013) found that in general, intervention produces benefits for the motor performance of children with DCD, over and above no intervention, with task-oriented approaches yielding stronger effects.

Motor development has traditionally been the remit of the occupational therapist. However, Educational Psychologists (EPs) with their secure knowledge of child development and learning; their understanding of the importance of addressing secondary effects of a child’s difficulties; their knowledge of school systems and their experience in supporting the implementation of interventions in schools makes them well placed to support children and young people with poor motor skills. EPs are also
required to promote evidence based approaches (HCPC, 2015; Stoiber & Wass, 2002), however as Bond (2011) points out motor skills interventions available for use in schools are limited and those which do exist lack a clear evidence base and robust evaluation.

The Manchester Motor Skills Programme (MMSP) (Bond, 2009) was developed in response to the lack of intervention programmes for use in schools. It was developed jointly by EPs, specialist teachers and occupational therapists, drawing on current knowledge in relation to motor skills intervention. The MMSP adopts a cognitive motor approach and draws upon the work of Missiuna et al.’s, (2001) CO-OP model and Bandura’s work on self-efficacy. The MMSP, focuses on direct skills teaching, adaptation and task analysis and the emphasis of sessions is very much upon self-esteem building and collaboration (Bond, 2011). The MMSP was chosen as an appropriate intervention for this study because it has strong theoretical underpinnings and an emerging evidence base (Bond et al., 2007; Bond, 2011).

Motor skills difficulties such as difficulties with dressing and eating are highly visible and it seems logical therefore that poor motor skills may impact on a child or young person’s self-esteem. Many studies have investigated the relationship between motor skills and self-esteem in children and adolescents (Skinner & Piek, 2001; Piek, 2009). The systematic Literature Review completed for paper one of this thesis, found that although there appears to be a relationship between motor skills and self-esteem the relationship is complex and may vary depending on age, gender and other co-morbidities. Self-esteem is a construct which is surrounded in complications with terminology and accurate measurement (see paper one). Buhrmester, Blanton & Swann (2011) argue that as many aspects of self-esteem are preconscious, it may be important to measure implicit self-esteem. They suggest the best way to measure this is through the use of interviews rather than questionnaires.

Longitudinal studies have found that children with motor difficulties also have poorer psychological wellbeing, are more immature, passive and socially isolated (Cantell, 1998; Cantell, Smyth & Ahonen, 1994; Losse et al. 1991). They may also have difficulties with social and peer relationships (Dewey, Kaplan, Crawford & Wilson, 2002). Although there is some evidence to suggest that motor skills intervention can have a positive effect on self-esteem in children and adolescents with poor motor skills (McIntyre, Chivers, Larkin, Rose & Hands, 2015; McWilliams, 2005) the broader impact of motor skills interventions on social skills and emotional well-
being has yet to be explored. The measurement of social skills is another complex area, Wigglesworth, Humphrey, Kalambouka and Lendrum (2010) point out there is little consensus regarding what is meant by social and emotional skills (SES) and how they are best measured. Despite these difficulties, exploring the broader outcomes of motor skills interventions is worthwhile given the evidence indicating the severe and long term impact motor difficulties can have on other areas of a child’s development (Sullivan, 2003).

Due to the existing evidence regarding the effectiveness of top down approaches to motor skill development (Smits-Engelsman et al., 2013) and the emerging evidence base of the MMSP (Bond et al., 2007; Bond, 2011) an efficacy study was not undertaken. The present study aims to explore the intended, unintended, positive and negative outcomes for a group of children in key stage two who participated in the MMSP.

The MMSP has yet to be validated using standardised measures and its intended and unintended outcomes for older children has yet to be explored. Therefore this exploratory product evaluation’s research questions are: what are the intended or unintended, positive or negative outcomes of participating in the MMSP? And does the MMSP have an intended positive outcome of improved motor skills for older children (in key stage two)? In line with the researcher’s critical realist stance, taking the views of Buhrmester et al. (2011) into consideration and in the spirit of a product evaluation the perspectives of the participants and other stakeholders were incorporated through quantitative and qualitative data collection methods. (Please see appendix 24 for further details regarding how data gathering methods and analysis links to elements of a product evaluation).

3. Method

This exploratory product evaluation used the CIPP evaluation model (Stufflebeam and Coryn, 2014). Following the CIPP model, this evaluation assessed intended and unintended outcomes of the MMSP; reported any positive or negative outcomes; employed a mixed methods approach in order to obtain and validate findings from multiple sources; reported findings honestly to all right to know audiences and identified avenues for further investigation. (For further information regarding the CIPP evaluation model please see appendix 23).
a. Participants
The research took place in a one form entry Primary School in the North West of England. Key Stage two class teachers completed the Movement Assessment Battery for Children (M-ABC2) (Second Edition) checklist (Henderson, Sugden & Barnett, 2007) and five children were chosen by the school to participate in the MMSP, only four of the children were included in the study as one pupil did not meet the inclusion criteria. All four pupils in the study were boys aged between 7 and 10 years of age.

b. Data gathering tools
Qualitative data were gathered through the use of a post intervention focus group with the children and semi-structured interviews with the class teacher and the group leader to explore perceived intended and unintended, positive and negative outcomes of participating in the MMSP. Quantitative data in the form of pre, post and follow up assessments were collected using the M-ABC2 assessment; the Social Skills Improvement System (SSiS) rating scales (Gresham & Elliott, 2008); and the BECK YI Self-Concept scale (BSCI-Y) (Beck, Beck, Jolly & Steer, 2005). (Please see appendix 24 for table linking data gathering techniques and analysis methods to elements of a product evaluation).

The M-ABC2 assesses Manual Dexterity, Aiming and Catching and Balance. Test-retest reliability coefficient ranges from 0.86 to 0.64, which falls well within the range deemed acceptable with a mean of 0.77 for the test overall (Chow & Henderson, 2003). All assessments were undertaken by the primary researcher to ensure consistency of administration and children’s previous scores were not revisited prior to re-test.

The SSiS rating scales (Gresham & Elliott, 2008) consist of 75 items regarding social skills, problem behaviours and academic outcomes. The SSiS was selected as it is multi-dimensional, therefore more sensitive to changes resulting from intervention (Wigglesworth et al., 2010). The SSiS questionnaires also have good reliability: for males aged 5 to 12 internal consistency reliability ranges from .92 to .97 and test-retest ranges from .77 to .92. The SSiS has been assessed as having good construct validity (Gresham & Elliott, 2008) and is one of the only measures of Social and Emotional Skills (SES) which allows for triangulation of teacher, pupil and parent responses.

The BSCI-Y (Beck et al., 2005) was chosen as a reliable measure of a child or young person’s self-concept. The scale consists of 20 items regarding the way the people think or feel. For males between the age of 7 to 10 years old the BSCI-Y has a
high internal consistency of 0.91 and a test-retest reliability of .88 (Beck et al., 2005). The BSCI-Y also correlates significantly with the Piers-Harris Children’s Self-Concept Scale (Piers, 1996) indicating good construct validity.

c. Procedure

This study received ethical approval from The University of Manchester (Ref: PGR-5767681) and was also conducted in accordance with ethical guidelines from the British Psychological Society Code of Ethics (2006) and the Health Care Professions Council’s Standards of Conduct Performance and Ethics (2012). (Please see appendix 16 and 21 for ethical approval application).

In order to be included in the study children needed to be aged 7-10 years and score in the red or amber zones of the M-ABC2 checklist and assessment. Children with SEND could be included if they met these criteria but not if they were currently working on an OT programme. The children meeting the inclusion criteria were assessed pre-intervention using the M-ABC2, the SSiS and the BSCI-Y (please see appendix 5 for inclusion criteria). The group leader had training on DCD and delivering the MMSP from the primary researcher, a Trainee Educational Psychologist (TEP). The programme ran for twelve weeks for three session per week, each session lasting 20 minutes a day. The structure of MMSP was followed, with activities repeated, for five sessions, in order to build confidence and provide opportunities for high levels of distributed practice (Bond, 2011). The researcher carried out observations of the programme at two separate points during the twelve weeks to ensure programme fidelity. The group leader kept a log of attendance and planning sheets for each session. These showed that the children had a high level of attendance during the twelve weeks with only three sessions missed in total and session plans indicated that the recommended structure was followed; there was a good balance of skills taught and implementation fidelity was likely to have been high.

Post intervention and at three month follow up the children were re-assessed using the M-ABC2, the SSiS and the BSCI-Y. Post intervention semi-structured interviews and a focus group were used to elicit the views of pupils, the class teacher and the group leader (please see appendix 9, 10 and 11).
d. Data analysis

Due to the number of participants involved in this study only descriptive statistics for motor skills, self-esteem, academic, behavioural problems and social skills are compared across the three time points.

The semi-structured interviews and focus group were audio recorded and partially transcribed. The transcribed data was analysed together as a complete set (Lyons, 2011) to ensure all the data was given an equal weighting.

The thematic analysis was undertaken by using both an inductive (Frith & Gleeson, 2004) and deductive (Hayes, 1997) approach. A ‘bottom up’ or inductive approach involves themes emerging from the data whilst a ‘top down’ approach or deductive approach involves the identification of themes driven by the research questions and the literature. The use of both an inductive and deductive approach has been endorsed by Joffe and Yardley, (2004) and Fereday and Muir-Cochrane, (2006) (please see appendices 12, 14, 25 and 26 for further details regarding the thematic analysis process). Inter-rater reliability checking was undertaken with a fellow TEP, demonstrating an 87% agreement rate on codes (see appendix 13).

4. Results

Quantitative data are presented first followed by qualitative data to further illuminate the quantitative findings.

a. M-ABC2 data

The M-ABC2 assessments demonstrate that all four participants who took part in the MMSP made progress with their overall motor skills which was maintained at follow up. Some of the children made considerable progress, for example, Alan whose total M-ABC2 score went from the 9th percentile to the 95th percentile. Some children’s progress however was more incremental, for example Yacub, whose total score went from 0.1st percentile to 2nd percentile.

The line graphs below show motor skills progress for each participant in percentiles. MD stands for Manual Dexterity and A&C refers to Aiming and Catching. There is missing data for Alan who left the school at the end of the academic year just after the intervention group had finished.
Figure 1. M-ABC2 progress Alan

Figure 2. M-ABC2 progress Yacub

Figure 3. M-ABC2 progress Phil
All four children showed progress in their motor skills overall although individual progress rates varied. All children also made progress in the Balance sub-test with progress in other domains being more variable. The variable effects demonstrated are not surprising considering the heterogeneous nature of children with DCD.

b. BSCY-I data

As shown in table two the BSCI-Y pre, post and follow up data shows a mixed picture: Alan shows progress with his self-esteem from pre to post intervention; Adam’s progress was static pre to post intervention with a slight increase from post intervention to follow up. However Adam’s scores were all in the above average range therefore only moderate change might be expected. Yacub’s data showed a decrease in self-esteem from pre to post intervention, with an increase in self-esteem at follow up; Phil’s data showed a decrease in self-esteem from pre to post intervention with a further decrease at follow up.
Table 2. BSCY-I scores and severity levels

<table>
<thead>
<tr>
<th>Time period</th>
<th>Adam</th>
<th>Phil</th>
<th>Alan</th>
<th>Yacub</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>T-score</td>
<td>Severity level</td>
<td>T-score</td>
<td>Severity level</td>
</tr>
<tr>
<td>Pre-intervention</td>
<td>67</td>
<td>Above average</td>
<td>55</td>
<td>Average</td>
</tr>
<tr>
<td>Post-intervention</td>
<td>67</td>
<td>Above average</td>
<td>50</td>
<td>Average</td>
</tr>
<tr>
<td>Follow up</td>
<td>69</td>
<td>Above average</td>
<td>39</td>
<td>Lower than average</td>
</tr>
</tbody>
</table>

c. SSiS data
The data from pupils and teachers has been presented separately for social skills and behavioural problems (see figures 5, 6, 7 & 8). An upward trend for ‘social skills’ is positive and a downward trend for ‘behaviour problems’ is positive. Figure 9 demonstrates academic progress over time, this data was collected from the teachers only, an upward trend for academic progress is positive. There is also missing data from Yacub who struggled to understand the questions on the SSiS. The graphs below show progress in percentiles.
The pre, post and follow up data from the SSiS shows a mixed picture. The teacher’s data for social skills is almost static for Alan, Yacub and Phil, with a slight increase in social skills noted for Adam.

Pupil social skills data shows a similar pattern to teacher data for Adam but differences between teacher and pupil perspectives for Phil and Alan.
For problem behaviour the teacher’s data is static for Alan and almost static for Yacub, with some decline of problem behaviours noted for Adam and a decline followed by an increase for Phil.

Pupil data show an increase in problem behaviours for Phil pre to post intervention with a slight decrease at follow up. This highlights differences between pupil and teacher perceptions. Alan’s data shows an increase in problem behaviours from pre to post intervention. Adam reports a decrease in problem behaviours pre to post intervention which is maintained at follow up, this pattern is mirrored although less dramatically by the teacher data.
The teacher data for academic competence show a decrease in competence for Alan from pre to post intervention. A slight increase in academic competence over time periods is shown for Phil and Adam, while Yacub’s academic competence was static over time.

d. **Possible unintended negative outcomes**

The quantitative data from the SSiS and the BSCY-I shows a mixed pattern of positive, negative and neutral outcomes, with some contradictions between pupil and teacher views. Given the short time frame of the intervention it was anticipated that changes were likely to be small particularly on secondary impact measures such as self-esteem, social skills and behaviour.

e. **Qualitative data**

Qualitative data was gathered in order to cross check the various findings from the quantitative data to explore any unintended positive or negative outcomes and to add depth. The qualitative data covered broad areas in relation to the MMSP, however due to the scope of this paper only the themes most pertinent to the current research question will be discussed, these are improvement in motor skills and broader outcomes. Quotations from the original transcripts will be provided to support the themes. (Please see thematic maps, figure 10 and 11, for more detail). (For the complete Thematic Analysis Map please see appendix14; please see appendix 25 and 26 for further detail of the thematic analysis process).
f. **Improvements in motor skills (intended outcome)**

It was evident from the focus group that pupil participants felt that they had made a number of improvements in terms of their motor skills. The children discussed improvements in their ability to: throw and catch; fasten buttons; cut with scissors; use a knife and fork; balance; produce neat handwriting and play football. Phil and Alan talked about progress in cutting. Phil and Alan: ‘yeah miss, we’ve done lots of cutting’. Alan: ‘we’ve done lots of that and we’ve got better, well I’ve got better’.

The group leader also commented on the children’s progress in motor skills.

‘I’d say, they all came on with the cutting, pencil skills were a lot better, they were concentrating a lot more, especially when threading and things like that’.

Although the children discussed their progress in motor skills, it was evident that each participant had made individual and variable progress. During the focus group the children openly talked about the motor skills they felt they still needed to develop, for example, during a discussion about tying shoe laces Phil stated:

‘I can’t tie my shoe laces! Well, only a bit’.

Yacub who had severe motor skills difficulties spoke up frequently during the focus group regarding the skills he still struggled with, for example he stated: ‘I don’t know how to catch’ and ‘I’ve not got better at throwing’.
g. Broader outcomes (unintended positive outcomes)

Broader outcomes were noted in a number of areas as shown in Figure 11. Alan discussed development of meta-cognitive strategies and the impact of the skills learnt on his life outside the group.

‘I have got better at my balance … I managed to walk along a small wooden bridge without wobbling … I’m well pleased’. (Alan)

And

‘oh it was hard when I had to do things fast… you had to figure out what speed you had to use…and how hard you should throw the ball, you had to really think about what you were doing’. (Alan)

The group leader also noticed Alan developing meta-cognitive strategies:

‘I think with the ball skills especially, they’re more controlled …. If I paired Adam with Alan…Alan gave him his feedback and said ‘try not to throw it too hard, so that I can actually catch it, instead of it going over my head’. So the next time he threw less hard, so they are taking on board what the others say and they’ve improved.’

As Alan and the group leader had discussed meta-cognitive strategies the researcher was interested to discover what aspects of the programme were attributed to these developments. The group leader discussed two elements of the programme that were particularly supportive, the goal, plan, do, review strategy (see appendix 7) and distributed learning,
‘the short bursts and things, but carrying it on over the two weeks was really helpful you know for things like doing the threading, and cutting’.

It was evident from the interviews that the class teacher and group leader perceived participants to have made positive progress in areas such as: social skills, interaction and confidence:

‘I found that they all wanted to get better the next time so it’s giving them the confidence, to know that they can do it… they were not competitive with each other, just they all wanted to see their progression.’ (Group Leader)

The class teacher also perceived an improvement in confidence for Alan and Phil back in the classroom and Yacub’s communication skills were perceived to have improved:

‘and he had never really put hands up to ask questions, but after the motor skills programme he started to join in with the group much more’. (Class teacher)

And

‘he’s coming out with more language and understanding what he has done and what everybody else has been doing within the group’. (Group Leader)

The class teacher also commented on Yacub’s interactions with peers:

‘in terms of the interaction with other children, the amount of language he was bringing back from it, it was amazing’ (Class teacher).

The class teacher, the group leader and the children talked about enjoying being part of the MMSP. The group leader stated: ‘they’ve enjoyed it and I feel they’ve all benefitted’.

Results indicate that there were individual and variable responses to the MMSP in terms of motor skills development and wider outcomes.

5. Discussion

The MMSP is a motor skills intervention for use in schools with the intended outcome of improving children’s motor skills. This exploratory product evaluation highlights the merit and worth of the MMSP with participants making variable yet positive progress in their motor skills development. Results suggest that the MMSP has a positive intended outcome of improving motor skills for older children (those in KS2) which builds on from Bond’s (2011) findings relating to younger children.

To extend the evidence base of the MMSP, the children’s progress was measured using a robust standardised assessment. The pre-intervention assessments confirmed that the children selected for the group either had a significant movement
difficulty or were at risk of having a movement difficulty. This information suggests that the MMSP was something which the targeted group would benefit from. This highlights the worth of the MMSP for this group of children as there was a measurable need for the intervention.

Further evidence of the positive intended outcome of the MMSP lies in the children’s self-reported improvements, many of which were in line with their M-ABC2 scores, for example, Alan’s self-report regarding his improvements in balance is supported by an improvement on the balance sub-test and Yacub’s perception that he had not improved with throwing and catching and football skills was in line with his static score on the aiming and catching sub-test. This good fit between perceived improvements and M-ABC2 scores is in line with McKiddie & Maynard’s (1997) findings that self-evaluations of motor skills are rather accurate. It is important to consider that objectively measured progress in motor skills might not impact on self-esteem as much as self-perceived progress, a view that is supported by Donaldson and Ronan (2006).

Motor skills difficulties can vary greatly in severity and as previously discussed around half of those with motor skills difficulties have coexisting difficulties for example speech and language impairment and ADHD. It will therefore be important for interventions to demonstrate that they can improve motor skills for children with mild to severe motor skills difficulties and for those with co-existing difficulties. Adam, Phil and Yacub had co-existing difficulties and pre-intervention M-ABC2 scores indicative of a significant movement difficulty. This study therefore supports Green, Chambers and Sugden’s (2008) findings that children with severe motor skills and co-existing difficulties can also respond to treatment and demonstrates the equity (Stufflebeam & Coryn, 2014) of the MMSP.

This exploratory product evaluation also aimed to assess broader unintended outcomes. The qualitative and quantitative data provide some contradictory data regarding secondary outcomes with the qualitative data generally being more positive. The quantitative data may indicate some negative effects for the intervention or it may be that the measures were not sensitive enough to detect the subtle changes within such a short time scale, particularly for pupils with significant special educational needs and disabilities.

Expecting large changes in such a short period of time might also be unrealistic. The qualitative data is perhaps more enlightening as the participants reported changes in
perceptions such as positive achievements and changes in meta-cognition which may be foundations for changes on standardised measures.

