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Abstract

This study aimed to evaluate the use of the DIR/Floortime intervention in a specialist school setting. The participants were 8 primary school children, aged 3-8 years old and 16 teaching and support staff trained in DIR/Floortime. The study adopted a mixed methods design. Quantitative measures included the Functional, Emotional Assessment Scale (FEAS) (Greenspan et al., .2001), and a measure of 'Teacher Competency' designed by the author of this study. Qualitative data was collected via a focus group and analysed via Thematic Analysis. Findings demonstrated significant gains in social and emotional functional behaviours for children with ASD within a specialist school setting. No significant relationship was found between teacher competency in delivering the intervention and children's gains in social and emotional functioning. Teacher /support staff views on delivering the DIR/Floortime intervention are discussed.

An Evaluation of the Use of a DIR/Floortime Intervention Model in a Specialist School Setting.

Laurie Nicole Davies

Doctorate in Educational Psychology (DEdPsy)

2016

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To Kyla Honey for all of her feedback and reassurance that all of this was possible.

Lastly, but not least, to my son Jesse who is a constant tonic, who makes me smile every day and reminds me that life is good.

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Part.1. Major Research Literature Review
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Summary

The perceived increase in prevalence of Autistic Spectrum Disorders and the increased challenges that educating and understanding autistic children poses for schools has highlighted the need for school based interventions for children on the spectrum that focus on improving the understanding of the individual differences of autistic children, a focus on the development of emotional functioning, reducing anxiety and fostering trusting relationships with others.

The shift from predominately behavioural approaches to interventions based in developmental psychology have required exploration into their effectiveness in developing the above skills in children and also exploration of how well these interventions can be incorporated into schools.

It has been highlighted that future work into the effectiveness of interventions needs to focus on strengthening the school-research partnerships to ensure that the research is relevant to the setting in which is to be used (Costley et al., 2014). According to educationally based research, teacher participation has been shown to mediate the outcome of interventions, therefore research models exploring interventions used in schools should aim to include both teacher participation and contextual predictors of teacher participation (Arnold et al., 2012).

The aim of this particular research project is to explore specifically the use of DIR/Floortime in schools. As seen in the literature DIR/Floortime has mainly been evaluated in relation to parental training and its use in the family home. To date, there does not appear to be literature exploring the efficacy of the use of DIR/Floortime in schools, despite evidence to suggest that teachers and professionals trained in specific areas of need and interventions can have a positive impact on children's behaviour and development (Parsons, 2011).

This pilot study intends to capitalise on the ‘gap’ in the literature identified above by taking a critical realist position in answering the question of ‘whether or not a school based DIR/Floortime intervention can help support and develop the Functional Emotional capacity of children with Autistic Spectrum Disorders.

Introduction

Children on the autism spectrum are the fastest growing group of children with a statement of special educational needs in mainstream schools in England (Frederickson, Jones & Lang, 2010) and Wales (Audit Commission for Local Authorities, & the National Health Service in England,. 2002).

Such increases have placed significant demands on educational systems in terms of equipping teachers, in both specialist and mainstream settings, with appropriate skills and knowledge to ensure children receive an effective education in the UK (Frederickson et al., 2010).

Exploration of the educational interventions available to children with Autistic Spectrum Disorders has demonstrated that there remains a notable lack of empirical evidence to inform practice and policy with regard to 'best practice' in real world classrooms (Parsons, Guldberg, MacLeod, Jones, Prunty and Balfe, 2011). Nevertheless, behavioural and developmental approaches have become the predominant treatment approaches for promoting social, adaptive and behavioural functions in children with ASD based on efficacy demonstrated in empirical studies (Ospina, Seida, Clark, Karkhaneh, Hartling, Tjosvold, Vandermeer and Smith. 2008).

This literature review will consider the evidence base for the use of a developmental intervention, DIR/Floortime in schools in order to support the learning and development of children with a diagnosis of ASD and to inform the Educational Psychology profession.

DIR/Floortime methods are not specifically part of educational psychology professional training or practice. Nonetheless, developmental approaches to the treatment of ASD are part of the professional practice in this area. Within their role Educational Psychologists provide important guidance for families of children with ASD and for schools supporting children with ASD, who are trying to understand their options in terms of effective and suitable interventions. For both these reasons, it is important for educational psychologists to have

information about interventions like DIR/Floortime so that they can realistically assess their own work and offer accurate explanations to service users. These tasks can include both the plausibility of DIR/Floortime and what is presently known from outcome research on this method.

Decisions about where resources should best be targeted in a way that balances educational expertise, effectiveness, value for money, individual need and parental preference often form the basis of the educational psychologist's role but can be hard to reach in the absence of a strong evidence base.

Literature Review

Due to the limited literature evaluating the effectiveness of DIR/Floortime interventions for Autism Spectrum Disorders in schools, this chapter takes a broader stance of critically reviewing the literature relating to DIR/Floortime to examine how the model and its theoretical basis is defined and how it fits in the context of outcomes for children with Autistic Spectrum Disorders. Research relating to Autism Interventions, the efficacy of DIR/Floortime and the importance of educationally based research will be discussed.

The Key sources to this literature review include PsychInfo, Google Scholar, Eric and PsycArticles.

The Prevalence of Autism in the UK and Diagnostic Criteria

Autistic Spectrum Disorder has become the fastest growing disability in the UK with prevalence rates estimated at as many as 1 in 110 children (Frederickson et al., 2010).

In 2009, the estimated prevalence of Autistic Spectrum Disorders in the UK was 157 in 10,000 (Baron-Cohen et al., 2009). However, due to low response rates to the study and a non-representative socioeconomic distribution of this particular sample these predictions should be interpreted with caution.

Additionally a remarkably high number of children may display signs of ASD but never receive a formal diagnosis, making it difficult to accurately report the number of children requiring intervention (Kim et al., 2011). Worley and Matson (2012) also claim that the difference in definition and diagnostic criteria in the Diagnostic and Statistical Manual of Mental Disorders (DSM V) is likely to impact on prevalence rates by at least 33%. It has been argued that in addition to broader classification system, increased awareness among practitioners, better identification and more sensitive assessment instruments could have all contributed to the increase in prevalence (Frederickson, Miller and Cline, 2008)

Under the new DSM V (American Psychiatric Association, 2013) criteria, there are two main diagnostic areas for Autism Spectrum Disorders, these are-

1. Persistent deficits in social communication and social interaction and
2. Restricted patterns of behaviour, interests or activities.

Persistent deficits in social communication and social interaction refer to difficulties with social-emotional reciprocity, nonverbal communication and developing, maintaining and understanding relationships.

Restricted patterns of behaviour includes stereotypical or repetitive motor movements, use of objects or speech, insistence on sameness and inflexible adherence to routines and highly restricted, fixated interests that are abnormal in intensity or focus.

There exists a clear deficit model of autism with interventions focusing on curing impairments and mainstreaming autistic people. A move to a more positive, strengths based view of autism is becoming increasingly more popular, basing intervention and learning on exploring neurological differences that are naturally occurring for all people including autistic people. There is a further push towards exploring and including the views and active involvement of autistic people in research and the diagnostic process, encouraging descriptions of their experiences of the disorder and further developing inside-out based

theories (Caswell, 2016). Many autistic people have shared their views on the way in which Autism is viewed within Western societies, suggesting that societies that place great value on independence, academic performance, and social engagement encourage the adoption of a deficit, medical based model of disability that focuses on impairments rather than opportunities for children on the spectrum (Milton, 2014, Grinker, 2008)

Viewing autism as a list of deficits that can be corrected through a series of discrete trials will not make an autistic person any less autistic. Teaching autistic people how to 'pass' so they can blend in better with non-autistics is similar to the belief that a closeted gay person will live a happier and more fulfilled life by being closeted than someone who is 'out (Zurcher, 2012).

Many scholars and autistic people respect the right of the individual to be different yet recognise that interventions should deal with distress and offer practical help. The focus of such is work is on a strengths rather than deficit and offers autistic people opportunities to develop while supporting emotional stability (Mills, 2013)

This literature review intends to promote a more social constructionist view of 'disability' exploring interventions that focus on individual differences and changing societal constructs of autism by encouraging a better understanding and focusing on the strengths of autistic people.

Theories of Autism

Many theories have been proposed to explain autism. Autism was first described by Kanner (1943) through a number of case studies of children who shared certain characteristics such as 'lack of empathy' and 'desire for aloneness'. Kanner (1943) also identified areas of ability for these children such as incredible memory capacity and precise

recall of complex patterns (Baron Cohen, Leslie and Frith, 1984). Autism was once thought to be the result of a single cause for example genetic or poor parenting i.e. ice box mothers. It is now understood that autism is likely the result of multiple causes working curatively with multiple paths.

Three principle theories have dominated the psychological research into autism. The most supported suggests that autistic people have difficulties with 'Theory of Mind' that is, not having the understanding that others may think differently. Baron-Cohen, Leslie and Frith (1985) suggested that many of the characteristics of Autism stem from an impairment in the ability to mind read or attribute mental states to other people in order to predict their behaviour. The most widely used Theory of Mind Test is the unexpected transfer test of False Belief (Wimmer and Perner, 1983), 80% of autistic children failed to complete this test leading to the conclusion that autistic children have a deficit in theory of mind (Baron-Cohen et al, 1985).

Not all autistic children fail the theory of mind test, 20% of autistic children were able to pass the theory of mind test and so the deficit in Theory of Mind cannot be deemed universal. Additionally some autistic children's difficulties on tasks that involve mentalising seem to diminish with age, although this is at a much later stage than their typically developing peers as a result Baron-Cohen (2005) adapted the theory to describe a delay in Theory of Mind rather than a deficit. Milton, (2012) suggests a double empathy problem of reciprocity and mutuality when considering the Theory of Mind concept and further questions the potential accuracy of non-autistic theories that are used to describe autistic minds. Mind blindness can account for many impairments for reciprocal social interaction and communication, which are characteristics of autism. However other no social characteristics of autism such as restricted, repetitive behaviours, activities or interest cannot be explained by delayed or mentalising abilities in the Theory of Mind theory.

Empathising -Systemising and Extreme Male Brain theories were put forward by Baron-Cohen et al., 2005) to take account of the non-social elements of autism. It was argued that systemizing and empathising are two key dimensions in defining the male and female brains This newer theory explained the social and communication difficulties in autism and Asperger's syndrome by reference to delays and deficits in empathy, whilst explaining the areas of strength by reference to intact or even superior skills in systemizing (Baron-Cohen, 2002). Evidence is put forward to support a greater capacity for empathising skills in females and a greater capacity for systemising in males. With autistic people having an extreme capacity for systemizing and significant challenges when it comes to empathy. More recent evidence has identified areas of the brain connected to systemising and empathising using brain imaging techniques, with areas of the brain connected to systemising being larger in autistic children and those typically female regions being smaller, thus revealing that autistic children have extreme forms of the male brain (Baron-Cohen et al 2005).

It has also been suggested that impairments in executive function could explain the non-social elements of autism such as repetitive and restrictive patterns of behaviour (Ozonoff, 1997). The Executive Functioning Theory refers to the deficits in behaviours needed to carry out complex behaviours such as planning, working memory, impulse control, inhibition and mental flexibility in people with autism. Children with autism typically score well below age norms on tests of executive function such as the Wisconsin Card Sorting Test. Typically autistic children fail to recognise changes to the sorting rules despite feedback that what they are doing is wrong. This lack of higher order executive control could therefore account for the repetitive actions of children with autism and their difficulties with flexibility (Ozonoff, 1997).

This theory fails to take account of instances when autistic children gain a good understanding of a whole system i.e. the existence of excellent mathematicians with diagnosis of Aspergers (Baron-Cohen, 2002)

Additionally neither deficits in theory of mind or executive functioning skills can account for special abilities or expert skills shown by some autistic children. As these are usually shown by some children despite their very low scores on overall general intellectual functioning. The weak Central Coherence Theory (Frith, 1989) describes difficulties with understanding the context of the situation in order to see the 'big picture'. Making sense of situations by connecting and making links between information received in different contexts and times.

Cognitive theories have successfully explained the typical abnormal behaviour seen in autistic children. However, cognitive theories have failed to explain individual differences in autistic symptoms and have explored autism as a static cognitive impairment, failing to consider the developmental nature of the condition.