Green et al. (2008) found that children with verbal difficulties made less progress during CO-OP intervention, which they attribute to the emphasis upon verbal strategies. Similarly Yacub’s incremental motor skills progress could be attributed to his verbal difficulties impacting on his ability to access the verbal strategies used in the MMSP. However it could also be argued that Yacub still made progress with his motor skills and the verbal elements of the MMSP might have had an unintended positive impact on his communication and interaction skills. The impact of motor skills intervention for children with verbal difficulties warrants further research.

McWilliams (2005) postulated that the inclusion of pupils with varying degrees of motor skills in an intervention group could make pupils with less severe difficulties feel more able therefore increasing their self-esteem. McWilliams (2005) suggests that percentile ranks achieved on the Movement ABC (Henderson & Sugden, 1992) at initial assessment may be a predictor of the degree of improvement in self-esteem post intervention. This has implications for the findings of the present evaluation as Alan who had the highest pre-intervention movement score showed evidence of improvements in self-esteem as recorded by the quantitative and qualitative data. It is important to remember however that Phil, Adam and Yacub were also perceived to have made progress with their confidence. Future research could explore the unintended outcome of participating in the MMSP on self-esteem for children with varying degrees of motor skills difficulties at pre-intervention and should consider issues of group dynamics.

The qualitative data suggests that Alan developed meta-cognitive strategies. He also made improvements with his motor skills and experienced an increased in his confidence and self-esteem. It is difficult at this point to be clear about the directional relationship between these constructs, however some research suggests that metacognitive beliefs have a positive indirect effect on performance via its relationship with self-confidence (Kleitman & Gibson, 2011). Bond (2008) also found that teachers and parents commented on positive changes in motivation and metacognition for a number of children who participated in the MMSP. The MMSP’s child centred approach ensures ecological relevance (see appendix 8 for children’s self-chosen motor skills targets) and is likely to increase motivation and self-efficacy (Bond et al., 2007). These findings suggest that the unintended positive outcomes of participating in the
MMSP on the development of meta-cognitive strategies and the implication for developing self-esteem and confidence in children and young people warrants further exploration.

This exploratory product evaluation was small scale and there were a number of methodological limitations which must be considered, alternative standardised measures which focus specifically on self-esteem and more accessible measures of social skills may need to be considered.

Berkowitz and Troccoli (1986) argue that positive bias in participant responses is not widespread, however, this may have contributed to the difference between the qualitative and quantitative data. Future product evaluations of the MMSP might wish to consider conducting goal-free evaluations (Stufflebeam & Coryn, 2014) where the evaluator investigates the effects of the intervention without being aware of the programme’s goals. This could be done simultaneously with a goal based evaluation in order to compare results.

The contribution of the TEP illustrates how EPs are increasingly becoming involved in the implementation of interventions through direct or indirect service delivery (Stoiber, 2002). The sustainability of this intervention may depend on a variety of pupil and school based factors which EPs are able to take into consideration when planning interventions and supporting group leaders to implement the programme with a high degree of fidelity. It will be important to consider the sustainability of the intervention without EP support and to consider which factors may act as a barrier to sustainability, for example, other curriculum priorities.

Focusing on a small, all male sample has also meant that there is not sufficient data to demonstrate generalisability of the programme, however the small sample enabled the evaluation to explore the intended, unintended, positive and negative outcomes of participating in the MMSP in depth which usefully informs future research.

This exploratory product evaluation highlights the merit and worth of the MMSP with participants making variable yet positive progress with their motor skills development. An increase in self-esteem, confidence, use of meta-cognitive strategies and interaction/communication skills have been highlighted as possible unintended positive outcomes of participating in the MMSP and highlights that the MMSP has significance beyond the immediate stakeholders involved in the evaluation and requires dissemination at a wider level (see paper three for a further discussion of dissemination). These unintended positive outcomes were also variable. A complex
array of factors could contribute to these perceived unintended outcomes, for example, severity of motor difficulty at pre-intervention; co-existing difficulties; co-existing speech and language difficulties; academic ability and group dynamics. Further research is needed to explore the individual outcomes of participating in the MMSP as at present they appear variable, a finding which is hardly surprising given the heterogeneous nature of children with DCD.

6. References


The Dissemination of Evidence to Professional Practice.
The Dissemination of Evidence to Professional Practice.

Section A – Evidenced Based Practice and Practice Based Evidence

Educational psychologists (EPs) are frequently being seen as ‘Scientist-practitioners who utilise…psychological skills, knowledge and understanding through the functions of consultation, assessment, intervention, research and training…” (Fallon, Woods and Rooney, 2010:4). This view of EPs as scientific practitioners has led to a requirement for EP practice to be clearly based on evidence (Stoiber & Wass, 2002). The Health Care Professions Council (HCPC) stipulate that EPs should ‘be able to engage in evidence-based and evidence-informed practice and evaluate practice systematically’ (HCPC, 2015, SoP 12.1). Dunsmuir, Brown, Iyadurai and Monsen (2009) highlight that with this ‘growing emphasis on accountability and evidenced based practice evaluations have become increasingly important in the contexts in which EPs practice’ (2009:53).

Evidenced Based Practice (EBP) is defined as ‘a movement in psychology and education to identify, disseminate and promote the adoption of practices with demonstrated research support’ (Kratochwill, 2007:829). EBP began in the field of medical research and grew in strength during the 1990s (Lilienfeld et al., 2013). Over the past decade it has become increasingly popular in the field of clinical psychology and social work (Kazdin, 2008). Evidenced based practice is practice based on the best available research evidence which is often conceptualised in terms of a hierarchy of evidence. At the vertex of the hierarchy is data from meta-analysis, systematic reviews of randomised control trials and randomised control trials (RCTs). However some Educational Psychologists question whether the research hierarchy agreed for health and clinical psychology is appropriate for the field of educational psychology (Fox, 2003).

Practice based evidence, a complimentary paradigm, provides a way for practitioners to generate an evidence base rooted in practice. Spring (2007) refers to practice based evidence in terms of a three legged stool, the first leg of the stool being best available research evidence as discussed above. The second leg values expert opinion and the third leg recognises the importance of adjusting practice to the needs and preference of the client/clients. The APA have adopted the following definition of Evidenced Based Practice in Psychology (EBPP) as ‘the integration of the best available research with clinical expertise in the context of patient characteristics, culture and preferences’ (2006:273). There have been a variety of terms used for evidenced based practice, for example, evidenced based interventions, scientific treatments and
empirically supported therapies (Stoiber, 2002). For the remainder of this paper the term evidenced based interventions (EBI) will be used when referring to empirical research relating to school based interventions; evidenced based practice will be used in the broader sense when referring to wider professional practice.

Research into Developmental Coordination Disorder (DCD) and movement difficulties is still in its infancy compared to other scientific fields (Smits-Engelsman, Magalhaes, Oliveira & Wilson, 2015). However over the last two decades DCD has attracted researchers from multi-professional fields for example educational psychologists, teachers and occupational therapists. This widespread interest in DCD has resulted in an emerging evidence base incorporating a variety of methodological approaches, for example: meta-analysis (Smits-Engelsman et al., 2013; Miyahara & Piek, 2006); randomised control trials (Fong, Tsang & Ng, 2012; Richardson & Montgomery, 2005); systematic reviews (May-Benson & Koomar, 2010); quantitative studies (Cocks, Barton & Donelly, 2009; Piek, Barrett, Allen, Jones & Louise, 2005; Poulsen, Johnson & Ziviani, 2011); qualitative studies (Missiuna, Moll, King, King & Law, 2007) and mixed method evaluation studies (Bond, 2011; McWilliams, 2005). Shalveson and Towne (2002) recognise the importance of multiple research methods in educational research as it can provide information that represents the conditions of schools and therefore informs those for whom the research matters most.

It seems that the hierarchy of evidenced based practice used in the medical field may not be the most appropriate hierarchy when considering research in the field of educational psychology, evidenced based interventions and DCD. Stoiber (2002) highlights that in the field of educational psychology the issue of ‘evidence is not simply a determination of what works but extends to what works under what conditions and within what context’ (2002:542). Kratochwill & Stobier’s (2002) Procedural and Coding Framework has been developed to support the construction of a knowledge base of EBI, with the view to resisting the hierarchical distinctions between quantitative and qualitative methods found in other fields.

Smits–Engelsman et al. (2015) highlight that research into DCD has mainly focused on: assessment of DCD; developing an understanding of the interplay between cognitive, psychological and social factors in the expression of DCD; and intervention approaches to support children and young people with DCD. With regards to the assessment of DCD, Crawford, Wilson and Dewey (2001) found that assessment tools aimed at measuring degrees of DCD produce inconsistent results, they suggest that
information from standardised tests should be combined with a picture of the child’s functional performance to increase the likelihood of accurately identifying DCD.

Research into the understanding of the relationship between cognitive, psychological and social factors for children and young people with motor skills difficulties is in its infancy. An emerging body of evidence demonstrates a possible broader impact of motor skills difficulties on areas such as self-esteem, academic performance, school attendance and later psychological wellbeing, (Cantell, Smith & Ahonen, 1994; Losse et al., 1991). These secondary effects of DCD are not only of interest to occupational therapists and parents but are also of interest to teachers and educational psychologists who tend to work at a more ideographic level and require best evidence to be integrated with knowledge of the child and the context. It will be important that the findings of research investigating these secondary effects is disseminated to those supporting children and young people as it has been found that teachers, parents, general practitioners (GPs) and paediatricians all require additional knowledge regarding the secondary effects of DCD (Wilson, Neil, Kamps & Babcock, 2012).

The debate around intervention approaches has historically focused on two main approaches to motor skills intervention: ‘bottom up’ approaches which address the problems underlying motor difficulties and ‘top down’ approaches which focus on improving motor performance. Smits-Engelsman et al.’s. (2013) meta-analysis found that in general, intervention produces benefits for the motor performance of children with DCD, over and above no intervention. However, approaches from a task-oriented perspective yield stronger effects, suggesting a growing evidence base for top down approaches to mediating motor skills difficulties in children. This finding has implications for the Manchester Motor Skills Programme (MMSP) (Bond, 2009) which adopts a top down approach to intervention, focusing on direct skills teaching, adaptation and task analysis.

Stoiber (2002) points out that educational psychologists are increasingly becoming involved in the implementation of interventions through direct or indirect service delivery. EPs have a key role to play in developing interventions which are ecologically valid and responsive to a setting’s needs. As Cline (2012) points out “professional practice should be based on a careful analysis of the available evidence about which practice options are effective: we should use what works” (2012:16). To
distinguish what works Cline (2012) suggests you need two key elements, strong empirical practice and implementation fidelity in the real world.

Assessment of implementation issues are considered by Durlak and DuPre (2008) as an absolute necessity when researching the effectiveness of any intervention. Lendrum and Humphrey (2012) highlight that when studying the implementation of an intervention there are various things to take into account, for example:

a) Identifying factors which lead to variability in the quality of implementation.
b) Understanding which programme components are critical.
c) Examination of barriers and facilitators of implementation.

Bond, Cole, Fletcher, Noble and O’Connell (2011) are one of the only published motor skills studies which has considered the issue of implementation. For evidenced based practice to grow in the field of educational psychology and more specifically in the field of school based interventions to support children with motor skills difficulties it will be important that research developed in school contexts which takes into consideration contextual factors is given a stronger weighting (Kratochwill & Stobier, 2002). Educational psychologists will also have to be convinced of the benefits of evidenced based practice, currently it seems that there may still be a long way for the profession to go in fully embracing EBP. Soldz and McCullough (2000) view the scientist practitioner model to be often honoured more in words than in practice and Burham (2013) highlights that most EPs are ambivalent about the scientific basis of their work and the contribution of peer reviewed research to their practice.

Section B - Dissemination of research
To address this gap between evidence and practice, research findings will need to be readily available and understandable to practitioners which leads to a consideration of how research is disseminated. As the interest in EBP has grown so has the terminology used to describe approaches employed to disseminate practice; terms such as: diffusion, knowledge transfer and research into practice are being used to describe these overlapping and interrelated concepts (Wilson, Petticrew, Calnan & Nazareth, 2010). Keen and Todres (2007) highlight that research dissemination usually takes place at the end of a research project and methods of dissemination traditionally serve research communities through dissemination in journal articles or conference presentations which often confines audiences to academics and separates research from practice and action. Keen and Todres (2007) suggest that actively applying research to practice,
policy and people is often viewed as lying beyond the research process. Walter, Nutley and Davies (2003) highlight the importance of tailoring approaches to the audience in terms of content, message and medium and enabling active discussion of research findings. This view of dissemination fits well with the CIPP evaluation model (Stufflebeam and Coryn, 2014) which suggests that evaluations should report findings honestly and clearly to all stakeholders.

Wilson et al. (2010) have chosen to use the term dissemination which they define as: ‘a planned process that involves consideration of target audiences and the setting in which research findings are to be received… in ways that will facilitate research uptake in decision-making processes and practice’ (2010:2). This broad view of dissemination goes beyond the narrow view of disseminating research findings to the academic research community.

Owen, Glanz, Sallis and Kelder (2006) distinguish between dissemination and diffusion stating that dissemination is the planned process of creating awareness of the programme or innovation among the targeted population, informing stakeholders about the innovation and persuading them to try it. Whereas diffusion is the outcome of the dissemination efforts involving three main stages: adoption, implementation and institutionalisation. Owen et al. (2006) refer to adoption as the decision to commit to a programme; implementation as the actual carrying out of the programme; and institutionalisation as the integration and sustainability of the programme over the long term, through policy and practice. The term diffusion therefore seems to encompass the large and complex issue of implementation. For the remainder of the paper the researcher will be adopting Owen et al.’s (2006) definition of dissemination and diffusion.

Wilson et al. (2010) identify 33 frameworks which support the dissemination and diffusion of research findings. Many of these frameworks are underpinned by Roger’s Diffusion of Innovations model (Rogers, 2003) and the RE-AIM model (Glasgow, Vogt and Boles, 1999).

The ‘Diffusion of Innovations’ model (Rogers, 2003) has been used to analyse how effective programmes can be transferred into practice. The model considers that several characteristics of an innovation can affect how readily it will be adopted. These characteristics are: relative advantage, compatibility, complexity, trialability and observability. Relative advantage refers to the degree to which the innovation is viewed as better than the previously available ideas or programmes. Compatibility
refers to the degree to which the innovation is consistent with the values, experiences and needs of potential adopters. Complexity refers to how difficult the innovation is to understand or how complex it is to use. Trialability refers to the degree to which the innovation can be experimented with on a limited basis and observability refers to the degree to which the results of an innovation are visible to others. Roger’s diffusion of innovations model fits well with Owen et al.’s (2006) definition of diffusion.

Glasgow et al. (1999) RE-AIM (reach, efficacy/effectiveness, adoption, implementation and maintenance) model is a complimentary model which can also be used for evaluating dissemination and diffusion efforts. This framework considers that for programmes to be effective they do not only have to have broad reach but they also have to be feasible to implement in ‘real world’ settings in order to make an impact.

Wilson et al. (2010) call for funders to advocate a more systematic use of conceptual frameworks in the planning of research dissemination and highlight that grant applicants should consider adopting a theoretically informed approach to the dissemination of research. As Wilson et al.’s (2010) view of dissemination is quite broad it will also be important for researchers to consider and plan for diffusion.

Wilson et al. (2010) highlight that addressing deficiencies in the dissemination and diffusion of research is high on the policy agenda both in the UK and internationally. Smits-Engesman et al. (2015) also suggest that there has recently been a strong movement towards knowledge translation in the field of DCD. DCD research is currently disseminated through a collection of published papers and conferences such as, the DCD - International Conference which this year will be in its tenth year. Most DCD research has been published in journals such as: Human Movement Science; Physical and Occupational Therapy in Paediatrics; British Journal of Occupational Therapy or Paediatrics and Developmental and Child Neurology. There was also recently a DCD special issue (which shows a strong multidisciplinary focus) in the journal, Human Movement Science (2014). An upcoming two day conference ‘The Leeds conference: from identification to support and intervention’ will be taking place in July this year and aims to bring together a wide range of practitioners and researchers to share current good practice and explore new innovations and ideas in relation to identifying and supporting those with DCD.

Despite this drive towards knowledge transfer much DCD research has been small scale, involving bespoke intervention programmes which have been locally developed often by practitioners (McWilliams, 2005; Peens, Pienaar & Nienaber, 2008).
This small scale research has been disseminated in journals such as those mentioned above and may have been diffused on a small scale to those immediately involved in the research and in the locality, however this is not made clear in the journal articles. Research into EBI to support children with DCD or poor motor skills would benefit from a greater consideration of implementation issues and clear plans for dissemination and diffusion of research findings which goes beyond academics in the field of DCD/motor difficulties.

The choice of motor skills programmes used by schools appears to depend on local recommendations by local authority school support services such as the Educational Psychology Service and specialist teachers. For example in one North West LA the Jump Ahead programme (Archibald & Martin, 2003) is used in many schools and was recommended to school SENCOs in cluster meetings and through LA training sessions even though there appears to be no clear evidence base. Neighbouring authorities seem to recommend different interventions for example: ‘Making Moves’ which also lacks a clear evidence base. Brown (2010) stated that many schools in the UK were using the Primary Movement programme (for reception age children) however she also highlighted that at that point there was not substantial, objective evidence demonstrating its effectiveness.

This lack of evidence for motor skills interventions has meant that schools with a desire to support children with their motor skills have been dependent on adopting motor skills interventions which are recommended to them without a sound evidence base, informed by only one aspect of PBE, ‘practitioner opinion’. It is therefore important that EPs are mindful of the three legs of the stool as described by Spring (2007) when recommending interventions.

Alternately school staff may turn to internet research for inspiration on how to support children with motor skills difficulties. Organisations such as the Dyspraxia Foundation can easily be found through an internet search. The Dyspraxia Foundation offers a classroom guide for teachers with suggestions such as using wobble boards and handwriting grips or alternately suggests referral to an occupational therapist. An internet search for intervention programmes revealed that schools can purchase ‘Smart Moves Motor Skills Development Programme’ and ‘Motor Skills United Programme’ from a Special Educational Needs catalogue, at the cost of £45 - £85; there appears to be no reviews or evaluations of the programme’s effectiveness.
Fox (2003) argues that there is not always enough research material for educational psychologists to base all their professional practice on and this appears to be the case when considering school based interventions to support children with motor skills difficulties. Owen et al. (2006) point out that school programmes can be low cost and delivered to children at all socioeconomic levels, however despite the importance of motor development and the benefits of school programmes, there has been surprisingly little research examining the most effective way of teaching motor skills in schools. This lack of evidenced based interventions resulted in the development of the MMSP; which was jointly developed by educational psychologists, specialist teachers and occupational therapists. The MMSP draws upon current knowledge in relation to motor skill interventions. The MMSP also meets the three guidelines as set out by the Leeds consensus statement (2006), that intervention approaches should:

1) Include activities that are functional (based on goals that are relevant to daily living and meaningful to the child);
2) Include opportunities to enhance generalisation and application in the context of everyday life;
3) Be evidenced based and grounded in theories that are applicable to understanding children with DCD.

The MMSP is currently an unpublished programme that has not been promoted or advertised and as a result schools are less aware of the programme than other commercially produced materials. However once schools do become aware of the MMSP its unpublished status is an advantage to schools as there is no cost for using the MMSP.

As discussed earlier the gap between evidence and practice can only be closed by careful diffusion and dissemination of research findings. There have to date however only been a few studies which have considered diffusion, Owen et al. (2006) report that among the few school based diffusion studies found, conclusions were drawn regarding sustainability and barriers to implementation. They highlight that the most important predictor of diffusion success is training, preferably in-person hands on training. Similarly Bond et al. (2011) found that one of the supporting factors of implementing the MMSP was the quality of external training. Owen et al. (2006) found that the barriers to successful diffusion were a lack of resources and lower priority interventions related to other academic subjects. These findings also have implications for the MMSP as motor skills difficulties are often not considered to be a primary concerns to
school teachers and a greater focus is placed on curriculum subjects such as literacy and numeracy. Bond et al. (2011) concluded that ‘consideration of sustainability factors are likely to be particularly important in relation to interventions which are not considered high priority’ (2011:347).

Wilson et al. (2012) demonstrate the need for research into motor skills difficulties to be widely disseminated and diffused. Their findings suggest that physicians and parents want more education and information about DCD and teachers feel that the education system would currently not be able to adequately support children with DCD due to lack of awareness and knowledge.

Dissemination and diffusion strategies should be planned from the outset. Wilson et al. (2010) call for funders to encourage researchers to consider carefully the appropriateness of their plans for dissemination and advocate the use of conceptual frameworks when planning dissemination. This is an issue for universities and research commissioners; dissemination and diffusion should be given consideration at the research planning stage and should be included in thesis proposals and ethical approval applications. Wilson et al. (2012) highlight that increasing awareness of DCD will require the effective dissemination and diffusion of research on prevalence, impact on daily life and the secondary effects of DCD. Wilson et al. (2012) is one of the first DCD studies to discuss the importance of dissemination to ensure knowledge transfer, showing that there is a growing awareness of the need for dissemination and diffusion to be a key feature in DCD research.

Section C – Research implications of paper one and two
The research findings from paper one and paper two have led to three different but complimentary aspects that warrant dissemination and/or diffusion. These three aspects are: information regarding the intended, unintended, positive and negative outcomes of participating in the MMSP; the individual response to intervention which creates wider challenges to researchers; and extending awareness of the relationship between motor skills and self-esteem.

It will be important to consider how these aspects of the research will be disseminated and diffused to those at the research site and at a wider level. Research dissemination and diffusion will be presented in two discrete sections, firstly there will be a discussion of the research implications from paper two ‘the empirical paper’ for all the stakeholders involved in the research at the school level. Roger’s diffusion of
innovations model will be used alongside the principles of the CIPP evaluation model (Stufflebeam & Coryn, 2014). Secondly there will be a discussion of the dissemination of research findings from paper one and two which will require dissemination at a wider organisational and professional level.

**Research implications from thesis two for the stakeholders**

Stufflebeam & Coryn (2014) state certain elements are important when reporting the findings of a product evaluation, firstly reports should show the extent to which the intervention is addressing and meeting targeted needs; secondly end of intervention reports should sum up the results achieved, offering an interpretation of the results in light of assessed needs, costs incurred and execution of the plan; and thirdly a product evaluation report can provide analysis of the results for sub-groups and individuals. These three elements will be prominent when diffusing the findings of paper two at the research site.

Roger’s Diffusion of Innovations model (Rogers, 2003) will also be used by the researcher when planning for diffusion at the research site. The model considers how several characteristics of an intervention can affect how readily it will be adopted. The research school had previous experience of supporting children with motor skills difficulties using the ‘Jump Ahead’ programme (Archibald & Martin, 2003). Given increased accountability regarding how pupil premium money is spent in schools, the school SENCO and head teacher were concerned about the effectiveness of this intervention and were keen to explore other interventions with an emerging evidence base. In this respect the school SENCO and head teacher were interested in the relative advantage of the MMSP in comparison to the Jump Ahead programme previously used. It will be important that findings address the relative advantage of the MMSP over other interventions.

The head teacher of the school was interested in research and was keen for the school to be involved in research projects. At the time the researcher approached the school the head teacher was investigating how to become a research school. Supporting children with developing their motor skills and being part of a school research project was compatible to the values of the head teacher and SENCO.

The group leader reported finding the MMSP easy to understand and use. She highlighted that the goal, plan, do and review strategy as well as the opportunities for distributed practice were supportive elements of the programme. With regards to
trialability, the group leader did not feel that changes needed to be made to the programme although she did appreciate the built in flexibility regarding programme dosage. Observability of the programme was measured by quantitative and qualitative means. The research revealed many perceived outcomes of taking part in the MMSP, which were observed by school staff.

Dissemination and diffusion implications for each stakeholder (those involved in the exploratory product evaluation of the MMSP) may be different, for example, the feedback required for the children will be different to the feedback required for the SENCO/teaching staff. The methods for feedback to these stakeholders will be discussed in detail in Section D, this current section will focus on what information will be disseminated/diffused to each stakeholder.

**Table 3. Relevant feedback for each stakeholder**

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<th>Stakeholders</th>
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<td>Stakeholder 1 (the children)</td>
<td>• their individual motor skill’s progress;</td>
</tr>
<tr>
<td></td>
<td>• any individual perceived progress from their teachers and the group leader;</td>
</tr>
<tr>
<td></td>
<td>• their ideas in the development of the MMSP;</td>
</tr>
<tr>
<td>Stakeholder 2 (the parents)</td>
<td>• their child’s motor skills progress;</td>
</tr>
<tr>
<td></td>
<td>• any individual perceived progress from their child’s teacher;</td>
</tr>
<tr>
<td>Stakeholder 3 (group leader, SENCO and school staff)</td>
<td>• specific details of each child’s progress in motor skills and broader perceived outcomes (social skills, interaction, confidence, self-esteem, metacognitive strategies) which will include a discussion around future support; (Includes observability);</td>
</tr>
<tr>
<td></td>
<td>• the children’s perceived improvements, child’s voice; (includes observability);</td>
</tr>
<tr>
<td></td>
<td>• implementation issues, training, dosage, fidelity, sustainability etc. (includes cost-effectiveness, relative advantage, complexity and trialability);</td>
</tr>
</tbody>
</table>
The second and third aspects of the research that warrant dissemination are the findings from paper two regarding the individual response to intervention and the findings from paper one regarding the relationships between motor skills and self-esteem. These two aspects of the research warrant dissemination at a wider organisational and professional level. As Wilson et al. (2012) point out dissemination of DCD research at the wider level is crucial to raise awareness among teachers, paediatricians, parents and GPs. It will however be important to consider appropriateness of the dissemination strategy (Wilson & Petticrew, 2008). This last section will be a discussion of how the different aspects of the research will be: diffused at the research site; diffused and disseminated at the wider organisational level (local authority and educational psychology service) and disseminated at a wider professional level.

Section D – Devising a strategy for dissemination and impact

Information regarding the intended, unintended, positive and negative outcomes of participating in the MMSP will be diffused at the research site, with the participants. The table below highlights the methods for diffusing the research findings at the research site.

Table 4. Methods of feedback to the stakeholders

<table>
<thead>
<tr>
<th>Stakeholders</th>
<th>Diffusion strategy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stakeholder 1 (the children)</td>
<td>• certificate of achievement with graph of progress and comments from teacher/group leader;</td>
</tr>
<tr>
<td></td>
<td>• thank you letter from researcher regarding advice around suggested changes to the MMSP;</td>
</tr>
<tr>
<td>Stakeholder 2 (the parents)</td>
<td>• letter summarising their child’s progress and comments made by teachers and their child;</td>
</tr>
</tbody>
</table>
Intended, unintended, positive and negative outcomes of participating in the MMSP will be disseminated at a wider organisational and professional level. Dissemination will also aim to extend awareness of the relationship between motor skills and self-esteem and extend the awareness of individual responses to intervention for children with DCD at a wider organisational and professional level.

This wider organisational level refers to dissemination at the local authority and educational psychology service level. This will be done firstly through a presentation at an educational psychology service team day. The presentation will outline the findings of paper one and paper two with an emphasis on how the research relates to EP practice. Secondly the research will be disseminated at the local authority level where the researcher will present the findings of the research and its implications at the local authority SENCO network meeting.

With regards to diffusion of the MMSP as an evidence based programme to be used in schools, training will be essential as highlighted by Bond et al. (2011) and Owen et al. (2006). The researcher is due to take up an EP post in a local authority EPS which is currently undergoing changes to its service delivery. There will hopefully be opportunity for the reintroduction of EPs providing training to school teachers and SENCOs and the researcher hopes to be able to offer training sessions to teachers and SENCOs on motor skills and the MMPS (with the permission of the author of the MMSP).

Dissemination at the wider professional level will encompass publication of paper one and two in a journal which is read widely by practicing Educational Psychologists, for example, the Educational Psychology in Practice or a journal with a similar audience and reach. Paper one has been accepted for publication in Educational Psychology in Practice. As Wilson and Petticrew (2008) point out it will also be
important to consider how the research can be verified and built on, moving the field forwards incrementally. In order for this to be achieved the research will be disseminated at the University’s research commissioning day for future TEPs to consider continuing and advancing this line of research.

Dissemination is aimed at producing an impact or outcome. There are several desired outcomes of disseminating the findings from paper one and paper two, firstly for educational psychologists to be overtly aware of the secondary effects of motor skills difficulties which enables them to transfer this knowledge to parents, teachers, PE teachers and school SENCOs when supporting children with poor motor skills. Secondly for educational psychologists to recommend and support the implementation of motor skills interventions with an emerging evidence base. Thirdly it will be important for teachers, OTs, parents, researchers and educational psychologists to be aware of the heterogeneous nature of DCD and the subsequent individual response to intervention which can be expected. This individual response to intervention causes further challenges for researchers in the field. The findings from paper two have possibly raised more questions than it has answered for example: what is the effect of motor skills intervention for children with verbal difficulties? How do verbal difficulties affect children’s ability to access the verbal strategies used in the MMSP? How do the verbal strategies support verbal development? Do children with less severe motor skills difficulties make gains in their self-esteem when working with children with more severe levels of motor difficulties? What is the effect of the MMSP on the development of meta-cognitive strategies?

References


Health and Care Professionals Council (2015). *Standards of proficiency, practitioner psychologists.* London: HCPC.


Appendices for paper one, two and three
Appendix 1 (Paper 1) PRISMA flowchart

**PRISMA Flowchart**

- Studies identified through database searching: 1,063
- Duplicates removed: 204
- Studies Screened: 859
- Full text articles obtained and assessed for eligibility: 26
- Total studies included in the synthesis: 8
- Studies excluded based on title and abstract: 833
- Full text article excluded due to inclusion criteria: 18
Appendix 2 (Paper 1) Inclusion criteria

<table>
<thead>
<tr>
<th>Inclusion criteria – studies included met all of the following:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Scope</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td><strong>Study type</strong></td>
</tr>
<tr>
<td><strong>Time and place</strong></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>
### Appendix 3 (Paper 1) Included/excluded studies

<table>
<thead>
<tr>
<th>Study reference</th>
<th>Included/excluded</th>
<th>Reason?</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Study Reference</th>
<th>Included/excluded</th>
<th>Reason</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excluded</td>
<td>Does not meet</td>
<td></td>
</tr>
<tr>
<td>-----------</td>
<td>---------------</td>
<td>---</td>
</tr>
<tr>
<td>9</td>
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</tr>
<tr>
<td>10</td>
<td>IC6</td>
<td></td>
</tr>
<tr>
<td>11</td>
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<tr>
<td>12</td>
<td>IC1</td>
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<td>13</td>
<td>IC1</td>
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</tr>
<tr>
<td>14</td>
<td>IC1</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Meta-analysis</td>
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<tr>
<td>16</td>
<td>IC1</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>IC6</td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>IC1</td>
<td></td>
</tr>
</tbody>
</table>
Appendix 4 (Paper 1) Review specific judgement

Review specific judgement
The studies were evaluated using a review specific judgement about the methodological relevance of the studies in answering the review question: To what extent do motor skills difficulties impact on children or adolescent’s self-esteem?

As set out in the inclusion criteria all included studies must have measures of self-esteem and motor skills.
The studies were considered to have a high methodological relevance to the research question if:

- they used reliable and valid measures to explore motor skills and self-esteem;
- they included a detailed consideration of mediating factors e.g. age, gender and co-existing difficulties.

A medium methodological relevance to the research question if:

- they used reliable and valid measures to explore motor skills and self-esteem
- but they gave limited or no consideration to mediating factors e.g. age, gender and co-existing difficulties.

A low methodological relevance to the research question if:

- they used measures to explore motor skills and self-esteem (although the measures may have less evidence of reliability and validity)
- there was no consideration of mediating factors e.g. age, gender and co-existing difficulties.
Appendix 5 (Paper 2) Inclusion/exclusion criteria for pupil participants

Inclusion Criteria for T2 participants:

- Children from Y3 to Y5, (ages 7 – 10) as these children will not be preparing for end of Key Stage tests and will also be at an age when they may still be acquiring motor skills.
- Children that have been highlighted through the M-ABC checklist, with a score within the Red or Amber zones. (as completed by their class teacher/teacher who has known them for at least 1 month, if the teacher cannot answer all aspects of the checklist, they should observe the child in order to answer the questions or liaise with another adult that will be able to answer the questions i.e. teaching assistant, past teacher or parent)
- Children who have a statement of Special Educational Needs may be included in the study as long as their score falls within the Amber or Red zone indicating a degree of movement difficulty.

Definition for each Zone on M-ABC-2 checklist

<table>
<thead>
<tr>
<th>Child’s score</th>
<th>Percentile range</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red Zone</td>
<td>At or above the 95th percentile</td>
<td>highly likely to have a movement difficulty</td>
</tr>
<tr>
<td>Amber Zone</td>
<td>Between 85th and 94th percentile</td>
<td>‘at risk’ of having a movement difficulty</td>
</tr>
<tr>
<td>Green Zone</td>
<td>Up to the 85th percentile</td>
<td>no movement difficulty detected</td>
</tr>
</tbody>
</table>

Exclusion Criteria:

- Children with a score in the Green zone will not be used in the study.
- Children with statements of special educational needs who have a primary need in the area of motor skills will not be included in the study as they are likely to have benefited from other motor skills interventions over time.
- Children who have been referred to the Occupational Therapist or are working on an Occupational Therapy programme will not be included in this study.
**Rules of the Group**

Rules:

- To have fun and co-operate with each other (help each other);
- Targets are to beat your own score (not to worry about how others are doing);
- Take care in the way you perform a task;
- To take responsibility for setting up/clearing away.
Commander: Goal, Plan, Do, Check

Goal – What do we want to do?

Plan – How are we going to do it?

Do – Do it! (carry out the plan)

Check – How did my plan work?
Appendix 8 (Paper 2) Children’s chosen targets

Adam’s Target Sheet

I’m ok at but could have some more help with: tying my shoe laces and tying a tie.

Phil’s Target Sheet

I would like to get better at using a tying my shoes laces and tying a tie. I’m ok at but could have some more help with: handwriting.
Alan’s Target Sheet

I would like to get better at using a bat and a ball.  
I’m ok at but could have some more help with: catching, tying a tie, handwriting and balancing.

Yacub’s Target Sheet

I would like to get better at: fastening and unfastening buttons.  
I’m ok at but could have some more help with: using cutlery, using scissors and throwing a ball.
Activity one – card sorting – the children were asked to choose a skill which they feel they have improved with (this activity stimulated a lot of conversation).

Colucci (2007) states “These activity-oriented questions (called by Krueger, 1998, “questions that engage participants” and by Bloor et al., 2001, “focusing exercise”) provide a different way of eliciting answers and promoting discussion. They might be particularly beneficial for those more reflective participants who are less comfortable with immediate verbal responses and need extra time for thinking” (2007:1424)

Questions:

- Can you tell me what it has been like being in the motor skills programme?
- What parts of the motor skills programme you have enjoyed? Or not enjoyed?
  (To investigate: Participant responsiveness and programme reach)
  (To investigate: motivation levels? effectiveness of the programme- any area)
- Are there any new skills you have learnt or anything you feel you have got better at?
  (To investigate: motivation levels? effectiveness of the programme- any area)
- Is there anything you feel you would like to continue to get better at?
  (To investigate: Participant responsiveness and programme reach)
  (To investigate: motivation levels? effectiveness of the programme- any area)
- How has taking part in the programme made you feel?
  (To investigate: motivation levels? self-esteem, confidence – negative feelings?)
- Has the programme helped you with anything outside of the group? (i.e. in the class room, playground or at home)
  (To investigate: Participant responsiveness, programme reach and programme quality) (To investigate: motivation levels? effectiveness of the programme- self-esteem, confidence – negative feelings?)
- Are there any parts of the programme you have not enjoyed?
  (To investigate: Participant responsiveness, programme reach and programme quality) (To investigate: motivation levels? effectiveness of the programme—self-esteem, confidence – negative feelings?)

- Is there anything you would change about the group?
  (To investigate: Participant responsiveness, programme reach and programme quality)

Reference

Appendix 10 (Paper 2) Semi-structured interview schedule – Group leader

**Semi-structured interview schedule – Teaching Assistant**

Could you tell me how you have found running the MMSP?

*Prompts: which elements of the MMSP did you find particularly supportive? Staff training, support from the TEP? Resources? Support from other colleagues? Support from the senior leadership team? Interest levels of the children? (To investigate: programme fidelity, dosage, participant responsiveness, differentiation, programme reach, adaptation)*

What effect have you seen in the children who have been part of the programme? (To investigate: participant responsiveness & programme reach)

What things have helped you to run the programme as intended? (To investigate: programme differentiation)

Have there been any barriers to running the programme as intended? (To investigate: barriers and facilitators – Lendrum and Humphrey, 2012)

What elements of the MMSP did you find particularly useful in supporting you to implement to programme? (To investigate: barriers and facilitators – Lendrum and Humphrey, 2012)

What changes did you make to the programme? *Did these changes support you to implement to programme more effectively in your setting? Why do you feel these changes were necessary? Do you feel they enhanced the programme? (To investigate: programme fidelity, differentiation, adaptation)*

What elements of the programme did you find particularly useful in supporting the children with their motor skills? *(Did you find activities linked with classroom activities? Or there were opportunities to liaise with classroom staff about generalising the children’s skills to classroom activities?)*

Do you feel you would continue to use the MMSP as an intervention? (To investigate: sustainability)
Appendix 11 (Paper 2) Semi-structured interview schedule – Teacher

**Semi-structured interview schedule – Teacher**

Have the children enjoyed taking part in the MMSP?

(To investigate: programme quality, dosage, participant responsiveness and programme reach)

What difficulties do you feel the children had with motor skills before the intervention?

(To investigate: effectiveness of the programme - motor skills)

(To investigate: participant responsiveness and programme reach)

Have you noticed any improvement in their motor skills since taking part in the intervention?

(To investigate: effectiveness of the programme - motor skills)

Have you noticed any other differences in the children since taking part in the intervention?

*(Do you feel it has affected their confidence? Motivation? Self-esteem or social skills?)* (To investigate: motivation levels? effectiveness of the programme - self-esteem, confidence, social skills)

Has participation in the MMSP had an impact on the children when they are back in a classroom situation?

Were you aware of the type of activities carried out in the group?