Psychoanalytical models perceive autism as a disorder in which the development of self-perception and perception of others is altered significantly; within this, they have adopted two schools of thought. One is that autism is a failure of appropriate interactions at an early stage of development and the second suggests that autism is a response to extremely stressful conditions.

It is now well established that autism is a neurodevelopmental disorder with a biological basis in which genetic factors are strongly implicated (Medical Research Council, 2001) Autism is now recognised as a disorder of a combination of various separate brain functions.

As suggested in the above literature Autism is associated with unique neurobiology and significant differences in brain structures and neurobiological functioning have been found

(Groden, Groden & Baron 2006; Courchesne, Webb, & Schuman, 2011; Minshew, Scherf, Behrmann, & Humphreys, 2011) that underpin different perceptual and psychological experiences.

Individuals on the spectrum present with unique neurobiological profiles as do ‘neurotypical' individuals and as a result differences in processing may be linked to unique characteristics such as impairments in social interaction and communication, accompanied by restricted repetitive and stereotyped patterns of behaviour, interests and activities (American Psychiatric Association, 2000). Differences in brain processing give rise to perceptual distortions, problems with executive functioning, reduced capacity to initiate, difficulties regulating emotional overload and a general search for coherence. It is therefore not surprising that anxiety is a prevalent emotion in autism (Caldwell, 2014).

Research investigation is now focused on deficits in neural communication as a basis of the wide array of behavioural indicators of the disorder. Developmental intervention is based upon the use of affective interactions to enhance integration of sensory regulatory communication and motor systems. Neuro imaging techniques are beginning to be used in research to provide important ways of showing how experience affects developing brains (Cullaine, 2014). Siegel (2001) has also shown how attuned relationships in infancy change brain structure in ways that later affect social development.

The concept of neurodiversity suggests that variations in neurological development are part of natural diversity, rather than something to be pathologise using a purely medical model defined by a person’s or society’s deviations of statistical or idealised norms of observed behaviour (Milton, 2014)

Essentially, it is now highlighted that autism means something different for each child diagnosed; it may be severe in one diagnostic area but mild in another. Children on the spectrum are a heterogeneous group where each child has a unique profile, therefore it is

likely that effective intervention with these children should include a therapeutic approach based on the child's uniqueness rather than following a standard one-size fits all programme.

Interventions for Autism Spectrum Disorders

Psychological theories have had a very significant impact on the education of autistic children. Two distinct areas of influence can be identified. The first draws on behavioural psychology and the second draws on the combination of cognitive, social and neurological theories of autism.

There are a variety of therapies that have been proposed to improve the symptoms of ASD that fall within the above areas. The following review of the literature intends to expand on how the effectiveness of one intervention over another is yet to be shown.

According to Ryan et al. (2011), the most popular educational practices for teaching children on the spectrum include Applied Behaviour Analysis (ABA), The Picture Exchange Communication Programme (PECS), Social Stories and The Developmental, Individual Difference, Relationship-Based Model (DIR/Floortime).

Solomon et al. (2007) suggest there is growing evidence that comprehensive therapies that incorporate multiple developmental areas including language, sensory, social, emotional and educational, are most effective when working with children on the autistic spectrum. In addition, intensive and early interventions are also proving to be beneficial for this particular group of children (Odom et al., 2009).

To be considered a comprehensive intervention for ASD Odom et al. (2009) suggests that interventions that cover a full range of problems associated with ASD and are based on underlying philosophy with a clear set of principles and have a sufficient evidence base to support effectiveness.

In 2010, Wallace and Rogers published a review of controlled studies that identified four factors that were most important or effective in interventions for infants with autism. These were -

- Parent/care giver involvement in intervention.
- Interventions are specific to each infant's profile.
- Begin as early as the risk was detected.
- Provide greater intensity and duration of intervention.

Further review of ASD interventions support the above guidelines for treatment and also include the need for daily treatment, evaluating and updating goals of treatment, promoting skills through play, generalization of skills and encouraging spontaneous response in interactions with others (Narzisi, Costanzo, Umberto and Filippo, 2014).

Behavioural and Developmental approaches

Behavioural and developmental approaches have become the predominant treatment approaches for promoting social, adaptive and behavioural functions in children with ASD based on efficacy demonstrated in empirical studies (Ospina et al., 2008).

However, interventions based on behavioural psychology are leading in the field. Behavioural approaches have been more frequently researched and as a result, there is a large evidence base to support significant gains for children using this approach.

Within behavioural approaches, social interaction challenges are bypassed in order for the child to access new learning. Instead, interventions such as Applied Behavioural Analysis (ABA: Lovaas, 2003) encourage appropriate behaviours through the use of positive reinforcement. Basic and complex skills are taught by breaking them down into small steps and each step is taught using prompting and positive reinforcement until skills are mastered.

It is however necessary to consider the ecological validity of the behavioural approaches discussed as there is evidence to suggest difficulties in generalizing and transferring skills

learned through these types of interventions within real world settings. Behavioural interventions tend to focus on the successful completion of a task rather than the reciprocal nature of a relationship whereby individuals relate to one another; skills are therefore not likely to become embedded in social interactions in different contexts to where they are taught.

A meta-analysis concluded that 'current evidence does not support ABA as a superior intervention for children with ASD' (Seida et al. 2009).

Spreckley and Boyd (2009) also concluded that there was inadequate evidence that ABA has better outcomes for autistic children than standard care such as attending a specialist school.

Because of the challenges in identifying uniform treatment groups, isolating treatments, ensuring fidelity of treatment approaches and the lack of validated measurement tools, many authors have stated that it is not possible to conduct meaningful randomized clinical trials of behavioural approaches (Rogers and Vismara, 2008). Historically, behavioural approaches have not focused on relationships or individual differences. Pivotal Response Training a form of naturalistic behavioural treatment is based on following the child's interest to increase motivation, and incorporates some developmental principles into a behavioural model (Koegel, Koegel, & McNerney, 2001).

Hogsbro (2011) (as cited in Milton 2014) compared the progression of children receiving an ABA type intervention with those in ordinary placements, those in specialist autism day units and those receiving a mixture of provision. Measures used were the same as those used to demonstrate the gains made by those receiving ABA, although on this occasion the findings were quite the opposite. Hogsbro (2011) (as cited in Milton, 2014) found that on average the ABA provision had a negative impact on IQ scores, language comprehension, self-help skills and the capacity for social contact.

One of the biggest criticisms of behaviourist's approaches is that behaviours deemed as either positive or negative are decided on by non-autistic others that have little or no idea of what it is like to be autistic or to have an unusual autistic learning style. (Milton, 2014). Milton (2014) argues that within behaviourist approaches, discrete trials can be intensive to the extent of being overloading and distressing and that such distress can often be ignored when viewed as inappropriate behaviour. He further suggests that when concentrating on behaviour it is essential that practitioners do not forget about autistic cognition and subjective understanding and how these influence situations.

Recent studies have shown more efficacy in blending developmental and behavioural approaches (Casenhiser, 2014).

Dawson (2010) conducted a randomised controlled trial of the Early Start Denver Model, which incorporates both developmental and applied behavioural principles. Forty-eight children were randomly assigned to two groups. Participants in the ESDM group made significant improvements in adaptive behaviour, IQ and autism diagnosis. Vismara, Colombi and Rogers (2009) explored whether one hour a week of therapy led to lasting changes in young autistic children. A brief twelve week, one hour per week individualised, parent-child education programme was carried out with eight toddlers. Parents learned to implement therapeutic techniques that were consistent with both developmental-relationship based approaches and applied behavioural analysis. Therapeutic techniques were incorporated into their ongoing routines and parent-child play activities. Results demonstrated that parents were able to grasp the strategies by the fifth and sixth week of intervention and that children sustained change and growth in social communicative behaviours. The results advocated the need for early intervention and for starting treatment at the earliest opportunity.

Clearly, there is insufficient evidence to support intensive behavioural interventions being superior to developmental approaches with an ever-growing evidence base to support their

use in combination. It has been suggested that future research would benefit from considering interventions like DIR/Floortime that incorporate elements of both (that are currently being used by parents and in schools) to ensure that there is a greater evidence base to cater for a more widely diverse set of needs (Parsons et al., 2011).

The Developmental, Individual-Difference, Relationship Based Model (DIR)

The primary objective of DIR is to support and enable autistic children to form a sense of self as an intentional, interactive and related individual with ranges of developmental capacities. The model is based on a socially situated process of learning where by the caregiver is more involved in the scaffolding of learning.

Key ideas of the DIR Floortime intervention include adopting and inside-out approach to a variety of developmental problems and educational practices, focusing on accessing and following the views and interests of the autistic child. Second is trying to achieve this through affect driven relationships that are essential to building trust and gaining a better understanding of individual's needs, wishes thoughts and feelings. Thirdly, is the understanding that no two autistic people are alike, such as no two non-autistic people are alike and that individual differences are the norm not the exception. Lastly, adopting strengths based model that focuses on developing skills unique to that individual. Within the DIR model, process is emphasised over content and surface behaviours and compliance are de-emphasised. The child is considered within the wider contexts of the family and community with parents being the cornerstone of intervention. The principles of DIR are applicable to all children, not only those on the autistic spectrum, it can be used with children with additional learning needs, children who have experiences environmental and situational challenges i.e. neglect and foster care etc.

DIR focuses on the developmental capacities that lead to higher order thinking (Wieder & Greenspan, 2003). It is derived from research on child development in the fields of psychology, medicine, and education. Developmental approaches like DIR/Floortime emphasize individual differences and the need to tailor interventions to the unique biological profiles of the child. This fits with the diverse nature of Autism Spectrum Disorders.

There are three components that must be considered simultaneously in the DIR model:-

The 'D' represents the developmental milestones that emerge during the child's early years including, shared attention, engagement, back and forth interactions, problem solving, creating play ideas and abstract thinking.

The 'I' represents individual differences in sensory motor processing and regulation, which need to be taken into account and treated to support development. The DIR model takes the position that each child has a unique capacity to take in, integrate, manage and react to sensory input from the environment, from others and from his or her own body this reflects the current view that Autism is neurologically based (Baron, Groden, Groden, & Lipsitt, 2006; Courchesne, Webb, & Schuman, 2011; Minshew, Scherf, Behrmann, & Humphreys, 2011). No two children are alike in their expression of autism or other challenges of relating and communicating. No treatment is one-size fits all and multiple techniques and therapies are called for. Individuals differ in many ways, Sensory and Affective Modulation, Receptive and Auditory Processing, Visual Spatial Processing, Motor Planning and Sequencing and the support they have available to them. There is a focus on developing and understanding each child's capacity to control the nature and the intensity of one's responses, how they are able to regulate levels of arousal, attention, affect and action. Consideration is given to the differing influences on a child's ability to regulate their behavioural and cognitive responses. Bottom up regulation refers to how the child's individual biological profile affects regulation and Top down regulation refers to how cognitive and emotional capacities affect regulation.

The ‘R’ represents the relationship and environment necessary to provide the interactions through which the development of emotional, spatial and cognitive capacities are nurtured, practised and enhanced. Importance is placed on the use of affect to develop relationships with children. Affect is used to try to create desire and motivation to develop adaptive responses.

The DIR model is based on the idea that due to individual processing differences children with ASD do not always master the early developmental milestones that are the foundations of learning. DIR outlines six core developmental stages that children with ASD have often missed or not mastered due to sensory and cognitive challenges that have made developing these skills more difficult.

These are -

- Stage One: Regulation and Interest in the World – To learn to interact socially children need to be able to focus, be calm and actively take part in information from their experiences with others from what they hear, smell, touch and taste and from the way they move. The synchrony between a caregiver and child may impact on the child’ s ability to develop regulation i.e. a child that is sensitive to touch and sound may withdraw from caregivers who try to cuddle and sing.
- Stage Two: Engagement and Relating – Refers to the child’s ability to engage in relationships, including the depth and range of pleasure and warmth, as well as related feeling, such as assertiveness, sadness, anger etc. that can be incorporated into the quality of engagement and stability of engagement. A child may have difficulty relating and engaging if they have a sensory system that derails their ability to tune into relevant stimuli and tune out irrelevant stimuli or is unable to be calm and regulated.