(To investigate: programme quality, programme fidelity, participant responsiveness and programme reach, programme differentiation / adaptation)
Appendix 12 (Paper 2) Thematic analysis process

Illustrative photographs of the thematic analysis process

Photograph 1a: Exemplar coded transcript for semi-structured interview with class teacher

Photograph 1b: Exemplar coded transcript for semi-structured interview with the group leader
Photograph 1c: Exemplar coded transcript for pupil focus group

Photograph 2: Post it notes containing initial codes

Key: Pink: pupil focus group; light green: teacher interview; yellow: group leader interview; orange: group leader interview (implementation issues).
Photographs 3a: Post it notes organised into potential themes (1-5)

Photograph 3b: Post it notes of reviewed themes (1) pre-group concerns
Photograph 3c: post it notes of reviewed themes (2) broader outcomes

Photograph 3d: post it notes of reviewed themes (3) motor skills

Photograph 3e: post it notes of reviewed themes (4) implementation issues
Appendix 13 (Paper 2) Inter-rater reliability checking

Inter-rater reliability checking

3 pages of transcript from the focus group with the participants by independent coder

<table>
<thead>
<tr>
<th>Interrater codes</th>
<th>Researcher codes</th>
<th>Agreement?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enjoyment in participation</td>
<td>Enjoyment of the group – positives</td>
<td>Yes</td>
</tr>
<tr>
<td>Able to identify gross motor skills which had improved</td>
<td>Improvements in motor skills – gross</td>
<td>Yes</td>
</tr>
<tr>
<td>Understanding the specific challenges of the activity and able to describe how to overcome these</td>
<td>Discussing strategies</td>
<td>Yes</td>
</tr>
<tr>
<td>Promoted problem solving skills</td>
<td>Meta-cognitive strategies</td>
<td>Yes</td>
</tr>
<tr>
<td>Acknowledgement of difficulty of activity</td>
<td></td>
<td>No</td>
</tr>
<tr>
<td>Perception that repetition aided improvement in skill</td>
<td>Distributed practice helps</td>
<td>Yes</td>
</tr>
<tr>
<td>Self-monitoring, own problem solving (meta-cognition)</td>
<td>Meta-cognitive strategies</td>
<td>Yes</td>
</tr>
<tr>
<td>Able to express what was done to make the activity easier</td>
<td>Discussion of strategies</td>
<td>Yes</td>
</tr>
<tr>
<td>Enjoyment in participation</td>
<td>Enjoyment/positive feelings</td>
<td>Yes</td>
</tr>
<tr>
<td>Impact on fine motor skills</td>
<td></td>
<td>No</td>
</tr>
<tr>
<td>Transference of skills to outside of group/school setting</td>
<td>Impact on daily life</td>
<td>Yes</td>
</tr>
<tr>
<td>Pleasure of new accomplishment</td>
<td>Proud of new skills learnt</td>
<td>Yes</td>
</tr>
<tr>
<td>Level of challenge</td>
<td>Differentiation</td>
<td>Yes</td>
</tr>
<tr>
<td>Discrepancy in experience of this activity</td>
<td>Need for differentiation</td>
<td>Yes</td>
</tr>
<tr>
<td>Able to identify aspects of the group enjoyed</td>
<td>Favourite parts of the group</td>
<td>Yes</td>
</tr>
</tbody>
</table>

13 agreed codes 2 not agreed = 87% reliability
Appendix 14 (Paper 2) Thematic maps
Broader Outcomes

Overall benefit/enjoyment of the group
Confidence
Impact in the classroom
Meta-cognitive strategies used

Impact in everyday life
Increased verbal communication

Social Skills/Interaction

Elements of the programme which support meta-cognition

Motor Skills which require further support

Improvements in MS
Throwing and Catching
Balance
Buttoning
Threading
Cutting
Handwriting
Football

Increased verbal communication
Appendix 15 (Paper 2) Quantitative data

Quantitative data for Yacub

<table>
<thead>
<tr>
<th>Time</th>
<th>Manual Dexterity</th>
<th>Aiming and Catching</th>
<th>Balance</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>SS</td>
<td>Percentile</td>
<td>SS</td>
<td>Percentile</td>
</tr>
<tr>
<td>Pre-intervention</td>
<td>2</td>
<td>0.5</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Post-intervention</td>
<td>5</td>
<td>5</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>3 month follow up</td>
<td>5</td>
<td>5</td>
<td>4</td>
<td>2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Time</th>
<th>BSCY-I</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Raw Score</td>
</tr>
<tr>
<td>Pre-intervention</td>
<td>31</td>
</tr>
<tr>
<td>Post-intervention</td>
<td>26</td>
</tr>
<tr>
<td>3 month follow up</td>
<td>37</td>
</tr>
</tbody>
</table>

SSiS – Pupil Data – Social Skills

<table>
<thead>
<tr>
<th>Time</th>
<th>Raw score</th>
<th>Standardised score</th>
<th>Percentile</th>
<th>Descriptive level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre intervention</td>
<td>53</td>
<td>69</td>
<td>3</td>
<td>Well below average</td>
</tr>
<tr>
<td>Post intervention</td>
<td></td>
<td></td>
<td></td>
<td>Too many don’t knows to score paper</td>
</tr>
<tr>
<td>3 month follow up</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

SSiS – Teacher Data - Social Skills

<table>
<thead>
<tr>
<th>Time</th>
<th>Raw score</th>
<th>Standardised score</th>
<th>Percentile</th>
<th>Descriptive level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre intervention</td>
<td>58</td>
<td>79</td>
<td>9</td>
<td>Below average</td>
</tr>
<tr>
<td>Post intervention</td>
<td>54</td>
<td>77</td>
<td>7</td>
<td>Below average</td>
</tr>
</tbody>
</table>

109
<table>
<thead>
<tr>
<th></th>
<th>Pre intervention</th>
<th>Post intervention</th>
<th>3 month follow up</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Behaviour Problems</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>28</td>
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<tr>
<td></td>
<td>&lt;1</td>
<td>&lt;1</td>
<td>&lt;1</td>
</tr>
<tr>
<td></td>
<td>Well below average</td>
<td>Well below average</td>
<td>Well below average</td>
</tr>
</tbody>
</table>
Quantitative data for Alan

<table>
<thead>
<tr>
<th>Time</th>
<th>Manual Dexterity</th>
<th>Aiming and Catching</th>
<th>Balance</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>SS</td>
<td>Percentile</td>
<td>SS</td>
<td>Percentile</td>
</tr>
<tr>
<td>Pre-intervention</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Post-intervention</td>
<td>15</td>
<td>95</td>
<td>12</td>
<td>75</td>
</tr>
<tr>
<td>3 month follow up</td>
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</table>

No follow up data as pupil left the school

<table>
<thead>
<tr>
<th>Time</th>
<th>BSCY-I</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Raw Score</td>
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<td>Post-intervention</td>
<td>48</td>
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<tr>
<td>3 month follow up</td>
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</table>

SSiS - Pupil Data - Social Skills

<table>
<thead>
<tr>
<th>Time</th>
<th>Raw score</th>
<th>Standardised score</th>
<th>Percentile</th>
<th>Descriptive level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre intervention</td>
<td>103</td>
<td>104</td>
<td>61</td>
<td>Average</td>
</tr>
<tr>
<td>Post intervention</td>
<td>94</td>
<td>98</td>
<td>45</td>
<td>Average</td>
</tr>
<tr>
<td>3 month follow up</td>
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<td></td>
<td></td>
<td>No follow up data as pupil left the school</td>
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</tbody>
</table>

Behaviour Problems

<table>
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<tr>
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<th>Raw score</th>
<th>Standardised score</th>
<th>Percentile</th>
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SSiS - Teacher Data - Social Skills

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Behaviour Problems
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<td>Percentile</td>
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### SSiS – Pupil Data – Social Skills

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### Behaviour Problems

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### SSiS – Teacher Data – Social Skills

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**SSiS – Pupil Data - Social Skills**

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**Behaviour Problems**

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**SSiS - Social skills - teacher**

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**Academic Competence**

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<td>Below average</td>
</tr>
</tbody>
</table>
Appendix 16 (Paper 2) Ethical approval application form

Manchester Institute of Education
Ethical Approval Application Form

This ethical approval application form has been revised to incorporate changes made to the new University Research Ethics Committee (UREC) Form. It has been designed to incorporate prompts for information needed to ascertain whether the proposed research matches MIE’s research template pre-approved by UREC and to facilitate completion of the form to a standard that will allow speedier review, and approvals, by RIC members. Please follow all directions contained in this document.

| SECTION 1: Student Details /Identification of the person responsible for the research |
|---------------------------------|-------------------|
| Name of Student:                | Kate Lodal        |
| Student ID (quoted on library/ swipe card): | 5767681          |
| Email Address:                  | Katherine.Deamer@postgrad.manchester.ac.uk |
| Name of Supervisor:             | Caroline Bond     |
| Supervisor email:               | Caroline.Bond@manchester.ac.uk          |
| Programme (PhD, Prof Doc, MEd, PGCE, MSc, BA etc): | ProfDoc         |
| Year of Study                   | 2                 |
| Full/Part-time                  | FT                |
| Title of Research Project:      | An explanatory case study investigating the outcomes of participating in the Manchester Motor Skills Programme. |
| Recruitment and Data Collection | Start Date: On receipt of confirmation of ethical approval |
|                                  | End Date: May 2016 |
| Location(s) where the project will be carried out: | 1 x Primary school |
| Student Signature:              | On hard copy      |
| Supervisor Signature:           | ** Supervisor signature confirms that the student has the relevant experience, knowledge and skills to carry out the study in an appropriate manner |
| Date:                           | ** Supervisor signature confirms that the student has the relevant experience, knowledge and skills to carry out the study in an appropriate manner |

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SECTION 2: PROJECT DETAILS
(Please write your answers in the boxes provided. Boxes will expand to fit answers as necessary)

1. Aims and Objectives of the Project

1.1 Research Question

State the principal research question(s).
RQ1  How does participation in the MMSP impact on children’s motor skills?
RQ2  How does participation in the MMSP impact on children’s social skills, self-concept and academic outcomes?
RQ2  What are the participant’s perception of the MMSP?

1.2. Academic justification

Briefly describe the academic justification for the research. (Why is it an area of importance/ has any similar research been done?)

There is a growing body of evidence suggesting that motor skills development has an impact on many other areas of academic performance and later psychological difficulties, as Losse et al. (1991) state “the problems of this group of children are of interest not only because they are directly distressing to the children themselves, but also because they are thought to be associated with a high incidence of learning difficulties, school failure and psychological problems” (55:1991). The development of good motor skills is therefore an area that EPs can offer support and guidance. As Bond (2013) states: “EPs are ideally placed to support schools in developing a structured response to meeting the needs of children with motor difficulties.” (338: 2013) and “in addition to an understanding of motor skill development and assessment, psychologists have an important role to play in providing a holistic understanding of the child’s difficulties within the broader context of their development and environment” (28:2013)

This study will be an explanatory multiple embedded case study design to explain the impact of participating in the MMSP on children’s motor skills, social skills, self-concept and academic outcomes.

This study will offer a robust evaluation of the effectiveness of the MMSP on motor skills development by using an external motor skills measure, the Movement Assessment Battery for Children (M-ABC) Henderson and Sugden (1992). This will avoid some of the potential difficulties experienced by Bond (2011) when using the Manchester Motor Skills Assessment (MMSA) tool.

The emphasis of the MMSP, is very much upon self-esteem building and collaboration’ (Bond. 2011:146) however, to date there have been no evaluations of the impact that the MMSP can have on wider outcomes i.e. self-concept and social skills. Bond (2013) also states “as researchers we need to show the link between our motor skills interventions and impact on broader outcomes e.g. academic and social/mental health outcomes”. (Slide 5:2013). This study will attempt to use a wide range of measures to tease out the impact the MMSP can have on motor skills, social skills, self-concept and academic outcomes.
2. Methodology

2.1 Project Design:

Please briefly outline the design and methodological approach of the project, including the theoretical framework that informs it.

The study will be an explanatory multiple embedded case study design with multiple units of analysis (Yin, 2009). In order to explain the impact of participating in the MMSP on children’s motor skills, social skills, self-concept and academic outcomes. The researcher plans to support a mainstream school to run the MMSP with a group of 4-6 children who meet the inclusion criteria stated below. The case study will adopt a mixed methods approach and will take quantitative measures of the children’s motor skills with the M-ABC(2). The study will also use the SSIs and the Becks Youth inventory to measure social skills, academic outcomes and self-concept. Qualitative information regarding the impact on children’s motor skills, social skills, self-concept and academic outcomes will be measured through focused groups with the children involved in the study and through semi-structured interviews with the participant’s parents, class teachers and the staff running the group.

The context of the case study is the delivery of the motor skills programme in the school in which the study is taking place. Contextual data will be collected about the delivery of the programme through a research diary kept by the researcher. This will ensure that issues surrounding implementation will be gathered, as setting conditions must be understood and considered when explaining outcomes of the MMSP. Educational Psychologists have a key role to play in developing interventions which are ecologically valid and responsive to a settings needs. “Implementation refers to the process by which an intervention is put into practice” Lendrum and Humphrey (2012:635). The development of an intervention goes through several stages from the initial identification of a problem that needs addressing to the dissemination of the programme into everyday practice, Greenberg, Domitrovich, Graczyk, & Zins (2005). When interventions are used in the real world, with limited resources i.e. time, money and training, their effectiveness can be quite different. The study of implementation at the effectiveness stage focuses on

- d) Identifying factors which lead to variability in the quality of implementation.
- e) Understanding which programme components are critical.
- f) Examination of barriers and facilitators of implementation. (Lendrum and Humphrey 2012).

Durlak and DuPre (2008) reviewed around 600 interventions and identified eight common aspects of implementation, these are:

1. Programme fidelity (does the programme delivered correspond to the original intentions?)
2. Programme dosage (how much of the original programme has been delivered?)
3. Programme quality (how well has the programme been delivered?)
4. Programme responsiveness (how responsive were the participants?)
5. Programme differentiation (how much of a programmes unique components are present?)
6. Monitoring of control/comparison conditions
7. Programme reach (rate of involvement of the participants)
8. Adaptation (changes made to the original programme during implementation)

Research Diary

The research diary will attempt to gather information which cannot be collected through the semi-structured interviews. The research diary will particularly focus on programme, fidelity. The research diary will be analysed using content analysis. It will be used to confirm/disconfirm themes from the main analysis or as supplementary information. The research diary will also include other elements which seem prominent to the researcher during this piece of research with Durlak and DuPre’s (2008) implementation model at the fore front of the researchers mind.

The cases of the case study will be three or four children involved in the study. The three units of analysis (UoA) are: UoA1: the impact of the MMSP on motor skills UoA2: the impact of the MMSP on social skills, self-concept and academic outcomes, UoA3: perceptions of the MMSP. The propositions for this case study are P1 For positive outcomes to be achieved staff need to be committed to delivering the programme. P2 For positive outcomes to be achieved the motor skills programme should be implemented with at least 70% fidelity. P3 Staff running the motor skills groups will notice improvements in children’s motor skills, social skills and self-concept. P4 Parents and teachers who are not directly involved in the delivery of the programme may report...
improvements in the child’s motor skills, social skills or self-concept. P5 Participation in the MMSP will have a direct impact on children’s motor skills. P6 Participation in the MMSP will have an indirect impact on children’s social skills and/or self-concept. P7 Children will enjoy participating in the MMSP and will report improvements in their motor skills, social skills and/or self-concept. P8 Staff running the MMSP may come across barriers and facilitators to running the MMSP.

Inclusion Criteria:
- Children from Y4 or Y5, (ages 8 – 10) as these children will not be preparing for end of Key Stage tests and will also be at an age when they may still be acquiring motor skills.
- Children that have been highlighted through the M-ABC checklist, with a score within the Red or Amber zones. (as completed by their class teacher/teacher who has known them for at least 1 month, if the teacher cannot answer all aspects of the checklist, they should observe the child in order to answer the questions or liaise with another adult that will be able to answer the questions i.e. teaching assistant, past teacher or parent)
- Children who have a statement of Special Educational Needs may be included in the study as long as their score falls within the Amber or Red zone indicating a degree of movement difficulty.

Table 1. Definition for each Zone on M-ABC-2 checklist

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<tr>
<th>Child’s score</th>
<th>Percentile range</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red Zone</td>
<td>At or above the 95th percentile</td>
<td>highly likely to have a movement difficulty</td>
</tr>
<tr>
<td>Amber Zone</td>
<td>Between 85th and 94th percentile</td>
<td>‘at risk’ of having a movement difficulty</td>
</tr>
<tr>
<td>Green Zone</td>
<td>Up to the 85th percentile</td>
<td>no movement difficulty detected</td>
</tr>
</tbody>
</table>

Exclusion Criteria:
- Children with a score in the Green zone will not be used in the study.
- Children with statements of special educational needs who have a primary need in the area of motor skills will not be included in the study as they will have been benefiting from other motor skills interventions over time.
- Children who have been referred to the Occupational Therapist or are working on an Occupational Therapy programme will not be included in this study.

Data Collection Methods:
- SSIS rating scales, parents, teacher and child (pre and post intervention at a 3 month follow up)
- M-ABC (2) assessment – child (pre and post intervention at a 3 month follow up)
- BECKS YI- SC scale – child (pre and post intervention at a 3 month follow up)
- Focus group - children
- Semi-structured interviews – parents, class teacher and teacher/teaching assistant running the group.
- Research dairy

Sampling: 1 primary school will be chosen that is interested in developing their support for children with motor skills difficulties. The schools will choose 6 pupils in KS2 (Years 4 & 5) that have some degree of motor difficulties.

Method(s) of Analysis:
Interviews and Focus groups – Thematic Analysis (Braun and Clarke’s (2006) 6 stage model)
2.2 Data Collection Methods:

Describe the research procedures/activities as they affect the study participant and any other parties involved. Which of the following will your research involve and what will you be asking your participants to do.

2.2.1. Interviews

Yes *  No

If Yes, describe how these are to be conducted (Append your interview guide):

(See appendix 10 and 11 of thesis for interview schedules and appendix 9 for focus group schedule)

2.2.2. Questionnaires

Yes  No *

If Yes, how will these be delivered to and collected from participants? (Append your draft questionnaire(s)):

2.2.3. Observations

Yes  No *

If Yes, describe the context for the observation and what participants will be engaged in. (Append copy of any observation framework or other data collection guide to be used):

2.2.4. Diary

Yes *  No

If Yes, describe the context for use of the diary and what participants will be asked to do. (Append copy of the Diary instructions and format):

The researcher will keep a research dairy to monitor issues relating to the implementation of the MMSP in the host school.

2.2.5. Intervention

Yes *  No

If Yes, describe the intervention and what participants will be asked to do. (Append a detailed description and any images necessary to support the description):

The child participants will take place in an 8 – 12 week intervention using the Manchester Motor skills (see appendix 2 ethical approval) Programme Training will be provided to the school prior to starting the intervention and the researcher will be available to support the school should problems arise with implementation of the programme.
2.2.6. Assessments

Yes * No

If Yes, give full details of the assessment(s) and what participants will be asked to do. (Append a copy of the assessment schedules to be used):

<table>
<thead>
<tr>
<th>Assessment Description</th>
<th>Role</th>
<th>Time Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>Completion of 6 screening questionnaires</td>
<td>Class teacher</td>
<td>5 minutes per questionnaire</td>
</tr>
<tr>
<td>M-ABC initial screening tool</td>
<td></td>
<td>Total time: 30 minutes</td>
</tr>
<tr>
<td>Completion of 6 Social Skills Improvement System</td>
<td>Class teacher</td>
<td>5 -10 minutes per questionnaire</td>
</tr>
<tr>
<td>(Pre and post intervention and at a three month follow up)</td>
<td></td>
<td>Total time: 2-3 hours maximum</td>
</tr>
<tr>
<td>Completion of Social Skills Improvement System</td>
<td>Parents</td>
<td>15 minutes per questionnaire</td>
</tr>
<tr>
<td>(Pre and post intervention and at a three month follow up)</td>
<td></td>
<td>Total time: 45 minutes</td>
</tr>
<tr>
<td>Completion of M-ABC (2), Social Skills Improvement System and BECKS YI- II S-C scale</td>
<td>Child and researcher</td>
<td>40 – 50 minutes per child</td>
</tr>
<tr>
<td>(Pre and post intervention and at a three month follow up)</td>
<td></td>
<td>Total time: 18 hours maximum</td>
</tr>
</tbody>
</table>

2.2.7. Other

Yes * No

If Yes, give full details and what participants will be asked to do. (Append supporting documentation as appropriate):

The child participants will be asked to participate in a focus group to ascertain their view of the MMSP and any improvements they have seen i.e. motor skills/self-concept, social skills, see appendix 9 for focus group schedule.

2.2.8. Does data collection use video or still image?  Yes        No *

If Yes, complete the VASTRE documentation - Available from: [http://www.seed.manchester.ac.uk/studentintranet/miestudenthome/integrityethics/stillimageresearch/](http://www.seed.manchester.ac.uk/studentintranet/miestudenthome/integrityethics/stillimageresearch/)
2.2.9 Research Experience
Please state your experience in conducting these research interventions or assessments (where applicable) and methodologies outlined above - provide supporting evidence (e.g. course unit code).

I have used the M-ABC as a standardised assessment tool while on practice placement under the supervision of my placement supervisor. I have reliably recorded the outcomes of the assessment on an Educational Psychology report and worked with the school to develop a package of support for the child involved.

As a past SENCO I have lots of experience of working with children in KS2 on a one to one and in small groups and have led many staff training sessions and training for intervention programmes.

I have used the BECKS YI II while on practice placement (Year 1 PROFDOC training) and have completed taught sessions on standardised assessment as part of the taught PROFDOC programme.

2.3 Sampling
What type of sampling method do you propose to use?

2.3.1. Statistical
Yes [ ] No [ ]

*If Yes, describe the type, your justification for taking this approach and proposed sample size:

2.3.2. Other
Yes [ ] No [ ]

*If Yes, describe the type, your justification for taking this approach and proposed sample size

The sample will be selected from EP casework while the researcher is on placement or from a network of past SENCOs/Head teachers known to the researcher.

2.4 Analysis method
What type of analyses do you propose to use to explore this data?

2.4.1. Quantitative analyses
Yes [ ] No [ ]

*If Yes, please give details:
M-ABC2, (pre, post and at a three month follow up)
BECKs Youth Inventory – self-concept inventory (pre, post and at a three month follow up)
SSIS (parents, teachers and pupil copies) (pre, post and at a three month follow up)

The data will be used as descriptive statistics as the sample size is too small. The data will be presented in line graphs for individual pupils and in school groups.
2.4.2. Qualitative analyses

Yes ☑️ No ❌

If Yes, please give details:

Focus group – thematic analysis
Semi-Structured interviews – thematic analysis
Research Diary – content analysis

2.5 Ethical Issues

Briefly state the main ethical issues raised by the methodology outlined above.

No research will begin until participant consent has been gained, full understanding of what the research entails will be checked by the researcher via a telephone call to the parents of the participants. Contact details of the researcher will be supplied on the participant information sheet to ensure that if parents or school staff have any concerns or need any clarification, they will be able to contact the researcher directly. Written assent will be gained from children prior to the research being conducted, once informed parental consent is gained. Please see appended pupil friendly assent form. (Appendix 17 of thesis).

All names will be changed throughout the research to preserve anonymity. Children will be asked to choose their own pseudonyms in order to help them to fully understand the concept of anonymity. All research data will be stored securely all recordings will be deleted 12 months after the completion of the thesis.

Due to the nature of the research, children who may have a low self-concept are participants, this requires some specific consideration. The researcher will spend some time in the children’s class carrying out contextual observations in order to become acquainted with the children. Discussions will be held between key members of staff, parents and the researcher to gain a rich picture of the child, before the researcher meets the child. A key member of staff will be identified for the children to go to should they feel upset or distressed after the focus group, once the researcher has left the school.

To ensure integrity and quality, research participants will be provided with a summary of the findings and offered an opportunity for a debriefing after taking part in the research. All participants taking part in the research, will be doing this voluntarily, they will be given the opportunity for informed consent by being provided with a thorough participant information sheet and an informed consent sheet. It will be made clear that they can withdraw from the research at any time.
3. Participant Details

3.1 Characteristics of participants

Please specify the characteristics of the participants you wish to recruit.

<table>
<thead>
<tr>
<th>number</th>
<th>28</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>4-6 children</td>
</tr>
<tr>
<td></td>
<td>4 -6 parents (of above children – this could double if both parents want to become involved however this possibility is not likely</td>
</tr>
<tr>
<td></td>
<td>1-2 class teachers</td>
</tr>
<tr>
<td></td>
<td>1-2 staff members responsible for running the group (probably Teaching Assistants)</td>
</tr>
<tr>
<td>sex</td>
<td>Unknown at the moment</td>
</tr>
<tr>
<td>age group(s)</td>
<td>Child participants will be 6 children, ages between (8 – 10)</td>
</tr>
<tr>
<td></td>
<td>Adult participants will be staff members of the school and the children's parents (ages are unknown)</td>
</tr>
<tr>
<td>Location(s)</td>
<td>At the host primary school.</td>
</tr>
</tbody>
</table>

3.2 Vulnerable groups

3.2.1. Will your project include participants from either of the following groups?

(Tick as appropriate)

- [ ] Children under 16 in school, youth club or other accredited organisation.
- [ ] Adults with learning difficulties in familiar, supportive environments
- [ ] NONE OF THE ABOVE (go to item 4.)

3.2.2. Inclusion of vulnerable groups

*Please describe measures you will undertake to avoid coercion during the recruitment stage.*

Schools Staff will identify the participant’s dependent on their level of motor skill development. An inclusion and exclusion criteria will be used.

**Inclusion Criteria:**
- Children from Y4 or Y5, (ages 8 – 10) as these children will not be preparing for end of Key Stage tests and will also be at an age when they may still be acquiring motor skills.
- Children that have been highlighted through the M-ABC checklist, with a score within the Red or Amber zones. (as completed by their class teacher/teacher who has known them for at least 1 month, if the teacher cannot answer all aspects of the checklist, they should...
observe the child in order to answer the questions or liaise with another adult that will be able to answer the questions i.e. teaching assistant, past teacher or parent).

- Children who have a statement of Special Educational Needs may be included in the study as long as their score falls within the Amber or Red zone indicating a degree of movement difficulty.

### Table 1. Definition for each Zone on M-ABC-2 checklist

<table>
<thead>
<tr>
<th>Child’s score</th>
<th>Percentile range</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Red Zone</strong></td>
<td>At or above the 95th percentile</td>
<td>highly likely to have a movement difficulty</td>
</tr>
<tr>
<td><strong>Amber Zone</strong></td>
<td>Between 85th and 94th percentile</td>
<td>‘at risk’ of having a movement difficulty</td>
</tr>
<tr>
<td><strong>Green Zone</strong></td>
<td>Up to the 85th percentile</td>
<td>no movement difficulty detected</td>
</tr>
</tbody>
</table>

### Exclusion Criteria:

- Children with a score in the Green zone will not be used in the study.
- Children with statements of special educational needs who have a primary need in the area of motor skills will not be included in the study as they will have been benefiting from other motor skills interventions over time.
- Children who have been referred to the Occupational Therapist or are working on an Occupational Therapy programme will not be included in this study.

Parents will be invited to an initial meeting to explain the aims of the research and the details of the MMSP that the child will be involved in.

Parents will be provided with their own participant information sheet and a consent form. They will be asked to give consent to their child taking part in the MMSP and they will be asked to provide separate consent to their child taking part in the research. Children will not be excluded from the intervention if their parents are not happy for them to be part of the research providing there are still suitable numbers of research participants.

Parents will be made aware that they can withdraw from the research at any time.

Children will have an opportunity to meet the researcher in school with school staff prior to any individual assessments taking place. Children will be provided with an explanation of the research in order to obtain informed assent. The children will be involved in choosing their own pseudonym to involve the children in the process and ensure they understand the concept of anonymity.

Children will be provided with additional information about the focus group prior to it taking place and will be given the opportunity for informed assent, if they do not wish to participate they will not be included in this part of the study. The researcher will have worked with the children over the year prior to the focus group which should enable the children to feel comfortable with the researcher and confident that they can choose whether or not to participate in the focus group.

### 3.2.3. Research in UK with vulnerable groups

Please confirm you have relevant clearance for working with vulnerable groups from DBS and/or other relevant sources.

<table>
<thead>
<tr>
<th></th>
<th>DBS*</th>
<th>Yes</th>
<th>No</th>
<th>NA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other</td>
<td>Yes</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

If Other, please describe
*NB: You will need a DBS application through the University. Any work related DBS clearance is not valid for your University research.

3.2.4. Please confirm that you will notify the Administrator for Ethics and Fieldwork (AEF) immediately if your DBS status changes.

I will immediately notify the AEF if my DBS status changes * 
NA

4. Recruitment

4.1 Permissions

Do you have permission to collect data from an organisational fieldwork site from.

4.1.1. The organisation where the research will take place (e.g. School head etc)? 
Yes NA *

4.1.2. Sub-settings within the organisation (e.g. class teacher etc)? Yes NA *

If Yes, append letter/email confirming access to this application

If NA, please explain why permission is not applicable.

Consent will be gained prior to the research taking place and participant information sheets and consent forms have been appended (See Appendix 17 - 20 of thesis)

Due to the timetable of the university thesis proposal submission date and the start of EP placement where participants may be recruited from there has not yet been opportunity to already have participant permission.

4.2.1. How will your pool of potential participants be identified? (tick all that apply)

* Letters/ emails and follow up phone calls to organisations
Posters / Advertisements
Website/Internet (including Facebook/other social media)
Known or named client groups (students, etc).
* Networks and recommendations
* Person in a position of authority in organisation
Directory/database/register in public domain

Describe the nature of these routes to identify your pool of potential participants.

Participants will be obtained either through EP casework while on placement as a Trainee Educational Psychologist in an Educational Psychology Service in the North West of England or through the Researchers
4.2 Participant recruitment

4.2.2. Who will the potential participants be?

* Persons unknown to the researcher
* Client groups (students, etc) within an organisation known by the researcher
* Persons accessed through networks and recommendations
* Persons nominated by a position of authority

Other (describe here):

Indicate whether there is any existing relationship between yourself and the source/group of potential participants.

There will be no existing relationship between myself and the research participants. The head teacher or SENCO who will not be a research participant may be previously known to the researcher in a professional capacity.

4.2.3. How will you approach potential participants? (tick all that apply)

* Letter
Email
Website/internet (including Facebook/other social media site)
* Presentation at meeting or similar
Other (describe here):

Indicate how information about your study will be delivered to potential participants and how they will (directly or indirectly) let you know they would like to take part in your research.

- Initial discussions with head teachers and SENCO about the research
- Initial introductory meeting with parents
- Participant information forms – and parental consent forms
- Participant information forms – and school consent forms

Append text of letters / emails / posters / advertisements / presentation etc. for consent forms and participant information forms (See appendix 17 – 19 of thesis)

4.2.4 How will you ensure those interested in the research are fully informed about the study and what will be expected of them if they take part?

Indicate how information about your study will be delivered to potential participants and how they will (directly or indirectly) let you know they would like to take part in your research.

- Initial discussions with head teachers and SENCO about the research
- Initial introductory meeting with parents
Information giving will be undertaken through:

<table>
<thead>
<tr>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Letter</td>
</tr>
<tr>
<td>Email</td>
</tr>
<tr>
<td>Website/internet (including Facebook/other social media site)</td>
</tr>
<tr>
<td>Telephone</td>
</tr>
<tr>
<td>* Information sheet (covering headings in University template)</td>
</tr>
<tr>
<td>* Presentation at meeting or similar</td>
</tr>
<tr>
<td>Other (describe here):</td>
</tr>
</tbody>
</table>

Append text of recruitment letters / emails / information sheet to this application

Information giving will be undertaken by:

- the researcher
- someone in a position of authority
- a neutral third party to known or named client groups
- Other (describe here):

Provide details on how you will fully inform potential participants about your study:

for consent forms and participant information forms (See appendix 17 – 19 of thesis)

4.2.5 Information accessibility

What arrangements have you made to ensure information is accessible to those unable to read standard English? (low literacy level, non-English speaker, persons with learning disabilities)

Specific details of participant needs will be discussed with the host schools and amendments made at the time. The parental questionnaire was chosen due to its low reading age requirements and alternative resources i.e. audio tapes and forms in other languages.
4.2.6 Decision period

How long will the participant have to decide whether to take part in the study? *If you are proposing a decision period of less than 2 weeks, full justification for this approach should be given.*

2 weeks from the initial meeting with parents.

4.2.7 Incentives

State any payment or any other incentive that is being made to any study participant. *Specify and state the level of payment to be made and/or the source of the funds/gift/free service to be used and the justification for it.*

The incentive for the school is whole school training in the area of motor skills as well as more tailored training on how to effectively deliver the MMSP to a group of children with motor skills difficulties. This will inevitably build the capacity of the school in supporting children with motor skills difficulties.

The incentives for the parents are an opportunity for additional support for their child in the area of motor skills and potentially benefits for the child’s self-concept and social skills.

The incentive for the children is to participate in a fun group, working on skills they would like to develop and improve.

4.2.8 Avoiding coercion

How will your recruitment methods avoid putting any overt or covert pressure on vulnerable individuals to consent (children, junior colleagues, adults with learning disabilities)?

Parents will be provided with their own participant information sheet and a consent form. They will be asked to give consent to their child taking part in the MMSP and they will be asked to provide separate consent to their child taking part in the research. Children will not be excluded from the intervention if their parents are not happy for them to be part of the research providing there are still suitable numbers of research participants.

Parents will be made aware that they can withdraw from the research at any time.

Children will have an opportunity to meet the researcher in school with school staff prior to any individual assessments taking place. Children will be provided with an explanation of the research in order to obtain informed assent (see appendix 17). The children will be involved in choosing their own pseudonym to involve the children in the process and ensure they understand the concept of anonymity.
Children will be provided with additional information about the focus group prior to it taking place and will be given the opportunity for informed assent, if they do not wish to participate they will not be included in this part of the study. The researcher will have worked with the children over the year prior to the focus group which should enable the children to feel comfortable with the researcher and confident that they can choose whether or not to participate in the focus group.

4.3. Consent

4.3.1 How will participants’ consent to take part be recorded?

* Implied consent - return/submission of completed questionnaire
* Written consent form matching University template

Verbally (give details of how this will be recorded)

Other method (give details here):

Append text of consent forms/consent taking procedure to this application.

Please confirm:

* My consent taking procedures are relevant to each participating group
* The consent taking procedures follow the guidance provided in the University of Manchester Consent Form Template

4.3.2 Special arrangements

Please outline any special consent taking arrangements relevant to your research study.

5. Participation in the research

5.1 Duration

How long will each participant be expected to take part in activities?

(See appendix 17 – 19 of thesis)

5.2 Benefits to participation

Are there any benefits to participation for participants (beyond incentive noted above)?

An opportunity to improve the child’s motor skills and possibly improves self-concept and social skills.
5.3 Deficits to participation

Will any benefit or service otherwise received by participants be withheld (e.g. pupil misses lesson, or part thereof) as a consequence of taking part in this study?

Pupil will miss lessons as a result of taking part in the study however this is normal procedure in schools, as attending intervention programmes are part of many schools wave 2 differentiation to meet children’s specific needs. Careful consideration will be given to timetabling issues by the SENCO/TA and researcher.

6. Risks and Safeguards

Please outline any adverse effects or risks for participants in respect of the methods you have indicated in Section 2B [Interview; Questionnaire; Interventions; Assessments; Observation; Diary keeping; Other activity]

6.1 Physical risks

6.1.1 Potential

What is the potential for adverse effects of a physical nature; risks or hazards, pain, discomfort, distress, inconvenience, or change in lifestyle / normal routine for participants?

No physical risk above and beyond those of normal participation in school based activities.

6.1.2 Safeguards

What precautions or measures have been taken to minimise or mitigate the risks identified above?

Considerations will be given to suitable space available for the intervention to take place.

6.2 Psychological risks

6.2.1 Potential

Will any topics discussed (questionnaire, group discussion or individual interview) potentially be sensitive, embarrassing or upsetting, or is it possible that criminal or other disclosures requiring action could take place during the project?

The focus group and completion of the SSIS and BECKS by the child participants could potentially involve children discussing and reflecting on issues of self-esteem, social skills and confidence.
6.2.2 Safeguards

What precautions or measures have been taken to minimise or mitigate the risks identified above?

The researcher has had 10 year experience of working with children of this age and is a Trainee Educational Psychologist so will be well placed to administer these assessments and facilitate the focus group with the minimum amount of distress to the children. The researcher will have discussed the children with staff members prior to working with them to ensure she is aware of any potential difficulties which may arise. The researcher will arrange for a member of staff to be available to the children once the researcher has left should they want to talk about any issues which arose in the assessments or focus group.

6.3 Risks for you as researcher

It is important that the potential for adverse effects, risks or hazards, pain, discomfort, distress, or inconvenience, of a physical or psychological nature to you as the researcher have been assessed. This is a requirement by law. Risks to you are identified as part of the RREA/FRA process. Ensure this assessment has been completed by either:

a. a completed and approved Fieldwork Risk Assessment (FRA), or
b. a signed Low Risk Fieldwork Declaration in Section D of RREA form.

6.4 Early termination of the research

6.4.1 Criteria

What are the criteria for electively stopping the research prematurely?

6.4.2 Please confirm, by ticking here, that:

* any adverse event requiring radical change of method/design or abandonment will be reported in the first instance to your research supervisor and then to the MIE RIC Chair
7. **Data Protection and confidentiality**

7.1 **Data activities and storage of personal data**

Will the study use any of the following activities at any stage?

- Electronic transfer by email or computer networks
- Use of personal addresses, postcodes, faxes, e-mails or telephone numbers
- Publication of direct quotations from respondents
- Publication of data that might allow identification of individuals
- Use of audio/visual recording devices
- Sharing data with other organisations
- Export of data outside EU

Will the study store **personal** data on any of the following?

- Manual files
- Home or other personal computers
- Laptop computers
- University computers
- Private company computers
- NHS computers

7.2 **Confidentiality of personal data**

What measures have been put in place to ensure confidentiality of personal data? *Give details of whether any encryption or other anonymisation procedures have been used and at what stage?:*

All data will be stored on an encrypted pen stick and all manual files will be kept in a locked drawer in the researcher’s home. Email correspondence will not include details of participants. All information will be anonymised from the start of the research using participant codes – these can later be matched to the child’s chosen pseudonym – (children will choose their own pseudonyms as a way of helping children to understand the concept of anonymity.

7.3 **Research monitoring and auditing** Please confirm:

- The student researcher’s supervisor(s) will monitor the research **x**

*If other arrangements apply please specify:*
7.4 Data Protection

Please provide confirmation that you will employ measures that comply with the Data Protection Act and the University Data Protection Policy (UDPP)?

Data Protection Act: I confirm that all Data collected will be:

* Fairly and lawfully processed
* Processed for limited purposes as outlined in this application
* Adequate for the purpose, relevant and not excessive
* Accurate
* Not kept longer than necessary
* Processed in accordance with the participant’s rights
* Secure – on an encrypted storage device
* Only transferred to other settings with appropriate protection.

University Data Protection Policy (UDPP): I confirm

* My data and its storage will comply with the UDPP
* Paper copies of data and encrypted storage devices will be stored in a locked drawer or cupboard

For UG research: On completion of my research, the data will be kept until the study has been completed and will then be shredded/destroyed

For PGT/PGR research: On completion of my research, the data will be passed to my supervisor for archiving at the University for a period of 5 years after which it will be shredded/destroyed

7.5 Privacy during data analysis Please confirm:

* Analysis will be undertaken by the student researcher
* Analysis will take place in a private study area

If other arrangements apply please describe:
7.6 Custody and control of the data  Please confirm:

- The student researcher’s supervisor will have **custody** of the data
- The student researcher will have **control** of the data

**If other arrangements apply please describe:**

7.7 Access to the data

- The student researcher will have access to the data
- The student’s supervisor(s) will have access to anonymised data

**If other/additional arrangements apply, please describe:**

7.8 Use of data in future studies

Will the data be stored for use in future studies?  
Yes [ ]  No [ ]

If Yes, confirm this is addressed in the information giving/consent taking process by ticking here.  

8. Reporting Arrangements

8.1 Dissemination

How do you intend to report and disseminate the results of the study?  

(Tick all that apply)

- Peer reviewed scientific journals
- Book / Chapter contribution
- Published review (ESRC, Cochrane)
- Internal report
- Conference presentation
- Thesis/dissertation
- Other  e.g Creative works (describe here):  


8.2 Participant and community feedback

How will the results of research be made available to research participants and communities from which they are drawn? (Tick all that apply)

* Written feedback to research participants

Presentation to participants or relevant community groups

Other e.g. Video/Website (describe here):

9. Research Sponsorship

9.1 External funding

Are you in receipt of any external funding for your study? (tick one)

External Funding

No external funding

If you have funding please provide details:

<table>
<thead>
<tr>
<th>Organisation</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>UK Contact</td>
<td></td>
</tr>
<tr>
<td>Amount</td>
<td></td>
</tr>
<tr>
<td>Duration</td>
<td></td>
</tr>
</tbody>
</table>

9.2 Sponsoring organisation

Who will be responsible for governance and insuring the study? (tick one)

The University of Manchester

Other organisation

If not UoM, provide details of who will act as sponsor of the research and their insurance details
10. Conflict of Interest

Have any conflicts of interest been identified in relation to this project? (tick at least one option)

- Payment for doing this research?
  