- Stage Three: Two-way intentional communication – The caregiver responding to the child's signals and challenging the child to read and respond to theirs. A child at this level may gesture purposefully, respond to caregiver's cues or demonstrate emotions. A child that has not developed reciprocity or an understanding of how to read another's affect will have difficulty becoming more purposeful. A child's ability to begin gesturing will be impeded if they have an undeveloped or underdeveloped map of his/her own body.
- Stage Four: Continuous social problem solving – Typically children at this level have an ability to sustain more complex back and forth interactions with an emerging ability to develop their own ideas. However, a child with constrictions may not easily interpret caregivers' words and gestures making interactions confusing rather than pleasurable. A child with motor planning deficits may have difficulty sequencing the sounds that re necessary for long chains of interaction. A child struggling with sensory overload may have difficulty remaining engaged and interactive when feeling strong emotions.
- Stage Five: Symbolic play – At this stage children typically begin to use symbols to stand for things, project own thoughts and feelings onto characters and elaborate on ideas through extended play sequences and have a growing range of emotional themes including closeness, dependency. A child that is not comfortable with a range of emotions may become fearful or anxious in pretend play and may not use emotions effectively to organise his/her thoughts and behaviour.
- Stage Six: Bridging ideas – A child who is unable to bridge ideas maybe mechanical and repetitive in play.

In order to achieve intellectual and emotional growth the child must reach a level of mastery in each of the developmental stages (Greenspan & Wieder, 1997). What level the

child enters this developmental model is completely dependent on where the child fits in terms of their developmental capabilities, which are individual to each child.

A fundamental concept in DIR is circles of communication. Circles of communication (CoC) refer to a reciprocal communication with two participants responding to each other verbally or non-verbally. An example may be, a child selects a toy and looks at the adult and smiles (Opening a CoC), the adult smiles back (maintaining communication) the child responds by giving the toy to the adult or turning away (closing the circle). Closing the CoC ensures the continuity of the communication, if a CoC remains open then it means the intended message was not received and communication has broken down.

Floortime is the intervention of the DIR model and is considered one of the most important components of the method, comprising of sequences of guided play. Through engaging in Floortime with a child, the facilitator aims to move the child though the six developmental milestones by following the child's lead during play and building on what the child does to encourage more reciprocal interactions.

A description of each of the developmental milestones is included below-

- Self-regulation and shared attention.

This initial stage focuses on controlling all senses and motor capacities to help the child stay calm and regulated in order to draw them into shared attention. The adult engages the child in enjoyable interactions that include looking, hearing and touching. Constructive and playfully obstructive strategies are used with affect cues to stretch the child's capacity.

- Engagement and relating.

This stage involves encouraging the child to engage with his/her feelings and emotions. Relationships are continually emphasised to develop a sense of security, intimacy and empathy and also support the hard work needed to develop motor planning, language and positive attitudes towards all new learning.

- Two-way intentional communication.

This stage involves following the child's lead and challenging him/her to communicate through exchanges of gestures and emotional signals about interests, needs or intentions.

- Creating and elaborating symbols.

At this stage the adult and child work up to a continuous flow of 30 or more back and forth circles of communication e.g. the child takes an adult by the hand, walks to the door, points to indicate that he/she wants to go out, maybe vocalizes a sound to further signify intentions. The adult continues to try to expand the conversations.

- Creating and elaborating ideas.

This stage encourages the child to relate to sensations, gestures and behaviours through pretend play. The adult follows the child's lead letting the child initiate the play idea and joins the child through role-play or the use of figures to elaborate themes around emotions and feelings, giving the child an opportunity to explore these feeling safely and to provide words for these feelings.

- Building bridges between ideas.

This stage involves challenging the child to connect his/her ideas together by seeking their opinion, enjoying their debates and negotiating for things, they want using logical reason. This is done through following the child's lead during play and building on what the child knows to encourage more reciprocal interaction.

According to Hess (2013), DIR/Floortime requires the practitioner to get down to the child's level, joining in a child's play and pulling them into a shared world to help master functional emotional capacities. Different to applied behavioural approaches, the aim is to avoid instructional responses and to foster natural behaviours through joint attention and play.

The principles of this intensive intervention approach can be incorporated throughout the child's daily routine but the advised amount of time is 20-30 minutes daily (Greenspan & Wieder, 2005).

DIR/Floortime and its focus on play

'*Play is the most important enterprise of childhood* '(Wieder and Greenspan, 2003 p.425)' it is through play that children learn to first interact with the world around them. Play provides a safe environment for children to create and explore a world they can master.

Play is essential to development because it contributes to the cognitive, physical and social wellbeing of children. It is considered an integral part of early childhood and of children's education (Bordova, 2009).

The importance of play for children's development was the focus of Vygotsky's work – he suggests that during play children function at higher, more advanced levels than in non- play situations. Vygotsky further suggested that during play it is possible to observe children's developmental accomplishments far earlier than in other activities, suggesting that it is during play that children most often reach their 'Zone of Proximal Development' (Bordova, 2009).

Specifically symbolic play and joint attention are significantly associated with later social, cognitive and communication development (Greenspan & Wieder, 2005).

In symbolic play children progress from playing with toys functionally, such as, constructive or manipulative play to playing with toys symbolically, that is using toys to expand their understanding and knowledge of social situations.

Autistic children have been shown to spend less time engaged in symbolic play and joint attention behaviours than children with other developmental delays (Kasari et al., 2010).

Also in comparison to typically developing children, autistic children at the same chronological ages have significant delays in the development of symbolic play skills and

tend to be more often object driven with less frequent engagement of others in their play (Kasari et al. 2010).

Despite the well documented importance of play and its impact on children's development, within education settings, 'Play' is used mainly in the early years of education with the vast majority of schools not valuing the importance of play beyond this point (Kossyvaki and Papoudi, 2016). Additionally due to the difficulties in engaging autistic children in play, schools often do not cater for the specific difficulties autistic children have during play activities.

Kossyvaki and Papoudi, (2016) suggest that given the importance of play and the time that autistic children spend in school there is an urgent need for effective evidence based interventions that target and promote the engagement through play in school settings. They also suggest that it is important to understand and explore the contexts in which these interventions are applied, so that this can be considered when developing treatment programmes.

Solomon et al. (2014) further explored the benefits of play for children with ASD within a developmental framework. Using an 'intent to treat' methodology, Solomon et al. (2007) found that caregiver-child interactions improved significantly compared to the control group outcomes, with functional development for this group also improving significantly.

Due to its benefits in improving joint attention and self-regulation there is growing evidence to suggest that play can be used as an effective tool in the education of autistic children and can foster these children's participation in inclusive settings.

Theories of mediated learning such as that of Vygotsky's suggest that autistic children can be guided to engage in play activities if their personal preferences for play and individual needs are taken into consideration (Kossyvaki and Papoudi 2016).

The play aspect of DIR/Floortime resembles other play approaches through its emphasis on communication and relationships.

Play approaches to therapy involve communication through toys, pretending, manipulation of objects, and other nonverbal techniques, as DIR/Floortime does.

Evidence based practice

There is a growing evidence base for developmental approaches like DIR. It is an intervention approach that is becoming popular for children with ASD.

Despite growing in popularity, there are few independent studies of its effectiveness and no evidence of its use within educational settings. There are also a number of factors influencing the efficacy of research in this area including the varied outcome measures used and the poor methodological quality of studies.

Research in this area is challenging both because the factors being measured are complex and because of the wide range of individual differences in the population (Cullinane, 2014).

In considering the evidence for DIR/Floortime, it is important to appreciate the challenges to studying a complex model, and to consider the long history of study on the effectiveness of various aspects of a developmental framework.

These can be summarised by looking at the three major aspects of the DIR/Floortime approach: "D"- developmental framework, "I"- individual differences, and "R"-relationship and affective interactions.

"D" Development . Developmental approaches to Autistic Spectrum Disorders seek to teach children functional skills in a sequence that is in line with typical child development. Intervention is based upon the use of 'affective' interactions to enhance integration of sensory, regulatory, communication and motor systems.

DIR/Floortime follows this staged theory of development, which infers that success or failure at one stage of development will contribute to the success or failure of a later stage. Reworking of early problems may be necessary for the solution of later-emerging difficulties.

Greenspan & Wieder (2001) suggested that developmental approaches take into account a child's intrinsic level of interest and expands on that initial level of motivation to incorporate the mutual interests of others (i.e. the adult/caregiver) while supporting various neurological differences that may be impeding the actual level of development in the first place i.e. sensory and motor planning issues.

Greenspan & Wieder (2001) also emphasised the connection of emotional and personality factors with intelligence, which is shown in DIR/Floortime where the belief is that the child's pleasurable engagement with a situation is needed in order for learning to occur.

Theoretically developmental approaches focus on the function of the developmental capacities rather than a set of 'behaviours' and teach them in a pragmatically appropriate context in order to highlight social and communicative functions (Casenhiser et al. 2011)

In summary, the characteristics of developmental interventions include-

- The adult joining the child's focus of interest,
- The adult arranging the environment to encourage initiations from the child,
- The adult responding to communicative intents as if they are purposeful,
- Emphasising emotional expression and affect sharing.

'I' Individual Differences.

Differences in innate sensory processing have provided a new way of understanding movement and regulatory behaviours. In addition, this work has shown that biological differences in autistic children can be influenced and changed by specific therapeutic interventions (Cullaine, 2014).

Over the past 40 years a huge body of research has further described not only the biological differences in sensory motor processing but further differences in emotional regulatory processing (Baron, Groden, Groden, & Lipsitt, 2006; Courchesne, Webb, & Schuman, 2011; Minshew, Scherf, Behrmann, & Humphreys, 2011).

Lord and McGee, in their 2001 report 'Educating Autistic children' called for tailoring treatment approaches to unique features of the individual autistic child.

A pilot randomised control study showed the effectiveness of sensory integration treatment for the treatment of autistic children. Results showed improvement in social responsiveness, sensory processing, functional motor skills and social –emotional factors with significant decrease in autistic mannerisms (Pfeiffer et al., 2011)

DIR/Floortime places great emphasis on tailoring intervention to individual differences, consistent with the knowledge gained from the above research.

"R" Relationship and Affect . Developmental models have evolved over many years in the field of infant mental health. Beginning in the 1950's, there was a new understanding of the importance of parent/carer interactions, known as attachment theory. The evolutionary explanation of attachment theory refers to the innate bond that forms between an infant and their primary caregiver, this bond provides the infant with a secure base in order to further explore the world (Prior and Glaser, 2006).

Siegel (2001) demonstrated how attuned relationships in infancy change brain structure in ways that later effect emotional development.

There is a large body of research confirming the importance of caregiver-child interactions and the value of intervention programmes focused on supporting caregiver-child relationships. This work has become highly sophisticated in research methodologies examining joint attention and emotional attunement (Siegel, 2001 and Greenspan & Wieder, 2005).

Joint attention and the promotion of shared interaction are at the centre of the DIR model, which is designed to increase socialization, improve language and decrease repetitive behaviours (Greenspan & Wieder, 2005).

Mahoney and Perales (2003) used relationship-focused intervention to enhance social, emotional functioning of young autistic children. Research has shown that interventions such as this can change the way caregivers interact with children with ASD to increase reciprocity and that these changes are correlated with changes in social engagement and language (Gernbacher, 2006, Kim and Mahoney, 2005). Aldren, Green and Adams (2004) carried out a randomised control trial of a social communication intervention for children, which focused on social interaction, parent-child interactions and language. Participants were allocated to either a control or treatment group. The intervention group showed significant gains on ADOS total scores.

Casenhiser, Shanker and Stieben (2011) found that the initiation of joint attention resulted in an improvement in language skills for autistic children. They reported the results of an ongoing randomized control trial of 51 children aged 2 years 0 months to 4 years 11 months. Participants were assigned to a target treatment or community treatment group. Families in the target group were given 2 hours of therapy and coaching in an intervention emphasizing social interaction and the parent-child relationship. Results suggested that children in the treatment group made significantly greater gains in social interaction skills compared to those in the community treatment group.

Casenhiser and colleagues (2015) provided a more detailed analysis of their data from the 2011 research study and documented that the children in the targeted treatment group outperformed those in the community treatment group on measures of language including, number of utterances produced, various speech categories such as sharing, commenting rejecting/protesting, social conventions and response to comments.

Randomised control trials of treatments that have sought to improve joint attention and communication in children have also had some success. Kasari et al. (2010) increased the frequency of children's joint attention behaviours and the frequency of functional play acts by teaching parents to focus on children's joint attention skills by focusing on the child's interests and expanding on their play activities. Kasari et al. (2008) had previously conducted a randomised control trial of the efficacy of autism interventions and found that expressive language gains were greater when using a developmental model such as DIR that focused on the development of joint attention and social communication skills.

Hwang and Hughes (2000) explored the effects of social interaction on the early social communications skills of autistic children. They reviewed sixteen empirical studies, which investigated the effects of social interactive interventions where the focus was on developing the child's role as the indicator of interactions. The review concluded that social interactive interventions increased social and affectionate behaviour, non-verbal and verbal communication, eye contact and imitative play. Limited generalization and exploration of the maintenance of behaviours was an issue identified by the researchers.

Due to the very nature of developmental approaches to intervention, it is likely to prove difficult to measure the generalisability of skills gained as the very focus is on building that relationship with a significant other.

Support for psychodynamic approaches

DIR/Floortime is a Psychodynamic approach with affect driven interactions as the basis of treatment, and the goal of increasing functional capacities (Greenspan & Wieder, 2001). However, Psychodynamic treatments are inherently more difficult to measure in quantitative terms (Shedler, 2010). Shedler in 2010 conducted a review into the efficacy of psychodynamic psychotherapy. He reviews many studies and meta-analyses and refutes the belief that psychodynamic concepts and treatments lack empirical support. According to

Shedler, effect sizes for psychodynamic therapy are as large as those reported for other therapies that have been actively promoted as evidence based.

He describes seven features of psychodynamic therapy:

1. Focus on affect and expression of emotion
2. Exploration of attempts to avoid distressing thoughts and feelings
3. Identification of recurring themes and patterns
4. Discussion of past experience
5. Focus on interpersonal relationships
6. Focus on therapy relationship
7. Exploration of fantasy life

Although the article is not about autistic children, it provides a basic framework of the psychodynamic approach, which is the root of developmental approaches to treatment with children.

Research to date on the efficacy of DIR/Floortime

The original study, carried out by the authors of the DIR/Floortime approach (Greenspan & Wieder, 1997) explored the efficacy of the model using a sample of 200 autistic children. Despite being mainly observational, the study yielded positive results. After two years of receiving the intervention, 58% of the sample showed improvements and some children no longer met the criteria for autism on measures such as the Childhood Autism Rating Scale (CARS).

A major criticism of this study however was that parental dissatisfaction with traditional interventions may have been confounding factors in the selection of the group. Furthermore, no controls and few details of the intervention protocols used were identified in the study (Solomon et al., 2007).

In a follow up of a subgroup of 16 children involved in the original study, Greenspan & Wieder (2005) demonstrated that with DIR/Floortime some children with ASD are able to become empathetic, creative and reflective, have healthy peer relationships and solid academic skills. Ten to fifteen years after the initiation of the Floortime intervention a comprehensive picture of the adolescents' emotional, sensory and social processing abilities as well as cognitive and academic outcomes were obtained. The authors specified that it was uncertain how representative the small sample used in the follow up study is of children with ASD and it should also be highlighted that with the lack of a comparison control group it is impossible to rule out the effects of maturity or development over time. Nevertheless, these results suggest that positive outcomes following receipt of DIR/Floortime in childhood can potentially be observed in adolescents.

Pajareya and Nopaneejumruslers (2011) tested the efficacy of adding a home-based DIR model to the routine care of 31 pre-schoolers who were assigned to an experimental and control group based on age and symptom severity. Four strata were generated within both groups to guarantee baseline similarity: Mild Autism and age 24-47 months, mild autism and age 48-72 months, severe autism and age 24-47 months and severe autism aged 48-72 months. The CARS was used to rate the degree of severity. The Functional Emotional Assessment Scale (FEAS), The Functional Emotional Questionnaire (FEQ) and the CARS were used to measure outcomes. The researchers found that the target treatment group, who received an average of 15.2 hours of therapy and coaching each week, achieved greater gains on each of the measures over a 3-month period than the control group. This is one of the first independent randomised controlled trials of the DIR model and therefore provides a promising scientific evidence base for the effectiveness of DIR/Floortime. However, there are limitations to note. Receiving the level of 1:1 involvement that the intervention group

received could have affected the gains in functional emotional development, it would be difficult to infer that the differences were solely a product of the DIR intervention.

In an earlier study, Solomon et al. (2007) completed a pilot study of 68 children diagnosed with ASD, aged 18 months to 6 years. The purpose of the study was to assess the effectiveness of a parent-training programme for young autistic children. Parents were trained in DIR/Floortime and encouraged to deliver 15 hours per week of 1:1 intervention over a 12-month period. A standardised version of the Functional Emotional Assessment Scale (FEAS) was completed pre- and post-intervention. As a result, 45.5% of the children made good to very good functional development progress. However, there was no comparison control group to rule out the effect of age and maturation, which might have implications for the timing of interventions.

Dionne and Martini (2011) conducted a single subject case study that was used to evaluate the effectiveness of Floor Time Play with a 3.6-year-old boy with autism. The study used an observation and intervention phase, and utilized circles of communication as the measure of change. Results showed a significant improvement in circles of communication using Floortime play strategies, and the mother's journals included insights on the changes observed.

In the most recent study of DIR/Floortime, Liao et al. (2014) conducted a study on the effects of the intervention with eleven autistic children aged 45-69 months. The mothers were trained in DIR/Floortime during pre-intervention 1:1 counselling sessions and a three-hour lecture. Results showed a significant treatment effect on children's two way communication, behavioural organization and problem solving and daily living skills.

Although these studies are beginning to highlight the possible benefits of this intervention approach, it is important to note their limitations.

None of the above studies have used consistent outcome measures and have all explored the impact of DIR/Floortime on different areas of development. There is however consistency in the results in terms of the areas of development that have been focused on and where significant gains have been made for children with ASD. These include two way communication, joint attention, problem solving abilities and emotional function.

Only a few of the studies mentioned above use Randomised Controlled Trial (RCT) designs which are considered the most valid measures of intervention effectiveness within the science community. However, it could be argued that RCT research designs also have their limitations including their generalization of findings to groups instead of any individuals within the groups and their tendency to use measures such as ratings, instead of direct observations of behaviour (Smith, 2012). However, the following argument questions the suitability of randomised controlled trials to testing the validity of interventions adopting a developmental approach.

"Increasingly, researchers have been suggesting that the idea that there is a best treatment for autism is counterproductive and misleading….The remarkable heterogeneity displayed by autistic people calls into question the idea that randomized clinical trials (RCT's) should, at the time of the development of the field, be considered the gold standard for evaluation whether a specific treatment has merit."

(Carr, Granpeesheh, Grossman, 2008 p.58)

Another important point is that the above studies have not systematically compared DIR/Floortime to a treatment for which there is clear evidence of effectiveness. The only treatments are discrete trial methods, and although many of the children in both intervention and control groups were having some Applied Behavioural Analysis (ABA) treatment, the published reports do not include any information that enables readers to

compare ABA to DIR as might be considered appropriate, given the empirical support for ABA.

The studies are also designed to compare groups of children that receive DIR, plus their usual services i.e. speech therapy with children who receive their usual services alone. In other words, each DIR or DIR-like group receives many more hours of treatment than the control group does, raising the obvious question whether any positive effects are simply due to more interaction with adults rather than with DIR specifics (Mercer, 2015).

Despite these limitations, DIR/Floortime has no known record of adverse effects and would seem to have little potential for direct harm to children, as it involves very little coercive activity (Mercer, 2015). A current research study by Casenhiser, Stieben and Shanker (2016) is investigating the behavioural and neuropsychological outcomes of intensive DIR/Floortime, using both ERP and EEG measurements. A preliminary report of the first year results of a two year randomised controlled trial, shows significant effectiveness of the social communication approach based upon the DIR framework. They have found significant improvements in interaction skills after two hours of DIR based therapy for a period of one year (Casenhiser, Stieben and Shanker, 2016).

All of the above studies have focused on parent child interactions, with interventions being carried out in the family home or clinical settings; to date there has been little exploration of the use of developmental interventions, specifically DIR/Floortime in schools.

DIR/Floortime and schools

There is considerable debate regarding the most appropriate and effective ways of supporting the learning of children and young people on the Autism Spectrum.

Parsons et al. (2011) carried out a review of the evidence of educational interventions for children with Autistic Spectrum Disorders. The review concluded that there remains a

notable lack of empirical evidence to inform practice and policy with regard to ‘best practice’ in classrooms.

As noted in the introduction to this paper, the increase in the number of children identified with ASD has had a significant impact on schools and has placed greater demands on educational systems in terms of equipping teachers with the appropriate skills and knowledge (Frederickson et al., 2010). Autistic children pose great challenges to schools in particular. Teachers, especially those in more specialist settings are expected to manage a variety of complex and challenging needs within one classroom ensuring that each and everyone’s needs are met. Identifying appropriate and effective evidence based interventions are key to ensuring that teachers are able to do this.

Wong and Kasari (2012) carried out an observational study of autistic children in specialist settings. They identified that compared to children with other developmental delays, autistic children spent more time unengaged and less time engaged in symbolic play and joint attention behaviours. Additionally teachers spent less time focusing on activities to support these skills. Findings suggested the importance of educating teachers within specialist settings to target joint attention and play skills in their classes.

According to Koegel et al. (2010) the school environment provides an opportunity to deliver comprehensive interventions as children are in school for many hours a day and for the majority of their developing years, thus making school the ideal setting for delivering and exploring effective interventions.

According to Koegel et al. (2010) if interventions for autistic children are to be effectively applied in the classroom then they need to focus on the following:

- That the communicative intent of challenging behaviour is considered;
- That skills in pivotal developmental areas are focused on;

- That programmes are individualised and consider the importance of individual differences, focusing on improving communication and socialization, and expanding the autistic child's interests.

Despite the noted challenges of educating autistic children in schools, government legislation such as the Special Educational Needs (SEN) code of practice (Department of Education DfEd, 2014) requires schools to be inclusive in their practice.

The majority of children with ASD often attend a mainstream preschool/school at some point. Community pre-school and mainstream school practices are often not evidenced based and almost none target the pre linguistic core deficits of ASD (Lawton and Kasari, 2012).

Ensuring students with ASD receive effective intervention in school settings will depend, in part, on the extent to which teachers and school personnel are prepared to implement research-based interventions. There is a significant research base looking at the impact of teacher variables on the effective implementation of interventions, these include teacher self-efficacy, attitude towards intervention and teacher competence. According to educationally based research, teacher participation does mediate the outcome of interventions and therefore research models predicting child outcomes should include both teacher participation and contextual predictors of teacher participation (Arnold et al., 2012).

Given the importance of teacher and classroom related variables in the successful implementation of interventions, it seems necessary to involve teachers in meaningful ways within the research process in this area of study.

Landa, Holman and Stuart (2011) used a supplemental developmental curriculum in a classroom set up to provide a pre-school program for 48 two year olds with ASD targeting socially synchronous engagement (i.e. joint attention, affect sharing and engaged imitation) during teacher/child interactions. The programme ran for 6 months providing 2.5 hours of intervention per day for both groups, with the treatment group receiving a curriculum with

the above skills being targeted. A significant treatment effect was found for socially engaged imitation. These skills were generalised to unfamiliar contexts and maintained through follow up at 6 months.

Lawton and Kasari (2012) carried out a pilot randomised control trial for pre-schoolers with autism where teachers implemented a joint attention intervention - Joint Attention and Symbolic Play/Engagement and Regulation Intervention (JASP/ER). 16 pairs of pre-schoolers and their teachers were assigned to either an intervention or control group. Findings demonstrated that the intervention group showed more joint attention in the classroom and spent more time engaged with people than with objects.

Conclusion

The increase in prevalence in Autistic Spectrum Disorders and the increased challenges that educating these children pose for schools have highlighted the need for school based interventions for children on the spectrum that focuses on the development of emotional functioning and relationships with others.

The shift from predominately behavioural approaches to interventions based in developmental psychology have required exploration into their effectiveness in developing these skills in children but also exploration of how well these interventions can be incorporated into schools.

According to educationally based research, teacher participation has been shown to mediate the outcome of interventions; therefore, research models exploring interventions used in schools should aim to include both teacher participation and contextual predictors of teacher participation (Arnold et al., 2012).