  * If so, how much and on what basis?

- Direct personal involvement in the research of a spouse/funder?
  
  * If so, please provide details:

- Does your department/the University receive payment (apart from costs)?
  
  * If so, please provide details:

* NONE of the ABOVE APPLY

Thank you
This is the end of the form

Please use the checklist below to ensure that you append all necessary supporting documents
**CHECKLIST**

Please tick to indicate whether the document is APPENDED OR NOT APPLICABLE for this application.

<table>
<thead>
<tr>
<th>Documents</th>
<th>Appended</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Data collection instruments</strong></td>
<td></td>
</tr>
<tr>
<td>Draft copy of each data collection instrument named in Q2.2</td>
<td>*</td>
</tr>
<tr>
<td>(Questionnaire, Interview guide, etc)</td>
<td></td>
</tr>
<tr>
<td>Video and Still Image Recording Declaration (VASTRE)</td>
<td>*</td>
</tr>
<tr>
<td><strong>Participant recruitment</strong></td>
<td></td>
</tr>
<tr>
<td>Letter(s) of permission to conduct research within each organisation</td>
<td>*</td>
</tr>
<tr>
<td>Recruitment advertisement(s) specified in Q4.2.1</td>
<td>*</td>
</tr>
<tr>
<td>(poster/email/letter/presentation)</td>
<td></td>
</tr>
<tr>
<td>Participant Information giving – one for each participant type specified in Q3.1</td>
<td>*</td>
</tr>
<tr>
<td>(Information sheet/letter/email/script)</td>
<td></td>
</tr>
<tr>
<td>Consent taking – one for each participant type specified in Q3.1</td>
<td>*</td>
</tr>
<tr>
<td>(Consent form or alternative procedure)</td>
<td></td>
</tr>
<tr>
<td><strong>Fieldwork risk assessment</strong></td>
<td></td>
</tr>
<tr>
<td>Fieldwork Risk Assessment Form (approved)</td>
<td>*</td>
</tr>
<tr>
<td>RREA form Low Risk Fieldwork Declaration (Section D) completed</td>
<td>*</td>
</tr>
</tbody>
</table>
Dear Pupil,

Your teachers have identified that you may benefit from taking part in the Manchester Motor Skills Programme. Motor skills can be split into two areas (1) fine motor skills (small movements i.e. handwriting, cutting, fastening buttons and tying laces) and (2) gross motor skills (larger movements i.e. throwing and catching a ball, riding a bicycle, balancing). During the sessions you would work with one of your school teachers/teaching assistant (could insert name here) and some other children in your class.

You will take part in a fun motor skills group for twenty minutes each day you are in school for about 10 weeks. In these sessions you will have the chance to practice the motor skills that you would like to improve. The aim of the sessions is to help you to improve your motor skills.

You would complete some questionnaires before starting the programme, at the end of the programme and three months after the programme has finished. This is so that I can measure how well the programme has worked. At the end of the programme I will come and speak to you and your friends from the group to find out your views of the programme. This group talk will be recorded and the information will be used in a research project that I am doing. The research will not use your name or the name of your school so no one will know that it is you.
You do not need to take part in the research project if you do not wish to take part and you do not need to give a reason. However, if you choose to take part, you will need to sign the form. If you sign the form but then decide you no longer want to continue with the sessions, that is OK, you can change your mind at any time.

Best wishes,

Kate Lodal, Trainee Educational Psychologist

If you are happy to come out of class and take part in the Motor Skills sessions please tick the boxes if you agree with them and then sign on the line below.

<table>
<thead>
<tr>
<th>I have read the information sheet and have had the chance to think about the information.</th>
</tr>
</thead>
<tbody>
<tr>
<td>I have had chance to ask questions and these have been answered fully.</td>
</tr>
<tr>
<td>I would like to take part in the motor skills sessions.</td>
</tr>
<tr>
<td>I know that I can decide that I don’t want to take part at any time and that I don’t have to give any reasons when I do.</td>
</tr>
<tr>
<td>I will complete some questionnaires and a recorded group talk which will be audio recorded and I agree that this information can be used when the study is written up, as long as my name is not used.</td>
</tr>
</tbody>
</table>

Name of participant:.................................................................................................................................................
Signature: .......................................................... Date: ..............................................................................
Participant Information Sheet – Parents

An exploratory evaluation of the Manchester Motor Skills Programme.

You are being invited to take part in a research study which will form my thesis project for my Doctorate in Educational and Child Psychology. Before you decide to take part it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully and discuss it with others if you wish. Please ask if there is anything that is not clear or if you would like more information. Take time to decide whether or not you wish to take part.

Thank you for reading this.

Who will conduct the research?

Kate Lodal (Training Educational Psychologist) from The University of Manchester, on placement with XXXX Educational Psychology Service.

Title of the Research:
An exploratory outcome evaluation of the Manchester Motor Skills Programme.

The research will look at indications of impact of the MMSP on motor skills, self-concept, social skills and academic outcomes.

What is the aim of the research?

I am conducting this small scale research project to explore the effects of the MMSP on motor skills, social skills and self-concept. The study will take place from November 2014 to July 2015.

Why have I been chosen?

The school have identified your child as having a degree of difficulty with either their fine motor skills (things like: handwriting and tying shoe laces or using a knife and fork) or their gross motors skills (things like, balance, throwing and catching a ball, riding a bicycle).
The school would like to support your child with their motor skills and are trialling the Manchester Motor skills intervention programme to support your child to develop their motor skills. The researcher is also interested in if there are other implications of being part of this programme i.e. improved confidence, self-concept or improvement in social skills.

The MMSP is a fun and enjoyable programme that should help your child to develop their motor skills further. The school will provide opportunities for families to be aware of the targets that your child is working on in school and ideas on how to support them further with their motor skills at home.

**What would I be asked to do if I took part?**

A variety of participants from the school will be involved in the research should you choose to take part, what each person will do is described below

**What the children will be asked to do?**

Once you have consented to your child taking part in the research project your child will:

- Participate in the MMSP run by the school for a period of 8 – 12 weeks.
- Take part in a focus group with the researcher at the end of the intervention to discuss what they thought about the programme. The children will participate in individual assessments of their motor skills, social skills and self-concept with the researcher, (before the intervention, after the intervention and at a three month follow up).

**What you will be asked to do?**

You will be invited to an initial meeting with the staff involved in the intervention to introduce you to the programme and the research should you choose to participate.

You will be asked to compete a brief questionnaire about your child before the intervention, after the intervention and at a three month follow up. The questionnaire will take no longer than 10 minutes to complete.

You will be invited to take part in a brief interview at the end of the programme. The interview should take between 10 – 20 minutes and will take place at school.

Staff working with your child will also complete a questionnaire and an interview regarding your child’s progress and the intervention in general.

**What happens to the data collected?**

Interviews will be audio recorded, transcribed and anonymised. A transcribed copy of the interview will be sent to the participants to ensure they are happy with the transcript and that they feel it is accurate.
The recording will be deleted once it has been transcribed and anonymised data will be kept for 5 years after it has been analysed.

**How is confidentiality maintained?** Confidentiality will be maintained at all times. All names of LAs, Schools, staff, parents and children will be kept anonymous. Feedback will be provided to the families participating in the programme via a letter.

**What happens if I do not want to take part or if I change my mind?**

It is up to you to decide whether or not to take part. If you do decide to take part you will be given this information sheet to keep and be asked to sign a consent form. If you decide to take part you are still free to withdraw at any time without giving a reason and without detriment to yourself.

**What is the duration of the research?**

The research will take place from November 2014 till July 2015.

**Where will the research be conducted?**

The research will be conducted at your child’s school.

**Will the outcomes of the research be published?**

The research will be submitted to the University of Manchester as part of the researcher’s thesis for the Doctorate in Child and Educational Psychology. This research may be published.

**Disclosure and Barring Service (DBS), previously Criminal Records Check (CRB).**

I am currently studying on the Doctorate in Child and Educational Psychology course at The University of Manchester. I have an up to date DBS check.

**Contact for further information**

**Researcher:** Kate Lodal  
Katherine.Deamer@postgrad.manchester.ac.uk

**Academic supervisor:** Caroline Bond  
Caroline.Bond@manchester.ac.uk

**Second Supervisor:**

**What if something goes wrong?**

Please contact Kate Lodal on the above email address if you require further information and support.

If there are any issues regarding this research that you would prefer not to discuss with members of the research team, please contact the Research Practice and Governance Coordinator by either writing to ‘The Research Practice and Governance Coordinator, Research Office, Christie Building, The University of Manchester, Oxford Road, Manchester M13 9PL’, by emailing: Research-Governance@manchester.ac.uk, or by telephoning 0161 275 7583 or 275 8093.
You are being invited to take part in a research study which will form my thesis project for my Doctorate in Educational and Child Psychology. Before you decide to take part it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully and discuss it with others if you wish. Please ask if there is anything that is not clear or if you would like more information. Take time to decide whether or not you wish to take part.

Thank you for reading this.

Who will conduct the research?

Kate Lodal (Training Educational Psychologist) from The University of Manchester, on placement with Lancashire Educational Psychology Service.

Title of the Research

An exploratory outcome evaluation of the Manchester Motor Skills Programme.

The research will look at indications of impact of the MMSP on motor skills, self-concept, social skills and academic outcomes.

What is the aim of the research?

I am conducting this small scale research project to explore the effects of the MMSP on motor skills, social skills and self-concept. The study will also look at issues of implementation of the MMSP in the two host schools. The study will take place from November 2014 to October 2015.

Why have I been chosen?

The host schools will be chosen based on the school’s desire to develop their support for children with motor skills difficulties and to build the capacity of their school in terms of SEN support and intervention.

What would I be asked to do if I took part?

A variety of participants from the school will be involved in the research should you choose to take part, details of involvement are outlined below:
What will the school staff be asked to do?

- To identify 6 children in KS2 (Year 4 and 5 are recommended, however this can be negotiated).
- To provide a teaching assistant/teacher/SENCO to run the MMSP either every day for 8 weeks or 3 – 4 days a week for 12 weeks. (this can be negotiated)
- The teaching assistant running the group will be asked to complete a brief semi-structured interview at the end of the intervention.
- The children’s class teachers will be asked to complete a brief initial screening questionnaire regarding the children’s motor skills difficulties.
- The child’s class teacher will be asked to complete a brief questionnaire pre and post intervention and at a three month follow up. The questionnaire will take no longer than 10 minutes per child to complete.
- The child’s class teacher will be asked to complete a short semi-structured interview at the end of the intervention.

What the children will be asked to do?

- The children will take part in a focus group with the researcher at the end of the intervention.
- The children will participate in individual assessments of their motor skills, social skills and self-concept with the researcher, (at 3 points during the study)

What the parents will be asked to do?

- Parent will be invited to an initial meeting with the staff involved in the intervention to introduce them to the programme and the research should they choose to participate.
- Parents will be asked to complete a brief questionnaire about their child.
- Parents will be invited to take part in a brief interview at the end of the programme.

What happens to the data collected?

Interviews will be recorded and transcribed. A transcribed copy of the interview will be sent to the participants to ensure they are happy with the transcript and that they feel it is accurate. The recording will be deleted once it has been transcribed and anonymised data will be kept for 5 years after it has been analysed.

How is confidentiality maintained?

Confidentiality will be maintained at all times. All names of LAs, schools, staff, parents and children will be kept anonymous. Feedback will be provided to the settings (the format of this feedback can be arranged with each individual setting. All settings will remain anonymous during this feedback. Feedback will be provided to the families participating in the programme via a letter.
What happens if I do not want to take part or if I change my mind? It is up to you to decide whether or not to take part. If you do decide to take part you will be given this information sheet to keep and be asked to sign a consent form. If you decide to take part you are still free to withdraw at any time without giving a reason and without detriment to yourself.

What is the duration of the research?

The research will take place from November 2014 till October 2015.

Where will the research be conducted?

The research will take place at your school. It would be useful if we could have a private place for the interviews and focus groups to ensure confidentiality.

Will the outcomes of the research be published?

The research will be submitted to the University of Manchester as part of the researcher’s thesis for the Doctorate in Child and Educational Psychology. This research may be published.

Disclosure and Barring Service (DBS), previously Criminal Records Check (CRB).

I am currently studying on the Doctorate in Child and Educational Psychology course at The University of Manchester. I have an up to date DBS check. This research will take place in primary schools and will involve direct work with children and discussions with staff regarding certain pupils in that school.

Contact for further information

Researcher:
Kate Lodal  Katherine.Deamer@postgrad.manchester.ac.uk
Academic supervisor:
Caroline Bond  Caroline.Bond@manchester.ac.uk
Second Supervisor:

What if something goes wrong?

Please contact Kate Lodal on the above email address if you require further information and support. If there are any issues regarding this research that you would prefer not to discuss with members of the research team, please contact the Research Practice and Governance Coordinator by either writing to "The Research Practice and Governance Coordinator, Research Office, Christie Building, The University of Manchester, Oxford Road, Manchester M13 9PL", by emailing: Research-Governance@manchester.ac.uk, or by telephoning 0161 275 7583 or 275 8093
An evaluation of the Manchester Motor Skills Programme

CONSENT FORM

If you are happy to participate please complete and sign the consent form below

1. I confirm that I have read the attached information sheet on the above study and have had the opportunity to consider the information and ask questions and had these answered satisfactorily.

2. I understand that my participation in the study is voluntary and that I am free to withdraw at any time without giving a reason.

3. I understand that the interviews will be audio recorded

4. I agree to the use of anonymous quotes

5. I agree that any data collected may be passed to other researchers

I agree that any data collected may be published in anonymous form in academic books or journals.

I agree to take part in the above project

Name of participant: ___________________________  Date: ________________

Name of person giving consent: ___________________________
Appendix 21 (Paper 2) Ethical approval application regarding changes made during research

RESEARCH RISK AND ETHICS ASSESSMENT

Manchester Institute of Education, University of Manchester

The Manchester Institute of Education is committed to developing and supporting the highest standards of research in education and its associated fields. The Research Risk and Ethics Assessment (RREA) resource has been created in order to maintain these high academic standards and associated codes of good research practice. The research portfolio within the Manchester Institute of Education (MIE) covers a wide range of fields and perspectives. Research within each of these areas places responsibilities of a differing nature on supervisors and students subject to course, level, focus and participants. The aim of the Research Risk and Ethics Assessment is to assist supervisors and students in assessing these factors.

The Manchester Institute of Education has determined three levels of Research Risk each of which has a number of associated criteria and have implications for the degree of ethical review required. In general, the research risk level is considered to be:

- **High** IF the research focuses on groups within society in need of special support, or where it may be non-standard, or if there is a possibility the research may be contentious in one or more ways.
- **Medium** IF the research follows standard procedures and established research methodologies and is considered non-contentious.
- **Low** IF the research is of a routine nature and is considered non-contentious.

Agreement to proceed with research at each of these levels is provided by an appropriate University Research Ethics Committee, a MIE Research Integrity Committee member, or by the supervisor/tutor respectively.

How to complete the Research Risk and Ethics Assessment (RREA) form. This form should be completed, in consultation with the MIE Ethical Practice Policy Guidelines, by Manchester Institute of Education students and their supervisors in all cases, except where a pre-approved assignment template currently exists. A separate Fieldwork Risk Assessment form must be completed as indicated in this RREA, in order to plan how safety issues will be responded to during fieldwork visits. The Fieldwork Risk Assessment form is available on the MIE ethics intranet. For all projects where this does not apply, a LOW Risk Fieldwork Declaration (Section D) must be completed. Instructions on this and subsequent stages of the RREA process are provided at the end of each following sections.

There are six main sections to this document, with three additional sections for UG/PGT research, PGR Pilots or Prof Doc Research Papers seeking ethical approval for LOW risk studies from a supervisor/tutor: ANY student

- Section A – Summary of Research Proposal (page 1)
- Section B – Description of Research (page 2)
- Sections C.0-C.1 – Criteria for HIGH risk research (page 4)
- Section C.2 – Criteria for MEDIUM risk research (page 6)
- Section C.3 – Criteria for LOW risk research (page 8)

Where indicate

- Section D – LOW risk Fieldwork Declaration (page 9)

LOW Risk UG/PGT/PGR Pilot/Prof Doc Research Papers only

- Section E.1 – Criteria for LOW risk ethical approval (page 11)

Supervisors and tutor approvals of LOW risk student research

- Section E.2 – Supervisor confirmation that research matches LOW risk criteria (page 12)
- Section E.3 – Minor Amendments to LOW risk study and supervisor approval (page 13)

It may be appropriate for supervisors and students to review and discuss responses to these questions together.

A reasonable person would agree that the study includes no issues of public or private objection, or of a sensitive nature.

http://www.education.manchester.ac.uk/intranet/ethics/

For courses with approved templates see: http://www.education.manchester.ac.uk/intranet/ethics
# RESEARCH RISK AND ETHICS ASSESSMENT

Manchester Institute of Education, University of Manchester

To be completed by AEF administrator

## SECTION A - SUMMARY OF RESEARCH PROPOSAL

This section should be completed by the person undertaking the research.

<table>
<thead>
<tr>
<th>A1. Name of Person/Student:</th>
<th>Katherine Lodal</th>
</tr>
</thead>
<tbody>
<tr>
<td>A2. Student ID (quoted on library/swipe card):</td>
<td>5767681</td>
</tr>
<tr>
<td>A3. Email Address:</td>
<td><a href="mailto:Katherine.Deamer@postgrad.manchester.ac.uk">Katherine.Deamer@postgrad.manchester.ac.uk</a></td>
</tr>
<tr>
<td>A4. Name of Supervisor:</td>
<td>Caroline Bond</td>
</tr>
<tr>
<td>A5. Supervisor email address &amp; contact phone no.:</td>
<td><a href="mailto:Caroline.Bond@manchester.ac.uk">Caroline.Bond@manchester.ac.uk</a></td>
</tr>
<tr>
<td>A6. Programme (PhD, ProfDoc, MEd, PGCE, MSc, BA etc):</td>
<td>ProfDoc</td>
</tr>
<tr>
<td>A7. Year of Study</td>
<td>2</td>
</tr>
<tr>
<td>A8. Full/Part-time</td>
<td>FT</td>
</tr>
<tr>
<td>A9. Course Code</td>
<td>EDUC</td>
</tr>
<tr>
<td>A11. Participant Recruitment Start Date:</td>
<td>On confirmation of ethical approval</td>
</tr>
<tr>
<td>A12. Project Submission Date:</td>
<td>July 2015</td>
</tr>
<tr>
<td>A13. Proposed Fieldwork Start Date:</td>
<td>July 2015</td>
</tr>
<tr>
<td>A14. Location(s) where the project will be carried out:</td>
<td>1 x Primary School</td>
</tr>
<tr>
<td>A15. Student Signature:</td>
<td>On hard copy</td>
</tr>
</tbody>
</table>

The following section to be completed by the SUPERVISOR

<table>
<thead>
<tr>
<th>A15. Assessed Risk Level</th>
<th>* Low</th>
<th>Medium</th>
<th>High</th>
<th>NRES reqd.</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>A16. Supervisor Signature</th>
<th>Caroline Bond</th>
</tr>
</thead>
<tbody>
<tr>
<td>A17. Date</td>
<td>May 2015</td>
</tr>
</tbody>
</table>
SECTION B – DESCRIPTION OF RESEARCH
This section should be completed by the person undertaking the research.

B1. Provide an outline description of the planned research (250 words max).

**Principle Research Question(s):**

RQ1 What impact does the MMSP have on children’s motor skills?
RQ2 What impact does the MMSP have on children’s social skills, self-concept and academic outcomes?
RQ3 What are the facilitators and barriers to effective implementation of the MMSP?

**Academic justification:**

This study will look at the effectiveness of the MMSP with KS2 children at one Primary School, with the intention of evaluating implementation issues in order to highlight facilitators and barriers specific to the school contexts and more generally facilitators and barriers to the MMSP. The study will be an evaluation of how the programme works in the real world.