Additionally, given the importance of teacher and classroom related variables in the successful implementation of interventions it seems necessary to involve teachers in meaningful ways within the research process in this area of study.

The aim of this particular research project is to explore specifically the use of DIR/Floortime in schools. As seen in the literature included above DIR/Floortime has mainly been evaluated in relation to parental training and its use in the family home. To date, there does not appear to be literature exploring the efficacy of the use of DIR/Floortime in schools, despite evidence to suggest that teachers and professionals trained in specific areas of need can have a positive impact on children's behaviour and development (Parsons, 2011).

This pilot study intends to capitalise on the 'gap' in the literature identified above by answering the question of 'whether or not a school based DIR/Floortime intervention can is support and develop the Functional Emotional behaviours of children with Autistic Spectrum Disorder.

The quantitative element of this study intends to answer this question by exploring the following hypothesis;

1. DIR/Floortime will improve the social and emotional function of children with ASD within a specialist school setting.
2. Teacher Competency in delivering the DIR/Floortime intervention programme will have a significant impact on improvement in FEAS scores.

Observing if a group of children with ASD can achieve levels of functioning formerly thought unattainable is especially significant in light of the different intervention approaches now being offered in schools with this study specifically looking at the use of DIR/Floortime within a specialist complex needs school.

As teacher, participation has been shown to have an impact on intervention outcomes for children with ASD the study will also explore whether teacher competency in delivering the DIR/Floortime intervention has an impact on outcomes.

Epistemology and Ontology

The following study aims to provide a critical-realist approach to answering the research question above and therefore will also evaluate the perceptions and experiences of the teaching and support staff delivering the intervention in order to provide a richer picture of their experiences.

Critical realism offers an alternative to positivism and interprism. Critical realists argue that the world is multi-dimensional and that effects arise due to an interaction between social structures, mechanisms and human agency (McEvoy, 2004). From this, stance interventions (causal mechanisms) have the potential to make an impact, but that impact is dependent on the social context in which the intervention operates. As such adopting a critical realist position provides a rationale for the direction of this study; to explore both intervention impact and the social context in which the intervention was delivered.

Critical Realism suggests that it is impossible to fully understand the reality of a situation as perceptions are shaped by our theoretical resources and investigative interests.

Critical realists further suggest that there are two main problems with positivist methodology:-

1. The focus is exclusively on observable events and fails to take account of the extent to which observations are influenced by people's thoughts and views.
2. Positivists deal with relationships between various social elements in isolation.

(McEvoy, 2006)

Critical realists acknowledge the value of interpretivist methodologies that focus on discourse, human perception and motivation but realise that views of participants may be partial or even misguided (Lopez and Potter, 2005).

Creswell et al., (2004) supports that when used in combination qualitative and quantitative methods can complement each other.

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Part.2. Major Research Journal Article

Word Count: 5,999

Abstract

This study aimed to evaluate the use of the DIR/Floortime intervention in a specialist school setting. The participants were 8 primary school children, aged 3-8 years old and 16 teaching and support staff trained in DIR/Floortime. The study adopted a mixed methods design. Quantitative measures included the Functional, Emotional Assessment Scale (FEAS) (Greenspan et al., .2001), and a measure of 'Teacher Competency' designed by the author of this study. Qualitative data was collected via a focus group and analysed via Thematic Analysis. Findings demonstrated significant gains in social and emotional functional behaviours for children with ASD within a specialist school setting. No significant relationship was found between teacher competency in delivering the intervention and children's gains in social and emotional functioning. Teacher /support staff views on delivering the DIR/Floortime intervention are discussed.

Introduction

Autistic Spectrum Disorder (ASD) has become the fastest growing disability in the UK with the current prevalence rates estimated at as many as 1 in 110 children (Frederickson, Jones and Lang, 2010). Autism is a developmental disorder characterised by a triad of qualitative impairments in social interaction, communication and behaviour.

The increase in the number of children identified with ASD has had a significant impact on schools and has placed greater demands on educational systems in terms of equipping teachers with the appropriate skills and knowledge (Frederickson et al., 2010).

According to Solomon et al. (2007) there is growing evidence to suggest comprehensive therapies such as DIR/Floortime, that incorporate multiple developmental areas are most effective when working with children on the Autistic Spectrum.

The DIR model is based on the idea that due to individual processing differences, children with ASD do not master the early developmental milestones that are the foundations of learning. DIR outlines six core developmental stages that children with ASD have often missed or not mastered. These are: -

- Stage One: Regulation and Interest in the World
- Stage Two: Engagement and relating
- Stage Three: Two way intentional communication
- Stage Four: Continuous social problem solving
- Stage Five: Symbolic play
- Stage Six: Bridging ideas

(Greenspan & Wieder, 1997)

Joint attention and the promotion of shared interaction are at the centre of the DIR model. This model is designed to increase socialization, improve language and decrease repetitive behaviours (Wieder & Greenspan, 2003). The original study (Greenspan & Wieder, 1997) explored the efficacy of the model using a sample of 200 children on the Autism Spectrum. Despite being mainly observational, the study yielded positive results, 58% of the participants made gains in social, emotional and intellectual functioning with some children no longer meeting the criteria for Autism on measures such as the Childhood Autism Rating Scale (CARS).

In a follow up study Greenspan and Weider (2005) wished to answer a specific question as to whether or not with DIR/Floortime some children with ASD are able to become empathetic, creative and reflective thinkers and have healthy peer relationships and solid academic skills. Wieder and Greenspan (2004) were able to obtain follow up data for 16 children, all of whom were boys and were aged between 12 and 17 years old. The authors report that the group had not only maintained their earlier gains reported in the 1997 study

but had also made further progress, becoming empathetic and talented in their fields of interest and demonstrating abilities to cope with the usual stresses experienced by children during puberty.

Pajareya and Nopaneejymruslers (2011) tested the efficacy of adding a home-based developmental, DIR model to the routine care of pre-schoolers. Using the Functional Emotional Questionnaire (FEQ) and CARS to measure outcomes, the researchers found the majority of children that participated achieved greater gains on each of the scales over a 3-month period. In a similar study, Solomon et al. (2007) trained parents in DIR/Floortime and encouraged them to deliver 15 hours per week of 1:1 intervention. As a result, 45.5% of the sample of autistic children made good to very good functional development progress in comparison to the control group.

The increase in prevalence in Autistic Spectrum Disorders and the increased challenges that educating these children poses for schools have highlighted the need for school based interventions for children on the spectrum that focuses on the development of emotional functioning and relationships with others.

According to educationally based research, teacher participation has been shown to mediate the outcome of interventions; therefore, research models exploring interventions used in schools should aim to include both teacher participation and contextual predictors of teacher participation (Arnold et al., 2012).

The aim of this particular research project is to explore specifically the use of DIR/Floortime in schools. As seen in the literature included above DIR/Floortime has mainly been evaluated in relation to parental training and its use in the family home. To date, there does not appear to be literature exploring the efficacy of the use of DIR/Floortime in schools, despite evidence to suggest that teachers and professionals trained in specific areas of need can have a positive impact on children's behaviour and development (Parsons, 2011).

This small-scale study intends to capitalise on the 'gap' in the literature identified above by answering the question of 'whether or not a school based DIR/Floortime intervention can improve the Functional Emotional behaviours of children with Autistic Spectrum Disorder. through exploring the following hypotheses:

1. DIR/Floortime will improve the social and emotional function of children with ASD within a specialist school setting.
2. Teacher Competency in delivering the DIR/Floortime intervention programme will have a significant impact on improvement in FEAS scores.

Method

Participants

Eight children and eight adults were enrolled in the first part of this study. The experimental group of children consisted of 7 boys and 1 girl aged between 3 and 8 years old with formal diagnosis of Autism Spectrum Disorder (see table 1.1. below) who were already receiving the DIR intervention as part of a whole school adoption of the approach within a specialist school setting. The adults working with the children were a mixture of teaching and support staff that had received training in the DIR intervention and were receiving ongoing supervision from a specialist DIR team that was based at the school. Given the heterogeneity of ASD there were a number of individual differences in the difficulties that the sample faced in terms of their functioning. Children's functioning ranged from children who were pre-verbal with difficulties with motor planning to high functioning children with more specific difficulties with behaviour and learning. Participants were recruited by letter via the parent partnership programme at the school. Participants were selected by school staff based on their suitability for participation in relation to the exclusion criteria and on whether or not their baseline assessments had been recorded, as this would be the primary measure used in the

study. There was no control for gender in the selection process, however children without a formal diagnosis of ASD, those receiving any other intervention programme during the intervention period and those that had received DIR/Floortime intervention prior to involvement in this project, were excluded from participation. All of those in the intervention group attended full time specialist complex needs school. They also received a mixture of additional services including one to one speech therapy and occupational therapy.

Participant	**Age**	**Male/Female**	**School Year**	**Key stage**
1	3	M	Nursery	Foundation Phase
2	3	M	Nursery	Foundation Phase
3	4	M	Reception	Foundation Phase
4	4	M	Reception	Foundation Phase
5	5	M	Year 1	Foundation Phase
6	6	M	Year 2	Foundation phase
7	8	F	Year 4	Key stage 2

Sixteen members of school staff participated in the focus group. Eight members of the group were included in the first part of this study and eight were teachers in the school that had experience of the DIR/Floortime training and using DIR/Floortime on a daily basis.

Materials

Primary outcome measure. The Primary Outcome measurement tool used was the Functional Emotional Assessment Scale (FEAS) (Appendix.11). The Functional Emotional Assessment Scale (FEAS) (Greenspan et al., 2001) is an observational tool that was used to assess baseline assessment videos of the children and follow up assessment videos 1-1.5 years later for progress review purposes.

The FEAS is a criterion-referenced observational coding procedure designed to measure social and emotional functioning. Coders assess six levels of infant and caregiver functioning:

- Regulation and interest in the world;
- Forming relationships;
- Intentional two-way communication;
- Development of a complex sense of self;
- Representational capacity and elaboration of symbolic thinking;
- Emotional thinking or development and expression of thematic play.

The FEAS has been validated with 468 typically developing children, as well as children with regulatory and developmental disorders (Greenspan et al., 2001). The FEAS must be administered by a trained individual who has completed a training course sanctioned by the authors.

Teacher competency Scale. Exploration of teacher/facilitator competencies in delivering the intervention was also conducted using a ‘4 point’ Likert scale questionnaire, designed by

the author of this paper (Appendix .6.). The questionnaire comprised of 4 questions. The questions sought to explore teacher confidence and competence in delivering the intervention, views on how committed staff were to delivering the programme and how staff thought they incorporated DIR/Floortime into the school curriculum. The scale was validated (α=0.80) with 16 members of staff who had experience in delivering Floortime but were not directly involved in working with the children participating in this study. The reason for excluding the 8 members of staff working with the children was to avoid practice effects.

Focus Group Questions and Prompt sheet. 10 open-ended questions (Appendix.5.) were designed to help explore the use of DIR/Floortime in the school and teacher views on the effectiveness of the intervention. A tape recorder was used to record the session.

Design

A within and between subjects, mixed methods design was used in order to identify whether regular DIR/Floortime intervention delivered in a specialist school would lead to greater functional behaviours in children diagnosed with Autism Spectrum Disorders. Both quantitative and qualitative methods of collecting data were obtained using a Sequential Explanatory Design as described by Caswell et al., (2013) (see Figure.1.).

Figure .1. Sequential Explanatory Design

Procedure

A gatekeeping letter was sent to the school to request their participation in the study (Appendix.4.). Opt in letters (Appendix.1.) were sent to all of the parents of children with a diagnosis of ASD in the parent partnership programme. An information letter (Appendix.2.) and consent form (Appendix.3.) was sent to all teaching staff with experience in delivering the DIR/Floortime intervention and those working directly with the children who would be participating in the study**.**

Obtaining Pre and Post test scores on the FEAS. The assessment team consisted of one trainee educational psychologist and a psychology graduate both trained in the use of the FEAS. Both assessors had experience in working with and assessing the needs of autistic children Spectrum Disorders.

The Functional Emotional Assessment Scale (FEAS), (Greenspan et al., 2001), was used as an observational tool to assess video recordings of DIR/Floortime sessions with each child. The video recordings were taken as a baseline assessment of the children's level of functioning on their entry to the DIR/Floortime programme.

The FEAS assessors scored and rated the videos separately and then compared and discussed scores in order to reach an agreement. There was high inter rater reliability between assessors.

All facilitators delivering the intervention (teaching staff and support staff) were trained to level two of the DIR model by certified DIR/Floortime specialists and held accredited qualifications to use the approach. Training included theoretical background knowledge of

the intervention, practical administration of the intervention and regular video analysis of their progress in-group and one to one sessions throughout the intervention period.

The target intervention was based on the DIR/Floortime model developed by Greenspan & Wieder (1997). Participants had received the intervention for between 39 and 58 weeks. Each participant had received a minimum of 15 minutes per day of formal DIR/Floortime intervention. The exact amount of time that children were exposed to the DIR/intervention cannot be reported as it is dependent on individual differences and need.

At the end of the intervention period, the FEAS was used to analyse follow up videos taken 1-1.5 years later as part of the schools evaluation process.

Teacher rating of competency. Exploration of teacher/facilitator competencies in delivering the intervention was conducted using '4 point' Likert scale questionnaire designed by the author of this paper (Appendix.6.). Questionnaires were distributed to the 8 members of staff working with each of the children participating in the study.

Eliciting teacher views. A focus group, consisting of all teachers and support staff involved in delivering the DIR/Floortime intervention was then set up to elicit views on the efficacy of the programme. The session took place at the school during an allocated time slot for team meetings. The focus group took approximately 1 hour and was held in the staff room at the school. The group was run by a trainee educational psychologist who recorded the session using a tape recorder. Please see (Appendix.5.) for more detailed information on questions, prompts and introduction given to the focus group.

Analysis

Quantitative data was analysed using version 20 of SPPS.

The recordings from the focus group were later transcribed verbatim and coded via thematic analysis. The analysis was a 5-stage process involving (1) transcription, (2) generating initial codes for basic ideas and pattern (Appendix.8.) (3) Sorting initial codes into themes

(Appendix.9.) in relation to the research question (4) reviewing themes and (5) defining and naming themes (Braun and Clarke, 2006). A Thematic map is provided in appendix.10.

Ethical Considerations

This study was approved by The School of Psychology Ethics Committee at Cardiff University. Written informed consent was obtained from the children's parents and teaching staff before enrolment in the study (Appendix.4.).

The researcher was not directly involved in administering either the DIR/Floortime training or intervention. DIR/Floortime is used in the participating school irrespective of this research taking place.

All data collected was stored confidentially and anonymised following analysis and participants in the focus group were debriefed in writing (Appendix.8.).

Results

Quantitative Results

Pre- FEAS scores (α=.74) ranged from 14 to 40 (M=25.8, SD=7.4), with post-FEAS (α=.78) scores ranging from 28 to 67 (M =43, SD=9.6). Lower scores obtained on the FEAS suggest difficulty with the underlying skills involved in Self -regulation, Forming Relationships, Two Way purposeful communication, Problem solving and Representational Capacity and Differentiation. Higher scores reflect the level of mastery in the above skill sets. The difference in pre- and post-FEAS scores ranged from 7 to 29 (M= 17.3, SD=9.5) (see table.1. below).

Table 1. Description of the means pre and post intervention including the mean of the difference in scores

		Pre	Post	Difference
N	Valid	8	8	8
	Missing	0	0	0
Mean		25.7500	43.0000	17.2500
Std. Deviation		7.42101	12.78392	9.58794
Minimum		14.00	28.00	7.00
Maximum		40.00	67.00	29.00

A Shapiro Wilks test (p> 0.05) and a visual inspection of the histograms, normal QQ plots and box plots showed that the intervention scores were not normally distributed for the group with a skewness of 0.30 and Kurtosis of -1.46.

The biggest difference in scores could be seen in the areas of self-regulation of behaviours (M=5.3, SD= 2.8) and the development of relationships (M= 4.7, SD= 3.3) however this difference maybe expected given the heterogeneity of ASD.

Within Samples Difference

Given the small sample, a Wilcoxon signed ranks test was conducted to test and confirm the hypothesis that children who received the DIR/Floortime intervention would exhibit improved functional emotional behaviours. The data indicates that the difference between pre and post test scores was significant, *Z*=-2.524, p=.012.

The Wilcoxon signed ranks test indicated that the DIR/Floortime intervention did elicit significant increase in the children's functional behaviours.

Differences in pre and post scores in specific areas of development were also identified. Self-regulation *Z*=--2.527 p=.012, ability to form relationships *Z*=-2.389 p=.017, behavioural organisation *Z*=-2.530 p=.011 and two way communication Z=2.220 p=.026.

Between Samples Difference

Due to the small sample size a linear regression was carried out to explore the relationship between reported teacher competence (α=.76) and the difference in pre and post test scores on the FEAS (Beta = -.126, n's.).

Scores suggest that 'Teacher Competency' did not have a significant impact on scores gained by participants on the FEAS. No further analysis was carried out on this data.

Summary of the results

In summary, the quantitative results suggest that there was an overall significant increase in Functional Emotional Behaviours for the group post intervention. The largest effect sizes could be seen in the areas of regulating behaviour and developing relationships. Given the average age of the participants (n=4.7) it is possible that these results reflect the focus of the intervention on the earlier stages of functional emotional development. All of the children selected for participation completed 1-1.5 years of DIR/Floortime intervention along with either part time or full time specialist school provision alongside receiving additional services for speech and language and occupational therapy with all children making gains of at least two functional emotional levels on the FEAS.

The essential outcomes of the quantitative results is that adding DIR/Floortime intervention on an average of 1.15 hours per week for a minimum of one year helped the autistic children in this study to make significant improvements in their emotional and social development.

There appeared to be no relationship between reported teacher competence and the difference in pre and post test scores. This may reflect the level of training and continued supervision provided to the staff, increasing over-all feelings of competency.

Qualitative Results

Thematic analysis

The way in which Thematic Analysis can be used to identify, compare, contrast and make sense of themes within the text is described in Braun and Clark (2006). A description of its application in this study is described in appendix.10, along with a thematic map demonstrating how initial codes were generated into themes (Appendix.10.).

A 'theoretical' thematic analysis is presented and a semantic approach taken to elicit the explicit and surface meanings of the data.

Five main themes were elicited from the thematic analysis: -

- Flexibility of the approach
- Ambivalence
- Training and support
- Positive outcomes
- Vehicle to the curriculum

Flexibility of the approach

A) Adapting DIR to suit your own needs.

Teaching staff advocated the need for 1:1 DIR/Floortime sessions as essential to the intervention but emphasised the way in which they were also able to incorporate the principles of DIR/Floortime into daily practice to provide the children with more exposure to the intervention. Teacher/support staff appeared to have taken it upon themselves to find new and creative ways of incorporating the model demonstrating its flexibility as an approach and adaptability.

'We are focusing on the principles of the model and how we can marry the curriculum with opportunities to promote those principles.' (J)

B) Group and 1:1 sessions

A number of members of the group advocated the suitability of the approach to working at different systemic levels suggesting that opportunities can be created throughout the school day and not just during direct Floortime sessions.

'We have a specific part in the morning where we each have individual children, they all have individual goals, so… we spend about 15 minutes a day working on those goals. We then incorporate the principles throughout the day' (S)

'Opportunities can be created within topic work and timetabled curriculum sessions '(M)

Positive Outcomes

A) Recognising the importance of 'Play' and early interactions.

The benefits of the play element of the Floortime approach in terms of being effective for developing relationships with the children and enhancing interactions were noted on a number of occasions throughout the group's discussions.

References were made to how the model helped to support children with ASD to develop effective play skills, by establishing what play looked like for the children and figuring out, how, through play, they were able to move children through the early stages of typical child development.

'I think it flags up the importance of play, it's massively researched isn't it, but I think we can, especially parents, forget how important those initial interactions are, I mean not just playing with objects but interacting with people' (D)

'What does play look like for this child and how can we get this child to the next level' (D)

B) Good framework

The group highlighted how the DIR/Floortime provided a clear model of child development. The focus on mastering specific skills in order to move through to the next stages of development provided staff with a good framework for assessing where children were on the developmental ladder and what specific skills needed to be focused on to move them to the next stage.

'I mean what it does it gives you a framework and I've seen it, the next steps of basically where the kids are going…or where they need to go.' (J)

Staff admitted that the model gave them a clearer understanding of essential milestones in early child development breaking down stages in to the necessary skills that need to be acquired. Having a better understanding of typical child development helped them to focus on what skills the children had missed or not yet acquired. Adopting a developmental approach and understanding of ASD is supported by Vygotsky's work and has been shown to have beneficial outcomes for children with ASD (Solomon et al., 2007, Pajareya and Nopaneejymruslers, 2011)

'I mean, for me, I don't really know what stage a baby develops what, but it does, it clearly outlines that to people working with children' (J)

'Taking things right back to basics and low level play skills' (M)

C) Changing mind-sets

There was an emphasis on how teaching staff found it difficult to adapt to the way in which they viewed teaching in initial stages of delivering the intervention. Moving from teacher led relationship to a relationship led by the child's interests.

'*It was initially difficult to follow the child's lead…a complete change of our mind-set'* (M)

A) becoming more empathetic to the needs and experiences of children with ASD.

'We had more realistic expectations…it made us more flexible in our approach and helped us to empathise with what the children were experiencing.'

'*It emphasised giving the children more time and pacing what we do so they have a chance to process it'*

D) Better understanding of Autistic Spectrum Disorder and its traits

'*You really have to understand the traits of each child and the more complex elements of ASD… I wouldn't have really known about them before…like motor planning and sensory issues.' (M)*

Vehicle to the curriculum

A) Better understanding of need

Another prominent theme was how the DIR/Floortime intervention helped staff to gain a better understanding of individual children's needs and interests. These were then used to facilitate interactions and to support access to the curriculum.

"I really like how it focuses on the uniqueness of the child, especially as when they have just come into my class where you've never met before; it helps to get a good insight into who they are and what they like" (S)

B) Personal Profiles

The group suggested that the intervention helped to understand the individual profile of the child, which in turn helped them to identify the best way to teach and help them access the curriculum. It also helped to foster trust and connections with the child.

"The DIR model allows you to develop that relationship with them and allows them to trust you" (J)

"It's a vehicle to help children access the curriculum" (J)

Ambivalence

It was clear that there was conflict between staff opinions on the effectiveness of the DIR model. Those that were embracing the model and who had greater experience in using the model appeared to find that it fitted in well with the curriculum and that it was easy to incorporate into the daily school routine. At least 6 members of the group commented on how they felt fitted well with their curriculum. Some on the other hand felt that there were a number of restrictions to implementing a pure DIR/Floortime approach in a school setting.

'I think it's quite easy in the foundation phase with our class, as it fits with the curriculum we do a lot of movement and circle time things anyway' (S)

A) Not appropriate for all ages

'Yes, I mean, I was teaching key stage 4 and I'm not sure how it would fit with my teaching then?'

There was a clear theme running through the discussion of DIR/Floortime suiting the needs of younger children, mainly within the foundation phase, in comparison to children further up the school with the same level of need. Four members of the group commented on this issue and it was a repeated idea through-out the discussion. It is necessary to consider that DIR/Floortime was a relatively new intervention trialled at the school and that focus had been placed on children starting school as it was possible to gain a clearer baseline assessment of their functioning. It is therefore likely that teaching staff in the later key stages were not as familiar with implementing the model and had yet to realise the benefits for older children as outlined by Greenspan & Wieder (2005). It should also be considered here that despite being chronologically older it is likely that children in the later key stages were functioning at a much younger developmental level due to the characteristics of their diagnosis and therefore DIR could be implemented in much the same way as with younger children.

B) Need for a tailored approach to intervention

There was also discussion around how a tailored approach to intervention is likely to be the most effective way forward in supporting children with ASD in schools and not solely DIR/Floortime. The group highlighted that there were elements of other approaches such as Applied Behavioural analysis (ABA) that in their experience, were also effective. The group agreed that the most effective intervention for children with ASD needed to incorporate elements of a number of approaches.

'We recognise it as good practice (DIR) with its psychological research base, but I think we feel we are now able to customise programmes taking elements of different programmes to best suit the child.' (D)

'A good framework and approach to follow but I would not promote it as the only one…we would be seen to be excluding other things.' (D)

'We've taken what we like from it but we've done what works for us' (J)

A) Heavy weigh on school resources.