This study will offer a robust evaluation of the effectiveness of the MMSP on motor skills development by using an external motor skills measure, the Movement Assessment Battery for Children (M-ABC) Henderson and Sugden (1992). This will avoid some of the potential difficulties experienced by Bond (2011) when using the Manchester Motor Skills Assessment (MMSA) tool.

The emphasis of the MMSP sessions, is very much upon self-esteem building and collaboration’ (Bond. 2011:146) however, to date there have been no evaluations of the impact that the MMSP can have on wider outcomes i.e. self-esteem and social skills. Bond (2013) also states “as researchers we need to show the link between our motor skills interventions and impact on broader outcomes e.g. academic and social/mental health outcomes”. (Slide 5:2013). This study will attempt to use a wide range of measures to tease out the impact the MMSP can have on motor skills, social skills, self-esteem and academic outcomes.

B2. The principal research methods and methodologies are (250 words max):

**Project Design:**
The study will be a mixed methods process exploratory evaluation of the Manchester Motor Skills Programme with regards to its impact on motor skills, social skills and self-concept. The study will focus on the impact of the MMSP on improving motor skills, academic outcomes, social skills and self-esteem.

The research will involve 1 group of pupils from a mainstream primary school. The MMSP will run for 8 – 12 weeks depending on the amount of time available each week for the intervention and will include 5-6 children from Y4 or Y5, who have been highlighted as having some difficulty with their gross or fine motor skills.

**Data Collection Methods:**

Assessment data
- SSIS rating scales, parents, teacher and child (pre and post intervention at a 3 month follow up)
- M-ABC (2) assessment – child (pre and post intervention at a 3 month follow up)
- BECKS YI- SC scale – child (pre and post intervention at a 3 month follow up)
- Focus group - children
- Semi-structured interviews – parents and staff
- Research dairy

Additional Request
- Semi-structured interview – class teacher
Sampling:
1 primary school will be chosen that are interested in developing their support for children with motor skills difficulties. The school will choose 5-6 pupils in KS2 (Years 4 & 5) that have some degree of motor difficulties.

Method(s) of Analysis:
Research diary – documentary analysis if required
Interviews and Focus groups – Thematic Analysis (Braun and Clarke’s (2006) 6 stage model)

NB: If your research methods include collection of image or video data, you must complete the VASTRE document (regardless of research risk).

B3. Please indicate which of the following groups are expected to participate in this research:

- Children under 16, other than those in school, youth club, or other accredited organisations.
- Adults with learning difficulties, other than those in familiar, supportive environments.
- Adults who are unable to self-consent
- Adults with mental illness/terminal illness/dementia/residential care home
- Adults or children in emergency situations
- Those who could be considered to have a particularly dependent relationship with the researcher
- Prisoners
- Young Offenders
- Other vulnerable groups (please detail)

OR

* None of the above groups are involved in this study

B4. Number of expected research participants. 1 additional

B5. Will you conduct fieldwork visits?

Yes

Complete either the Declaration in Section D1 or the Fieldwork Risk Assessment (FRA) form if indicated in your RREA by criteria marked by an asterisk.

No

Complete the Declaration in Section D2

---

4 The person with learning difficulties has appropriate support within the setting from accredited support workers or family members.
B6. The research will take place (tick all that apply):

- [ ] within the UK
- [ ] within the researcher’s home\(^5\) country if outside the UK
- [x] wholly or partly outside the UK and not in the home country of the researcher\(^*\)

\(^*\) You must complete a separate Fieldwork Risk Assessment form

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\(^5\) The researcher’s ‘home country’ is defined as one in which (1) the researcher holds a current passport through birthright or foreign birth registration, (2) a country where the researcher has resident status, or (3) where the researcher holds a permit or visa to work, has a contract of employment, and is not a UK tax-payer.
SECTION C – RESEARCH RISK ASSESSMENT

The following sections should be completed by the person undertaking the research in discussion with their supervisor/tutor.

C.0 – Criteria for research classified as HIGH RISK – National Research Evaluation Service

- The study involves primary research with adults who are unable to self consent
- The study involves primary research with NHS patients
- The study involves primary research with prisoners/young offenders

Students - If any of these options apply, you should complete an NRES application. See your supervisor for further guidance.

Supervisors – Forward this RREA form to ethics.education@manchester.ac.uk when you are satisfied that the project requires approval through the Integrated Research Application Service (IRAS).

C.1 – Criteria for research classified as HIGH RISK (tick any that apply)

I/we confirm that this research:

- involves vulnerable or potentially vulnerable individuals or groups as indicated in B3
- addresses themes or issues in respect of participant’s personal experience which may be of a sensitive nature (i.e. the research has the potential to create a degree of discomfort or anxiety amongst one or more participants)
- cannot be completed without data collection or associated activities which place the researcher and/or participants at personal risk*
- requires participant informed consent and/or withdrawal procedures which are not consistent with accepted practice
- addresses an area where access to personal records (e.g. medical), in collaboration with an authorised person, is not possible
- involves primary data collection on an area of public or social objection (e.g. terrorism, paedophilia)
- makes use of video or other images captured by the researcher, and/or research study participants, where the researcher cannot guarantee controlled access to authorised viewing.
- will involve direct contact with participants in countries on the Foreign and Commonwealth Office warning list6 *
- involves face to face contact with research participants outside normal working hours7 that may be seen as unsocial or inconvenient*

---


7
**A. PGR research / PGR Pilots**

If ONE OR MORE of the **HIGH risk** criteria have been selected **ethical approval must be sought from a UREC committee**. The person undertaking the research and their supervisor should agree this risk assessment and submit:

- Completed RREA form
- Completed the UREC form.
- Completed Fieldwork Risk Assessment form where indicated
- Supporting documents

**B. PGT/ UG research not reviewing/evaluating professional roles or practice**

If ONE OR MORE of the **HIGH risk** criteria have been selected **ethical approval must be sought from a UREC committee**. The supervisor and person undertaking the research should agree this risk assessment and submit:

- Completed RREA form
- Completed the UREC form.
- Completed Fieldwork Risk Assessment form where indicated
- Supporting documents

**C. PGT or UG research reviewing / evaluating professional roles or practice**

If ONE OR MORE of the **HIGH risk** criteria have been selected **ethical approval must be sought from the Manchester Institute of Education (MIE) Research Integrity Committee (RIC)**. The supervisor and student agree this risk assessment and submit:

- Completed RREA form
- Completed MIE Ethical Approval Application form
- Completed Fieldwork Risk Assessment form where indicated
- Supporting documents

**NB:** ‘Supporting documents’ include recruitment adverts/emails, draft questionnaires / interview topic guides, information sheets and consent forms.

**The documents listed above should be submitted to:**

A. Mrs. Debbie Kubiena, Room B3.10 along with your PhD Research Plan for consideration at the PhD/Prof Doctorate Review Panel.

B. The Administrator for Ethics and Fieldwork (AEF) via Ethics.Education@manchester.ac.uk by your supervisor. In doing so, supervisors confirm that they have agreed the assessed risk level and that the documents are complete and correct. The AEF will arrange authorisation for your documents to be submitted to UREC.

---

7 For example, in the UK, normal working hours are between 8am-6pm, Mon-Fri inclusive.
C. The Administrator for Ethics and Fieldwork (AEF) via Ethics.Education@manchester.ac.uk by your supervisor. In doing so, supervisors confirm that they have agreed the assessed risk level and that the documents are complete and correct. The AEF will forward your completed documents to a member of the MIE RIC committee for approval.

*If no HIGH risk items are ticked supervisors and students should continue to section C.2 on the next page*
C.2 – Criteria for research classified as MEDIUM RISK (tick any that apply)

I/we confirm that this research:

- is primary research involving children or other vulnerable groups which involves direct contact with participants.
- study is on a subject that a reasonable person would agree addresses issues of legitimate interest, where there is a possibility that the topic may result in distress or upset in rare instances.
- is primary research which involves substantial direct contact with adults in non-professional roles*
- is primary research which focuses on data collection from professionals responding to questions outside of their professional concerns.
- is primary research involving data collection from participants outside of the EU or the researcher’s home country via direct telephone, video, or other linked communications.
- is practice review/evaluation involving topics of a sensitive nature which are not personal to the participants.
- involves visits to site(s) where a specific risk to participants and/or the researcher has been identified, and the researcher may not be closely supervised throughout*
- requires specific training and this is scheduled to be completed before fieldwork starts, or, training will not be undertaken but the research will be closely supervised by an academic advisor with appropriate qualifications and skills.
- requires vaccinations which have been received, or are scheduled to be received in a timely fashion*
- requires face to face contact with research participants partly outside normal working hours that may be seen as inconvenient*.
- takes place in, or involves transport to and from, locations where the researcher’s lack of familiarity may put them at personal risk*
- may require the operation of machinery, electrical equipment, or workplace vehicles, or handling or working with animals at the research location(s), for which they are not qualified, but such operation or handling will be undertaken under close supervision from a qualified operative or handler*

* IF YOU HAVE TICKED these MEDIUM risk criteria you must also complete a separate Fieldwork Risk Assessment form

* IF YOU HAVE ONLY TICKED MEDIUM risk criteria NOT marked (*) you MUST also complete the LOW Fieldwork Risk Declaration on page 9 of this form

---

8 This does not include research in locations where children are present if they are not the focus of the research.
9 For example in focus group or one to one interview in private locations, and not ‘market research’ which is characterised by brief interaction with randomly selected individuals in public locations.
10 In the UK normal working hours are between 8am-6pm, Mon-Fri inclusive.
If ONE OR MORE of the **MEDIUM risk** criteria have been selected, ethical approval must be sought from the Manchester Institute of Education (MIE) Research Integrity Committee (RIC) and so you should complete the MIE Ethical Approval Application form (available on the Manchester Institute of Education Ethics Intranet).

The supervisor and student should agree this RREA assessment and submit:

- Completed RREA form
- Completed Manchester Institute of Education Ethical Approval Application form
- Completed Fieldwork Risk Assessment form where indicated
- Supporting documents.

**NB:** ‘Supporting documents’ include recruitment adverts/emails, draft questionnaires / interview topic guides, information sheets and consent forms.

**Document should be submitted for review as indicated below:**

**A. PGR Thesis** - Mrs. Debbie Kubiena, Room B3.10 along with your PhD Research Plan for consideration at the PhD/Prof Doctorate Review Panel.

**B. All other cases** - to the Administrator for Ethics and Fieldwork (AEF) via Ethics.Education@manchester.ac.uk by your supervisor. In doing so, supervisors confirm that they have agreed the assessed risk level and that the documents are complete and correct. The AEF will forward your completed documents to a member of the MIE RIC committee for approval.

If none of the **HIGH or MEDIUM risk criteria have been ticked, supervisors and students should continue to section C3 on the next page**

---

11 This document and guidance for completion can be downloaded from http://www.education.manchester.ac.uk/intranet/ethics
C3 – Criteria for research classified as LOW RISK

C 3.1  NO human participants
I/we confirm that this research (tick as appropriate):

* is not of high nor medium risk to the researcher, in accordance with the criteria provided in sections C.1  and C.2 respectively.

is Secondary research (i.e. it will use material that has already been published or is in the public domain).

is Secondary data analysis (i.e. it will involve data from an established data archive)

If you have ticked one of the options in C3.1 above, and C3.2 does not apply, you should now complete section C3.3 ⇒

C3.2  Human participants
I/we confirm that this research (tick as appropriate):

* is not of high nor medium risk to the researcher, or participants, in accordance with the criteria provided in sections C.0, C.1 and C.2 respectively.

* A reasonable person would agree that the study addresses issues of legitimate interest without being in any way likely to inflame opinion or cause distress

is Practice review (i.e. the research involves data collection from participants on issues relating to the researcher’s professional role, in a setting where the researcher is employed or on a professional placement)

is Practice evaluation (i.e. the research involves data collection on a student’s professional role, in a setting where the researcher is employed or on a professional placement. The data collected will be used for comparison against national or other targets or standards).

is Primary research on professional practice with participants in professional roles conducted in their work setting.

is Market research (i.e. the research may involve data collection from the general public approached or observed in public locations for the purposes of market investigation).

is Primary research using a questionnaire completed and returned by participants with no direct contact with the researcher.

is part of a research methods course and participant groups are limited to peers, colleagues, family members and friends.

is a Pilot Study

12 A reasonable person would agree that the study includes no issues of public or private objection, or of a sensitive nature.
C 3.3 Research context
I/we confirm (tick as appropriate):

* the location(s) of the research are not listed on the Foreign and Commonwealth Office warning lists\(^\text{13}\)

* the researcher is not in a position to coerce potential participants/secondary data owners

* Primary or practice research involves no vulnerable group (as indicated in question B3).

* Primary or practice research will be conducted in a public space or building (e.g. the high street, the University campus, a school building, etc)

---

D. LOW Risk Fieldwork Declaration

Students not directed to complete the separate Fieldwork Risk Assessment in Section C should tick the items in D.1 or D.2 to confirm the LOW risk nature of their fieldwork visits. Then sign the Declaration in D.3

D.1 Fieldwork visits (If you will not make any fieldwork visits, tick the alternative items in D.2 below.)
I/we confirm:

* the researcher will not travel outside the UK or their home nation.

* the fieldwork does not require overnight stays in hotels or other types of public temporary accommodation.

* public and private travel to and from the research location(s) are familiar to the researcher and offer no discernable risk.

* the researcher will not travel through, or work in research locations which may have unlit areas, derelict areas, cliffs, or local endemic diseases

* the researcher will carry only necessary personal items when travelling to, and within, research locations.

* no specific vaccinations are required to undertake this research

* first aid provision and a trained first aider are available where appropriate

* the researcher will only operate machinery, electrical equipment, or workplace vehicles, or handle or work with animals at the research location(s) if they are qualified to do so

* the fieldwork will be carried out within normal working hours\(^\text{14}\) at a time convenient to participants.

* the researcher will not give out personal telephone information to participants, or owners of secondary data resources, in relation to the research project

---


\(^{14}\) For example, in the UK normal working hours are between 8am and 6pm Mon-Fri inclusive.
the researcher is fully aware of and sensitive to cultural and religious practices of participant groups, and will act accordingly.

* primary or practice research will not involve fieldwork visits to private homes.

* the researcher will provide a regularly updated fieldwork visit schedule to a nominated University contact.

* the researcher will carry a Manchester Institute of Education Emergency Contact Information Card during all fieldwork visits.

If you are unable to tick all items above, you must complete a separate Fieldwork Risk Assessment form.

**D.3 Researcher Declaration:**

* this research does not involve fieldwork visits of any kind

* the researcher will not give out personal telephone information to participants, or owners of secondary data resources, in relation to the research project

---

**D.2 No Fieldwork visits**

I/we confirm:
By signing this completed document, I declare that the information in it is accurate to the best of my knowledge and that I will complete any actions that I have indicated I will complete.

Signature: on hard copy Date 13.07.15
Name (in capitals): KATHERINE LODAL Student ID: 5767681

PGR Panel Students ONLY

If ONE OR MORE of the LOW risk criteria above have been selected, ethical approval must be sought from the Manchester Institute of Education Research Integrity Committee. The supervisor and student should agree this research risk assessment and submit:

- Completed RREA form
- Completed the Manchester Institute of Education Ethical Approval Application form 15.
- Completed Fieldwork Risk Assessment form where indicated
- Supporting documents

NB: ‘Supporting documents’ include recruitment adverts/emails, draft questionnaires / interview topic guides, information sheets and consent forms.
Documents should be submitted to:

Mrs. Debbie Kubiena, Room B3.10 along with your PhD Research Plan for consideration at the PhD/Prof Doctorate Review Panel.

⇒ UG, PGT, PGR Pilot studies, PROF DOC Research Papers involving ONLY LOW RISK CRITERIA
⇒ Go to Section E.1 page 11

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15 This document and guidance for completion can downloaded from http://www.education.manchester.ac.uk/intranet/ethics
SECTION E  
UG/PGT/PGR Pilot/PROF DOC Papers

Ethical Approval Application for LOW risk research

Section E.1 to be completed by students. Section E.2 to be completed by supervisors/tutors

E. 1  Research ethics criteria

Tick as appropriate and/or indicate NA against items in bold where they do not apply to this research.

I/we confirm:

**Codes of Practice**

- I/we have read and understood the Manchester Institute of Education Ethical Practice and Policy Guidelines
- the researcher will abide by the Manchester Institute of Education’s Ethical Protocol detailed therein
- the researcher is aware of and will abide by any organisation’s codes of conduct relevant to this research

**Researcher skills/checks**

- all necessary training procedures for this research have been completed
- all appropriate permissions have been obtained to use any database or resource to be analysed in Secondary research
- all relevant enhanced DBS or other checks have been completed
- I will inform the AEF if my DBS (or related) status changes
- written permission to be on the site to conduct primary research has been received

**Rights of participants**

- participant information sheets (PIS), consent forms, questionnaires, and all other documentation relevant to this research have been discussed with supervisor/tutor named in A.5
- PIS and consent forms have been confirmed by the supervisor named in A.5, as covering required headings illustrated in the MIE Participant Information and consent templates, AND as accessible to proposed participant groups.
- the researcher understands the Data Protection Act and the University Data Protection Policy and all data will be handled confidentially and securely, including storage on encrypted devices.
Research Integrity

* no data will be collected before approval of the study by the supervisor/tutor

* the student researcher will immediately report any issues arising during the course of the study that conflict with the Manchester Institute of Education protocol, to the supervisor who has signed the ethics approval and suspend data collection pending advice from that supervisor/tutor

* the researcher will report any proposed deviation from the research specification outlined in this assessment to the supervisor/tutor to update the current assessment or clarify any need for further approvals BEFORE such changes are made

Research output

* the only publication/output from this research will be the assignment or dissertation unless consent has been obtained from participants for further dissemination

E.2 Supervisor confirmation that research matches LOW risk criteria above.

When satisfied that the assessment is correct, supervisors should complete this section.

For ‘low risk’ research approval relevant items in bold must be ticked or marked as NA if not applicable to this research and one or more of the specific research criteria as appropriate

The supervisor confirms:

The submission has been discussed and agreed with the person(s) undertaking the research.

The student has had appropriate training and has the skills to undertake this study, or has qualified supervision in place.

The research activities outlined in the proposal involve no substantive risks to the student researcher or potential participants.

AND one or more of the following as appropriate:

Primary or Practice research will not address issues of public or social objection or of a sensitive nature.

Information giving and consent taking processes follow Manchester Institute of Education guidance.

Where fieldwork visits do not correspond to all items in the LOW Risk Fieldwork Declaration, a separate Fieldwork Risk Assessment form has been completed and approved.
Secondary research assignment/project has appropriate resource or database access permissions.

They will act as custodian for data used for any study that results in a publication (Masters dissertation or otherwise) and will arrange for archiving of data within the Manchester Institute for a minimum period of 5 years.

I confirm that the proposed research matches low risk criteria and that the documents supplied are complete and correct. I submit the items below in support of this Low Risk Ethical Approval:

<table>
<thead>
<tr>
<th>Submitted</th>
<th>NA</th>
<th>Document</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Completed RREA form</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Completed Fieldwork Risk Assessment form where indicated</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Student research proposal, or equivalent, on which the assessment is based (^{16})</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Supporting documents including:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Draft questionnaire/interview topic guide/other data collection tool</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Recruitment email/advertisement</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Information sheet for each participant group</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Consent form (or alternative) for each participant group</td>
</tr>
</tbody>
</table>

Documents should be submitted electronically for archiving and audit purposes, to the Administrator for Ethics and Fieldwork (AEF) via Ethics.Education@manchester.ac.uk by the supervisor. The AEF can only provide formal confirmation of ethical approval via email to both student and supervisor when a complete set of documents are supplied. Copies of all documents should be retained by the supervisor.

E.3 Amendments to proposed research design for LOW risk research

Any minor\(^{17}\) amendment to low risk approved research submissions should be recorded and signed-off by the supervisor as necessary below. Substantial changes to research will require a reassessment and revised ethical approvals. A revised copy of the RREA showing the approved amendments, and any amended supporting documents, should be forwarded electronically to The QA administrator via

\(^{16}\) For audit purposes, a person unfamiliar with the research outlined in Section B must be able to ascertain the full details of the student project from this RREA form and/or supporting documents appended.