Because of the need for consistency, there was inflexibility in sharing responsibility for delivering the intervention. However, comments also reflect the benefits of maintaining and developing relationships.

'Because of the focus on developing relationships, it's good for the child to work with the same person but that can be restrictive when you have a number of children in your class who also need support.' (M)

B) Evaluation and reflection takes time.

Staff reported on the evaluation element of the DIR/Floortime model. Although there was a clear understanding of its importance, it was seen as yet another additional task to their already demanding workload.

'There is a lot of paperwork…I know recording progress is important but the reflection process is lengthy' (M)

A) Need a high staff to pupil ratio.

The group highlighted that because of the level of need and number of children within the setting that require the intervention that a high staff pupil ratio was essential. However, the noted systemic application of DIR/Floortime suggests that, the number of 1:1 sessions could potentially be reduced freeing up staff and resources.

'The staff to pupil ratio is vital…because of the focus on individual Floortime sessions' (M)

B) It takes a lot of time

Staff discussed in detail the difficulties of managing the demands of the school curriculum and finding the time to effectively carry out all the elements of the DIR/Floortime intervention. However, this was contradicted by the views of majority of staff who noted that the DIR/Floortime interventions supported the children to become regulated enough to be able to access the curriculum.

'I haven't got time for the kids to be having 1:1 sessions all day because I have to cover things in the curriculum' (J)

The above comment was more apparent from the teachers than the TA's. The recommended minimum delivery of DIR/Floortime was 30 minutes a day but it appeared that teachers, in particular, felt that there was an expectation that they should be delivering the intervention more regularly. This particular school had invested a lot in the DIR/Floortime programme and had employed a specialist DIR team at the school, thus there may have been pressure on staff to be seen to be delivering the intervention as often as possible.

'*There's a lot of 1:1 time with pupils so…yes time is an issue' (M)*

The Floortime element of DIR does require 1:1 sessions to develop interaction and relationships with the children however particularly in this setting the staff to pupil ratio is high due to the very nature of the needs presented by the children.

'We are not a private school, so we can't opt out of teaching the curriculum, so we still have the legal requirements to follow, so, what we've tried to do is dove tail elements with DIR' (D)

Training and Support

The group clearly outlined the importance of training in DIR/Floortime and continued support of specialists in the area to ensure that the intervention is carried out correctly and effectively.

'You need the infrastructure, it's not something like where you can go on a course and say yes we are going to DIR because you need the support network and we've been really lucky to have the funding for the DIR team who are able to be that external body of support' (J)

Ongoing support throughout the intervention period was considered essential to delivering the intervention correctly.

'Coaching is important, especially to analyse what you are doing, because I struggled with it to begin with' (M)'

A brief critical analysis of the focus group findings

It was apparent that there had been a culture shift in terms of the internal model people were adopting in their approach to autism, with school staff moving away from a deficit based medical model of Autism to a more social, strengths based model as their understanding of individual profiles and unique skills of each child increased.

The school had moved towards an inside-out approach to supporting children on the spectrum**.** Within a busy school environment, it is easy to understand how the staff felt the

need to be more creative with the DIR programme, finding more systemic uses of the model in order to increase children's exposure.

Having a better understanding of individual differences enforced the view point that surface behavioural changes should not be the end goal of supporting autistic children rather the goal is to foster the intrinsic motivation of the children to find pleasure in relationships.

The models focus on individual differences appeared to help foster better relationships between the child and their class teacher, which in turn helped to better organise the child's experiences to support social and emotional growth. It was highlighted that this was particularly useful at times of transition i.e. when moving on to a new year group, teacher etc.

The focus on developing and prioritising affect driven relationships appear to have helped increase the children's motivation to learn, which in turn had a big impact on school culture. Despite a large amount of importance being placed on the need to deliver the curriculum by school staff, it would appear, from the views presented above, that without adopting the relationship driven principles of the DIR/Floortime intervention the children would not have developed the skills needed to access the curriculum. This would suggest a causal relationship between the two. Further critical analysis of the data set and coding identified more latent themes that reflected the social context in which staff were delivering the intervention and the impact of this on staff views of its effectiveness and delivery (see table.2.)

Table 2. Latent Themes

Themes	**Analysis and Extracts**

Top down endorsement of DIR/Floortime	There appeared to be a top down approach, with those higher up the management hierarchy endorsing the use of DIR, some members of staff communicated views that suggested that they were not part of the decision to trial DIR. Staff felt pressure to deliver a pure Floortime approach due to the school's large investment in the model. This conflicted with their already demanding timetables. *'Up until now it was only DIR and I didn't like that personally '* *'We recognised it as good practice with its psychological research base but think we feel we are now able to customise programmes taking elements of different approaches that best suit the child"* *'We are stronger now to question things'*
Resistance to change	Some members of the group felt they already had a good approach to practice that provided good outcomes for the children that they were working with, there appeared to be some reluctance to change ways of working as these views were surprisingly contrasting to those of the rest of the group. *"Good framework and approach but I wouldn't*

	promote it as the only one" *"We rely heavily on the Roots of Learning, it encompasses the same theoretical approach as DIR."* *"So I don't obviously follow the model but there are elements that cross over."* *"From my point of view DIR is used as framework and as an umbrella to tie everything together, um, but it's not the only programme used."*
Lack of understanding	There was evidence of conflicting views between school staff and members of the specialist team on what was most important for the children, the curriculum or DIR, due to the difference in their professional backgrounds. *"I haven't got time for the kids to be having 1:1 sessions all day because I have to cover other things in the curriculum. That's where you do need to marry the principles and think of ways of incorporating them"* *"We are not really able to deliver a pure Floortime model"* *The staff trained within the school have the understanding and the balance of the*

	two…curriculum and DIR…and understand what the staff have to contend with and what they have to deliver as well as the curriculum"

Discussion

This study reported preliminary findings of the effectiveness of a DIR/Floortime intervention for autistic children Spectrum Disorders in a specialist school setting. The study presents results that are consistent with previous research on DIR/Floortime, which is generally found to improve children's functioning on measures of emotional and social functioning (Greenspan & Wieder, 2003, Pajareya and Nopaneejymruslers, 2011, Solomon et al, 2007).

On the primary outcome measure used in this study, the FEAS, the participants showed gains of between 7 and 29 points over a 1.5 year period. These gains were in the following skills:

1. Self-regulation and interest in world,
2. Forming relationships, attachment and engagement,
3. Two way purposeful communication,
4. Behavioural organisation and problem solving.

These gains were higher than in previous studies in this area, including Solomon's 2007 study in which the FEAS scores increased by an average of 6 points within a 12 month period when receiving a parent based DIR/Floortime intervention.

The difference in gains are evident despite the participants in this study receiving less exposure to the Floortime element of the intervention than reported in other studies.

Some may argue that these gains could be explained by the fact that, at baseline, the children in this study had been exposed to fewer opportunities for interaction and lacked adequate and appropriate treatment prior to attending school. However, this would not explain the gains made by the older children participating in this study.

The following explanations of the large gains made are probably more likely. Evaluation of teacher perceptions identified that although the aim of the study was to test the efficacy of the Greenspan DIR/Floortime model in addition to the children's usual curriculum there were some teachers/school staff in the intervention group who decided to partially or totally change their teaching approaches.

'*There was a complete change of my own mind-set; you really had to be open minded about the process.'*

Some members of staff decided to incorporate DIR into their daily routines using the principles outside of direct Floortime sessions and using *'DIR as a vehicle'* for students to access the curriculum. Thus, the children's indirect exposure to the intervention was greater than expected.

DIR/Floortime principles appeared to become part of the school ethos. This suggest that the understanding and the embedding of the principles of the DIR/Floortime approach within the school was even more powerful than the number of the one to one sessions of Floortime provided to the children. This also demonstrates the adaptability of the model for curriculum use, with the change in teaching practice and adoption of a developmental approach to ASD having an equal impact on the results.

The lack of agreement in the focus group on the suitability of DIR/Floortime for older children could be explained by the fact that DIR/Floortime was a relatively new intervention being trialled and used in the school. The school had mostly focused their attention on children coming into the school at nursery and reception age. This could also explain the

higher gains in emotional regulation and shown in the participants scores. Due to the school's focus on early intervention most of the children who had experienced the DIR intervention were in the early key stages and therefore it is likely that the effectiveness of DIR/Floortime had yet to be realised by school staff teaching in the later years. Despite these concerns it is also possible to argue that due to the developmental delay often observed in children with ASD (DSM V) a number of the children within the school at key stage 3 and 4 would still be accessing the curriculum at a much lower level. Therefore these children would benefit from working on the early steps of communication development or even continuing to achieve mastery at the higher end of the communication developmental ladder described by (Greenspan & Wieder, 2005).

The fact that DIR/Floortime was considered time consuming and heavy on resources could be counteracted by the reported adaptability of the approach, considering the creative ways in which staff were able to incorporate it into the curriculum. For example, the use of DIR/Floortime in groups to make it more efficient.

Limitations of the study

Despite the positive outcomes of this study there are a number of methodological limitations that should be considered.

Children in the intervention group used DIR/Floortime in addition to their routine specialist curriculum and additional health services such as speech therapy. It is therefore possible that the results that demonstrate gains in the intervention group could be attributed not only to DIR/Floortime but also simply to more time spent in intensive interaction. Without controlling for the effects of other interventions the extent to which DIR/Floortime can be associated with improved emotional functioning is lessened. However, baseline measurements were taken and from an ethical perspective forcing participants to withdraw from specialist school programmes or therapies for the duration of the study could be deemed

unethical. Therefore whilst validity may have been compromised by concurrent exposure to other programmes ethical integrity was upheld. The lack of control group also means that the effects of maturation cannot be entirely discounted in this study.

Accuracy of the teacher reports regarding the number of hours of intervention was difficult to verify as videotaped assessments were looked at retrospectively. However the school's commitment to delivering the programme in line with the minimum requirements was taken as a baseline measurement of intervention exposure.

The outcome measurement also presented some limitations. The only measurement taken in this study to measure DIR/Floortime's impact on ASD symptomology was the FEAS, which is DIR theory specific and looked at the child's interaction with a specific member of staff. There were no measures of how skills gained through the DIR/Floortime intervention were transferrable to other relationships with peers, parents or siblings for example. Anecdotal evidence gained from discussion with school staff and parents suggests that the skills gained from the DIR/Floortime intervention were evident in both the home and school environments beyond the Floortime sessions but unfortunately further investigation of this was beyond the scope of this study. There was also no exploration of whether gains in social and emotional functioning had a beneficial effect on other important outcomes such as cognitive skills and school performance.

Future Research

Although not the main focus of this study future research should aim to explore the use of DIR/Floortime with children with ASD in both mainstream and specialist settings, exploring the generalisability of the skills gained by the children to other interactions and relationships i.e. with parents, siblings and peers. More rigorous investigation including the use of a control or wait list group would also go further to define the efficacy of the intervention. Future studies should aim to replicate these findings with a larger sample base and try to be

more controlled in seeking to identify how much DIR/Intervention is considered the optimum amount.

What this study adds to current literature.

This study has demonstrated that DIR/Floortime can be applied successfully in schools. It is the first study to explore the use of DIR in a school based context. The ASD evidence-practice gap can create challenges for educational psychologists when deciding on whether it is possible or appropriate to implement a particular intervention. The usual settings in which ASD intervention studies are carried out are clinical in nature and typically have small sample sizes. This therefore makes it difficult to determine the extent to which outcomes can be generalised to regular education settings (Bond et al., 2016) This study has aimed to document broader factors beyond effectiveness of the intervention such as training and resources that are required to deliver the intervention. Previous studies have also focused on the improvement or changes of the core features of ASD and not the emotional development of autistic children in schools. There have also been a limited number of mixed method studies carried out resulting in little qualitative information existing on the effectiveness of school based Autism practices and no quantitative research carried out specifically in relation to the use of DIR/Floortime in schools. Furthermore assessment of educational utility has not been a focus of previous research despite a documented call to strengthen the school-research partnership in order to ensure that the research on interventions is relevant to the setting in which it is to be used (Costley et al., 2014). The main features of this piece of research is that it has inadvertently demonstrated the possible systemic uses of DIR, providing evidence that DIR/Floortime can be applied not only as a discrete intervention but can be adapted to the curriculum and applied more generally within teaching practice.