\(^{17}\) Minor amendments are those that do not alter the character of the research or the participant groups.
To be completed if/when applicable:

<table>
<thead>
<tr>
<th>Minor amendment to assessed research agreed (1):</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Details of amendment</strong></td>
</tr>
<tr>
<td>This section will record any applications made during the life time of the Project regarding minor changes from what was approved. I am requesting ethical approval to carry out one additional semi-structured interview with the class teacher of the children involved in the study. The class teacher has shown an interest in offering her views of the MMSP and its impact on the children in the class. Being able to gain the teacher’s views could provide valuable information on the effectiveness of the MMSP. This additional request is of low risk and as such this RREA form has been completed. RREA and MIE forms were completed and ethical approval has already been granted for the research.</td>
</tr>
<tr>
<td>Please see attached amended participation information sheet and class teacher semi-structured interview questions. (See appendix 11 of thesis)</td>
</tr>
<tr>
<td>Supervisor’s signature: [Signature] Date: July 2015</td>
</tr>
</tbody>
</table>

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18 Minor deviations from previously approved research submissions are defined as those which neither change the nature of the study nor deviate from any participatory research groups previously identified. Supervisors should contact a member of the MIE Research Integrity Committee for advice if in doubt.
Appendix 22 (Paper 1 and 2) Publisher guidelines for Educational Psychology in Practice

Advice to authors on preparing a manuscript

NB: Please follow any specific instructions for authors provided by the Editor of the journal

Font: Times New Roman, 12 point. Use margins of at least 2.5 cm (1 inch). Further details of how to insert special characters, accents and diacritics are available here.

Title: Use bold for your article title, with an initial capital letter for any proper nouns.

Authors’ names: Give the names of all contributing authors on the title page exactly as you wish them to appear in the published article.

Affiliations: List the affiliation of each author (department, university, city, country).

Correspondence details: Please provide an institutional email address for the corresponding author. Full postal details are also needed by the publisher, but will not necessarily be published.

Anonymity for peer review: Ensure your identity and that of your co-authors is not revealed in the text of your article or in your manuscript files when submitting the manuscript for review. Advice on anonymizing your manuscript is available here.

Abstract: Indicate the abstract paragraph with a heading or by reducing the font size. Advice on writing abstracts is available here.

Keywords: Please provide five or six keywords to help readers find your article. Advice on selecting suitable keywords is available here.

Headings: Please indicate the level of the section headings in your article:

- First-level headings (e.g. Introduction, Conclusion) should be in bold, with an initial capital letter for any proper nouns.
- Second-level headings should be in bold italics, with an initial capital letter for any proper nouns.
- Third-level headings should be in italics, with an initial capital letter for any proper nouns.
- Fourth-level headings should also be in italics, at the beginning of a paragraph. The text follows immediately after a full stop (full point) or other punctuation mark.

Tables and figures: Indicate in the text where the tables and figures should appear, for example by inserting [Table 1 near here]. The actual tables and figures should be supplied either at the end of the text or in a separate file as requested by the Editor. Ensure you have permission to use any figures you are reproducing from another source. Advice on artwork is available here. Advice on tables is available here.

Running heads and received dates are not required when submitting a manuscript for review.

If your article is accepted for publication, it will be copy-edited and typeset in the correct style for the journal.

If you have any queries, please contact us at authorqueries@tandf.co.uk, mentioning the full title of the journal you are interested in, or see our Author Services homepage.
Appendix 23 (Paper 2 and 3) Explanation of CIPP evaluation model

CIPP Evaluation Model

The Joint Committee (1994) defines evaluations as ‘the systematic assessment of the worth and merit of an object’ (1994:3). Stufflebeam and Coryn (2014) extend this definition to ‘the systematic assessment of an object’s merit, worth, probity, feasibility, safety, significance, and/or equity’ (2014:11).

The CIPP evaluation model is a comprehensive framework for conducting formative and summative evaluations of programmes, projects, products, organisations, policies and evaluation systems (Stufflebeam and Coryn, 2014:309). The model has been adapted for application by a wide range of users, including evaluators, researchers, developers, policy group leaders and laypersons. CIPP related evaluation models have been applied in many doctoral thesis at over eighty universities across more than thirty disciplines. Stufflebeam and Coryn (2014) report that over fifty five published studies in a variety of fields including education and psychology have used the CIPP evaluation model.

CIPP is an acronym that represents the CIPP model’s four core types of evaluation: context; input; process and product.

Key components of the CIPP Evaluation Model and Associated Relationships with programmes.

All four evaluation models share the same core values. The core values underpinning the CIPP evaluation model are defined by such criteria as: merit, worth, probity, equity, feasibility, cost, efficiency, safety and significance.
Core Values

Merit:
In general evaluations need to look at the merit or quality of the evaluand. For example in paper two does the MMSP succeed in improving children’s motor skills? or in more general terms: does a programme do well what it is supposed to do? In paper two the evaluation assessed the merit of the MMSP by looking at scores on the M-ABC2 (from pre to post intervention) and perceived motor skills progress highlighted during the focus group and semi-structured interviews.

Worth:
Stufflebeam and Coryn (2014) highlight that an evaluand that rates high on merit might not be worthy. Worth in their view refers to an evaluand’s combination of excellence and service in an area of clear need within a specified context while considering the costs involved, for example a programme however high in merit is not worthwhile if there is not a need for the programme in the first place. In paper two the need for the MMSP was assessed by the initial M-ABC2 scores.

Probity:
Does the evaluation address considerations of probity: assessment of honesty, integrity and ethical behaviour. The evaluation in paper two has limited opportunities for the prospect of fraud or illicit behaviour and the ethical considerations for the research have been considered in the ethics approval requests (see appendix 16 and appendix 21).

Feasibility:
Stufflebeam and Coryn (2014) point out that a programme might be of high quality (merit), directed to an area of high need and ethically sound however it could still fail on the criterion of feasibility, for example it might consume more resources than required. Good evaluations should where appropriate provide direction for making the programme easy to apply, efficient in the use of time and resources and politically and culturally viable. The MMSP is a wave two intervention for use within schools, there is no cost to using the programme and requires only resources which are usually found in schools. The cost in staffing time is not above or beyond that usually required for wave two interventions, as such the MMSP is considered to have good feasibility, this is discussed more in paper three (pg 72).

Safety:
Many evaluands focus primarily on safety for example, the evaluation of pharmaceutical products, however Stufflebeam and Coryn (2014) argue that the criterion of safety applies to evaluations in all fields and to evaluations of programmes as well as products and services. The criterion of safety has not been included as part of the evaluation in paper two as the activities completed during the MMSP do not go beyond those normally completed during the school day and as such safety implications can be considered in line with normal school health and safety procedures.

Significance:
Stufflebeam and Coryn (2014) refer to an evaluand’s significance as its potential influence, importance and visibility. Assessment of significance can be particularly
important in deciding how far to disseminate lessons learnt and in helping interested parties make sound decisions concerning adoption, adaptation and/or dissemination. The significance of the MMSP is considered in both paper two (with regards to possible intended and unintended outcomes of the MMSP) and paper three (where a discussion of the dissemination of the research is considered in more depth).

**Equity:**
Stufflebeam and Coryn (2014) suggest that equity argues for equal opportunities for all people and that equity in the broadest sense is an important criterion for all evaluations that involve delivering programmes to groups of people. The current evaluation included a small sample of boys with varying degrees of motor difficulty, some had special educational needs and disabilities and they came from varying ethnic backgrounds, within these parameters the children all made progress with their motor skills while participating in the MMSP although the progress was variable. The evaluation highlights that the MMSP is equitable for the chosen sample however judgements beyond this sample can not be made for example the equity of the programme for females can not be judged.

**CIPP Evaluation models**

**Context Evaluations**
A context evaluation is employed to assess needs, problems, assets and opportunities within a defined environment. Stufflebeam and Coryn (2014) highlight that context evaluations are often referred to as needs assessments however they feel that this term is too narrow as it focuses on the needs and neglects to evaluate concerns regarding problems, assets and opportunities. Stufflebeam and Coryn (2014) highlight that all four elements should be considered in context evaluations.

**Input Evaluation**
An input evaluation’s main orientation is towards helping prescribe a programme approach by which to make needed changes. It can help settings to identify an appropriate intervention, using context, literature and expert or stakeholder views. An input evaluation can help decision makers by examining alternative programme strategies for addressing assessed needs of targeted beneficiaries, create workable programmes and avoid wasteful practices.

**Process Evaluation**
A process evaluation includes an ongoing check on a plan’s implementation and documentation of the processes. One objective of a process evaluation is to provide information on the extent to which stakeholders are carrying out planned activities on schedule, as planned, budgeted and efficiently. Process evaluations can describe implementation problems and assess how well the staff have addressed them.

**Product Evaluation**
The purpose of a product evaluation is to measure, interpret and judge a programmes’ outcomes. Its main objective is to ascertain the extent to which the evaluated programme meets the needs of all the rightful beneficiaries, in paper two this refers to the pupils in the study.
Product evaluations should assess intended and unintended outcomes and positive and negative outcomes. They often extend to assess long term outcomes however for the evaluation discussed in paper two this has not been possible due to the scope of the research and time limitations. Stufflebeam and Coryn (2014) highlight that while conducting a product evaluation the evaluator should gather and analyse stakeholder’s judgments of the programme. Where appropriate evaluators should interpret whether poor implementation caused poor outcomes. Implementation was considered during the evaluation in paper two through the use of observations of sessions, scrutiny of session plans and through the analysis of data from the semi-structured interviews. Implementation issues are discussed in paper two and paper three.

Many methods can be used during a product evaluation although Stufflebeam and Coryn (2014) recommend that evaluators use a combination of techniques as this can aid them in making a comprehensive search for outcomes and helps to cross check the findings. To evaluate unintended outcomes, both positive and negative, the evaluator might conduct group interviews to generate ideas and hypotheses about the full range of outcomes. In paper two, focus groups and semi-structured interviews were used to explore positive and negative unintended outcomes of participating in the MMSP. Stufflebeam and Coryn (2014) also highlight that evaluators might use quantitative measures to assess intended outcomes (in paper two motor skills were measured using the M-ABC2) and to assess other possible outcomes (for example in paper two quantitative measures were used to assess social skills, academic progress, problem behaviour and self-esteem). Information from post intervention focus groups and semi-structured interviews can guide future evaluations.

Stufflebeam and Coryn (2014) state that reporting product evaluations can be done at different stages of the programme and that reports can be provided to sub-groups and individuals. Please see paper three for a discussion of the dissemination of the findings from paper two.

References:


Appendix 24 (Paper 2) Data gathering methods and analysis techniques linked to elements of a product evaluation

Data gathering methods and analysis which link to aspects of a product evaluation.

<table>
<thead>
<tr>
<th>Data gathering techniques</th>
<th>Data analysis techniques</th>
<th>Element of product evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Focus group with pupils</td>
<td>Thematic analysis</td>
<td>To assess worth</td>
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<td></td>
<td></td>
<td>To explore intended, unintended, positive and negative outcomes</td>
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<td></td>
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<td>To assess merit</td>
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<td>To assess significance</td>
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<tr>
<td>Teacher interview</td>
<td>Thematic analysis</td>
<td>To assess worth</td>
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<td>To explore intended, unintended, positive and negative outcomes</td>
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<td>To assess merit</td>
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<td>To assess significance</td>
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<tr>
<td>Group leader interview</td>
<td>Thematic analysis</td>
<td>To assess worth</td>
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<tr>
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<td>To explore intended, unintended, positive and negative outcomes</td>
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<tr>
<td></td>
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<td>To assess merit</td>
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<td>To assess significance</td>
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<tr>
<td>M-ABC2 assessment data</td>
<td>Descriptive statistics</td>
<td>To assess worth</td>
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<td></td>
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<td>To explore intended outcomes</td>
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<td>To assess merit</td>
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<td>To assess significance</td>
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<td>BSCY-I</td>
<td>Descriptive statistics</td>
<td>To explore positive, negative unintended outcomes</td>
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<td>To assess significance</td>
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<tr>
<td>SSiS</td>
<td>Descriptive statistics</td>
<td>To explore positive, negative unintended outcomes</td>
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<tr>
<td></td>
<td></td>
<td>To assess significance</td>
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</tbody>
</table>
Appendix 25 (Paper 2) Further information regarding thematic analysis

**Qualitative data analysis:**
The focus group and semi-structured interviews were partially transcribed and analysed using thematic analysis (Braun & Clarke, 2006).

**Thematic analysis:**
The researcher analysed the focus group and semi-structured interviews using thematic analysis. As stated in paper two the data were analysed together as a complete set (Lyons, 2011). This was to avoid one set of data being given more emphasis than another set of data. The researcher felt that it was important that the reader viewed the pupil data as equally valid and important as the adult data.

Whilst conducting the thematic analysis the researcher followed Braun and Clarke (2006) six phase process which is detailed below:

<table>
<thead>
<tr>
<th>Phase one: Familiarising yourself with the data</th>
<th>As the researcher I collected the data myself which meant that I approached the analysis with some prior knowledge of the data. I then familiarised myself further with the data by listening to the audio recordings and then transcribing the data. This enabled me to familiarise myself with the breadth and depth of the data. I then read and re-read the transcriptions noting down initial ideas for coding the text before beginning the formal coding process of phase two.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phase two: Generating initial codes</td>
<td>The formal coding process involved coding features of the data that appeared interesting and organising the data into meaningful groups. The coding was completed manually, with the researcher underlining and annotating key sections of the data by hand (see appendix 12 for a photograph of pages from the focus group and semi-structured interviews). Initial codes were then written onto colour coded paper (see appendix 12 for a photograph of initial codes).</td>
</tr>
<tr>
<td>Phase three: Searching for themes</td>
<td>Next the researcher began the process of sorting the codes out into potential themes. The researcher experimented with combining the codes in different ways to see how they fitted together into themes (see appendix 12 for photographs of codes organised into potential themes). Extracts of the data were then collated relating to the themes.</td>
</tr>
<tr>
<td>Phase four: Reviewing themes</td>
<td>The themes were refined, some were discarded as it was decided that there was not enough data to support them, other themes were collapsed into one another and some themes were broken down further into separate sub-themes.</td>
</tr>
<tr>
<td>Phase five: Defining and naming themes</td>
<td>At this stage in the process, there were discussions with the co-author about the suitability of the themes and some names were reworked. The researcher sought to ensure that each theme had a concise name, which would immediately give the reader a sense of what the theme was about.</td>
</tr>
<tr>
<td>Phase six: Producing the report</td>
<td>This stage is the final opportunity for analysis of the data. Braun and Clarke (2006) state that this phase involves the researcher ‘telling a story of the data in a way which</td>
</tr>
</tbody>
</table>
convinces the reader of the merit and validity of the analysis’ (2006:93). Data extracts are provided in paper two to support the themes (see pages 52 – 55) given the limited word count for this paper the extracts are kept to a few brief examples. The researcher sought to relate the analysis to the research questions.

**Inductive and deductive analysis:**
Braun and Clarke (2006) state that thematic analysis involves a number of choices which are often not made explicit. One such choice is whether to adopt an inductive or deductive approach to the analysis. In inductive analysis, themes are identified in a ‘bottom up’ way (Braun & Clarke, 2006:83) where themes are strongly linked to data and the analysis is not driven by the researcher’s interest in the area or preconceptions regarding the topic under analysis. Deductive or theoretical analysis is a ‘top down’ approach (Braun & Clarke, 2006:83) which is driven by the researcher’s interest and involves coding the data for a specific research question.

The thematic analysis in paper two was undertaken by using both an inductive (Frith & Gleeson, 2004) and deductive (Hayes, 1997) approach. This hybrid approach has been endorsed by Joffe and Yardley, (2004) and Fereday and Muir-Cochrane, (2006). The researcher was looking for factors relating to the specific research question for example what are the intended or unintended, positive or negative outcomes of participating in the MMSP? And does participation in the MMSP have the intended positive outcome on the development of children’s motor skills? However as the product evaluation was exploratory the analysis began as inductive and then fitted into the product evaluation framework later on which acted as an overarching framework, for example the overarching themes of improvements in motor skills (intended outcome) and broader outcomes (unintended outcomes). Specific aspects of the motor programme and individual and school factors emerged during the analysis of the data and inclusion of these factor’s highlighting the mixture of inductive and deductive influences during the analysis (please see themes of implementation and pre-group concerns, appendix 14).

**References:**


Appendix 26 (Paper 2) Thematic analysis example data trail

This appendix will describe the themes identified from the pupil focus group and the semi-structured interviews with the teacher and group leader. Quotations from the original transcripts are provided to support the theme in the main body of paper two and additional quotations are used as examples below to demonstrate the trail from data to codes to themes for the reader.

One hundred and thirty two initial codes emerged from the partial transcription of the focus group and semi-structured interviews. At this stage, a section of the focus group transcript was analysed by an independent researcher and inter-rater reliability was at 87%. These codes were organised into clusters representing similar ideas, resulting in twenty eight organising themes, which were further grouped into four global themes (see appendix 14 for an overview of all four thematic maps).

Example one:

In the example below, the data extracts were coded as ‘still need to improve buttoning skills’

Kate - So Adam feels he has got better at buttoning clothes…
Phil – I’ve not, but I keep practicing at home so that I do get better [coded – still need to improve buttoning skills]
Alan – I’m better at that now.
Yacub – I still find that tricky! (Line 105 focus group transcript) [coded – still need to improve buttoning skills]

After all of the data had been coded, the extracts were grouped together if they had similar meanings. At this stage initial themes began to emerge. In the example above, the code of ‘still need to improve buttoning skills’ was grouped together with other codes to create the initial theme called ‘fine motor skills to be improved’.

Below is another example of coded extracts under this initial theme ‘fine motor skills to be improved’:

Phil – I can’t tie my shoe laces! Well only a bit (Line 12)

Once initial themes had been generated, they were reviewed, re-named and redefined, as necessary. This led to the development of main themes and sub-themes. At this stage in the process, there were discussions with the co-author about the suitability of the themes and some names were reworked. In the example above, the initial theme of ‘fine motor skills to be improved’ was regrouped with ‘gross motor skills to be improved’ and renamed to ‘motor skills which require further support’ this re-grouped and re-named theme remained as a sub-theme within the main overarching theme of ‘improvements in motor skills, intended outcome’.

Some further extracts under the sub-theme of ‘improvements in motor skills, intended outcome’ are below:

Adam - miss I still find that difficult (balancing)
Yacub – miss I don’t know how to do that (balancing) (Line 88 to 89)

Please see the thematic map below to locate the overarching theme and sub-theme discussed above.

**Thematic Map for Theme 2: Improvements in motor skills (intended outcome)**

**Example two:**

In the example below, the data extracts were coded as ‘confidence’.

I found that they all wanted to get better the next time so it’s giving them the confidence, to know that they can do it, (line 121, group leader’s semi-structured interview)

To be honest it might not be what you want to hear but we all noticed more the interaction with others and the improvements in confidence than the specific progress with motor skills. (Extract from class teacher semi-structured interview). [This extract had two codes, confidence and interaction]

Alan, huge difference, huge, huge difference and Phil just in his confidence, it really, really helped him with his confidence (line 29 class teacher’s semi-structured interview).

After all of the data had been coded, the extracts were grouped together if they had similar meanings. At this stage initial themes began to emerge. In the examples above, the code of ‘confidence’ was grouped together with other codes to create the initial theme called ‘confidence’.

Once initial themes had been generated, they were reviewed, re-named and redefined, as necessary. This led to the development of main themes and sub-themes. As highlighted above it was at this stage in the process, that there were discussions with the co-author about the suitability of the themes and some names were reworked. In the example above, the initial theme of ‘confidence’ remained as
a sub-theme within the main overarching theme of ‘broader outcomes’ (unintended positive outcomes).

Please see the thematic map below to locate the overarching theme and sub-theme discussed above.

Thematic Map for Theme 3: Broader outcomes (unintended positive outcomes)