It is the first study to evaluate the views of teaching staff delivering a DIR/Floortime intervention, which is important to ascertain for any intervention (Arnold et al., 2012) contributing knowledge on how to improve the intervention and how it works in practice.

Implications for practice

DIR/Floortime methods are not specifically part of educational psychology professional training or practice. Nonetheless, development approaches to the treatment of ASD are part of professional practice in this area. Within their role Educational Psychologists provide important guidance for schools in terms of identifying effective interventions and providing recommendations for teacher practice. Educational Psychologists' understanding of typical child developmental patterns and how this differs for children with ASD is essential to understanding the importance of early interactional skills and the development of the early building blocks of communication for children on the spectrum. Educational Psychologists are likely to have to communicate why an intervention like DIR/Floortime is going to be helpful across a number of different systems and settings for example in consultation with parents, schools and other agencies. Within their role Educational Psychologist frequently deliver training on effective ways to work with children with ASD on the whole school and individual level by carrying out direct work with children in order to model relevant approaches. Thus a clear and detailed understanding of 'What works' is central to their role as is evaluating research into interventions such as this in order to establish their relevance and benefit to the education of children with ASD.

Conclusion

Classroom based research such as this promotes ecological validity and knowledge gained from involving teaching staff in the research process. This can form the basis of creating an inclusive environment for children with ASD. Additionally children spend most of their time

in schools as opposed to attending interventions individually, so evaluating school based intervention programmes is proving a necessary task.

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Part.3. Major Research Reflective Account

Word Count: 5,095

Reflective Critical Account

Introduction

The small scale study presented in the above study has been conducted using qualitative and quantitative research methods. These reflect the ontological and epistemological assumptions of the researcher regarding what is acknowledged to be the nature of knowledge.

Thus, it is necessary that the philosophical stance adopted within the research is rendered explicit to the reader, as the methodology and methods utilised are founded on the researcher's view of the nature of knowledge and how this knowledge can be accessed.

The following is a reflection on my research journey and provides a rationale for important decisions made along the way and provides a reflexive account of the process.

It will be presented in the first person as it is a presentation of the researcher's personal views, experiences and reasoning behind decisions made within this study.

Defining the Research Problem

The defining of a research problem is the first formal step in identifying a need for research in a particular area and is usually the most difficult.

I was introduced to DIR Floortime on my first year placement as a trainee Educational Psychologist within a local authority. The schools in a particular rural local authority were procuring specialist input from a qualified team to deliver DIR/Floortime training to staff. These staff members were working directly with children with social communication difficulties and in particular, Autism Spectrum Disorders (ASD).

Schools were investing a large amount of time and resources into training the staff in order to deliver the approach. This initially raised questions for me in terms of the evidence base and efficacy of the programme. School and Education budgets are continually under

pressure. As is the need to meet the National Curriculum targets set nationally. These pressures could be a potential obstacle in terms of the efficacy, and willingness of staff and schools to commit to such programmes.

There was more than sufficient anecdotal evidence of its benefits to children with ASD including my own observations of the intervention in practice. I was also given the opportunity to access video evidence of the gains made by children who had been receiving the intervention. The children's initial baseline assessments of their functioning were compared to their functioning following a period of direct intervention. Differences in the children's abilities were more than evident from examining the videos and from discussions with staff and importantly the children.

The opportunity to meet and talk with parents whose children had been receiving the DIR/Floortime also confirmed gains for children with social communication delay. The real benefits in improvement in the daily needs, challenges and quality of life for both parents and children was at the forefront of these discussions and conversations.

Despite the level of anecdotal evidence and commitment of the school to delivering the DIR/Floortime, an initial preliminary review of the literature available revealed that there had been no formal exploration of the use of DIR/Floortime in the school / educational context. The majority of the research had centred on exploring parental use of DIR/Floortime. The gap in the available literature had been identified.

Ontology and Epistemology

Bryman (2004) provided the simplest explanation of this. He identified a paradigm as a cluster of beliefs which dictate how research should be done and how results should be interpreted.

Paradigms according to this view are opposing world views that are a reflection of the decisions researchers make and also guides the research process. This fitted in with my thinking and now that I had a better understanding of what were considered research paradigms, two dominant schools of thought were identified. Positivism and Interpretivist**.**

Positivism is viewed as the epistemological stance that is most closely associated with an objective ontology. Positivism suggests a more rigorous investigative approach, by endeavouring to test hypotheses in order to find scientific explanations (McEvoy, 2006). Quantitative approaches that incorporate standardised measures and statistical techniques are usually associated with the positivist paradigm. Research methods associated with this paradigm include questionnaires and randomised control trials.

However, there are a number of weaknesses related to this essentialist view. A general understanding would remain general. The knowledge gained using these methods may not help in a particular context, for example, it is all well and good identifying a causal relationship between DIR/Floortime and functional outcomes for children with ASD but what use is that knowledge to teachers without an understanding of how the intervention works within the school context.

A second criticism of this approach to research is that it is difficult to detach oneself from the hypothesis totally. Thus, having considered these matters, this now brings me to the opposing school of thought. Interpretivists believe that knowledge is grounded in human experience and that meaning and experience are socially produced and reproduced.

The emphasis is therefore placed upon gaining meaning by drawing inferences, which is criticised by some researchers as being too subjective. Interpretive approaches to research such as this have been described as not as reliable a mode for scientific investigation as

positivist approaches, which were the traditionally espoused ontological position held within social research up until the past three decades (Madill et al., 2000).

What I found was that both approaches incorporated methods that would prove helpful in answering the research questions posed. Also, neither would adequately do so in isolation. Aspects of both positivist and interpretivist methodologies applied to my beliefs on how best to answer the research question. This ultimately provided me with a clearer view on how to approach to the research.

Despite the difference in theoretical paradigms Johnson and Onwuegbuzie (2004) argue that researchers should use whatever methods are needed to obtain the optimum results, even if this involves switching between paradigms. Therefore the combining elements of both approaches would provide the best fit for me in this research project.

My decision to take a quantitative and qualitative research approach was therefore not based on philosophical commitment, but a belief in a design and methodology fit for purpose. I soon discovered that these views were more in line with an increasingly popular Pragmatist approach (McEvoy. 2006).

At a fundamental level, all forms of research and inquiry develop from the human desire to understand and make sense of the world (McEvoy, 2006). However there remains a debate between purist and pragmatist positions.

Adopting a pragmatist position suggests that neither qualitative nor quantitative methods alone are sufficient to develop a complete analysis (Tashakkori & Teddie, 2010). Creswell (2013) supports this view and suggests that problems addressed by social and health sciences are complex and therefore the use of quantitative and qualitative approaches alone is inadequate to address this complexity.

Attempting to integrate positivist and interpretivist approaches can be difficult, making sense of data using methods with conflicting epistemological assumptions is not always a straightforward process as it could be difficult to link contextualised interpretive findings to empirical generalisations (Bryman, 2004).

Adopting a Critical Realist Position

Critical realism offers an alternative to positivism and interpretism. Critical realists argue that the world is multi-dimensional and that effects arise due to an interaction between social structures, mechanisms and human agency (McEvoy, 2006). From this stance interventions (causal mechanisms) have the potential to make an impact, but that impact is dependent on the social context in which the intervention operates. As such adopting a critical realist position provides a rational for the direction of this study; to explore both intervention impact and the social context in which the intervention was delivered.

Critical Realist suggest that it is impossible to fully understand the reality of a situation as perceptions are shaped by our theoretical resources and investigative interests.

Critical realism suggests that there are two main problems with positivist methodology. These can be seen as:-

1. The focus is exclusively on observable events and fail to take account of the extent to which observations are influenced by people's thoughts and views.
2. Positivists deal with relationships between various social elements in isolation.

(McEvoy, 2006)

Critical realists acknowledge the value of interpretivist methodologies that focus on discourse, human perception and motivation but realise that views of participants may be partial or even misguided (Lopez and Potter, 2005)

Creswell et al., (2004) support that in combination qualitative and quantitative methods can complement each other.

A Mixed Methods Design

The above literature supports the decision taken to adopt a mixed methods design approach. Within this particular mixed methods design data were gathered sequentially. Quantitative data was collected and analysed in the first instance followed by the collection of qualitative data and its analysis and then an interpretation of the entire analysis was carried out (see figure.1.). Creswell (2013) proposes that in order for mixed methodologies to be considered legitimate and held in esteem by traditional researchers, the research process and how methods are linked must be made explicit. The primary aim of the study was to ascertain whether DIR/Floortime intervention resulted in better social and emotional functioning for children within a specialist school setting. The secondary aim of the study was to expand on these results and provide supportive and complementary information for the data.

Figure 2. Sequential Explanatory Design

According to Creswell (2013) Timing, Weight, Mixing and Theorising help to shape the procedures of mixed methods designs. Within a sequential explanatory design, weight typically is given to the quantitative data and the mixing of the data occurs when the initial quantitative results informs the secondary qualitative data collection, thus the two forms of data are separate but connected. An explicit theory may or may not inform the overall procedure. In this instance theory relating to the potential benefits of DIR Floortime and the impact of teacher competency played a key part in informing the procedure.

Reasons for adopting a mixed methods design included:

- Mixed methods designs can answer simultaneously confirmatory and exploratory questions.
- Provide stronger inferences through the depth and breadth in order to answer complex social phenomena.
- Provide opportunity for the expression of different viewpoints.

Bryman (2004) also suggests that adopting a mixed methods design allows for filling in gaps that arise when committing to a singular research approach.

Therefore to have selected a 'dominant' method would only provide readers with a partial picture and a more sensible way forward would be to recognise that life is not that straightforward (Patton, 2003) particularly in the context within which this piece of research would be carried out where multiple variables would likely impact on the delivery of the intervention.

To have adopted one approach over another would have been to hold one view superior to another, when in reality; one without the other would not have provided a true enough picture for the outcome of the research.

Developing and Implementing a Sampling Plan

Identifying a possible sample was not a difficult process. Participants were selected using a purposive 'theoretical' approach. That is, participants were selected based on how useful they would be to the inquiry. This method of sampling would also allow for the collection of the views of participant who were not necessarily representative of the general sample i.e. teaching staff delivering the intervention.

The school in which the study was carried out had invested in the employment of a specialist DIR/Floortime team. This team were employed to train and supervise the school

staff in the delivery of the model. I was concerned that the sampling methods used would elicit problems related to sampling bias due to the lack of random selection. On reflection, even though bias cannot be ruled out in this case, the sample of participants recruited remained representative of the target population of children with a formal diagnosis of ASD.

Conceptualizing, Operationalizing and Testing Measures

The decision to use the Functional Emotional Assessment scale to measure outcomes was based on available research in this area. Research in this area has already shown that in order to effectively measure outcomes for autistic children it is important to consider impact on areas such as communicative competence, social understanding, physical and emotional wellbeing and independence, particularly when evaluating interventions (Parsons et al., 2011). As such developmental measures like the FEAS are more closely aligned to diagnostic criteria for autism (Lord et al, 2001).

The FEAS is an observational tool that was used to assess baseline assessment videos of the children and follow up assessment videos 1-1.5 years later for progress review purposes.

The reason for selecting this period for the collection of post intervention data was a pragmatic one. The school were already involved in a process for taking video recordings of the children's progress at annual intervals for their own evaluative purposes. Clearly this was with the full support of parents / care-givers and this potentially could have been a major obstacle for the research had it been a new proposal for parents to consider and agree and for children to be comfortable with. This would also allow for exploration of the longitudinal effects of the intervention.

The FEAS is a criterion-referenced observational coding procedure designed to measure social and emotional functioning. Coders assess six levels of infant and caregiver functioning: (1) regulation and interest in the world; (2) forming relationships (attachment);

(3) intentional two-way communication; (4) development of a complex sense of self; (5) representational capacity and elaboration of symbolic thinking; and (6) emotional thinking or development and expression of thematic play.

The FEAS was validated with 468, typically developing children, as well as children with regulatory and developmental disorders.

The FEAS must be administered by a suitably trained and competent individual who has completed a training course sanctioned by the authors. This presented an initial problem for the research process. In order to ensure 'rater' reliability and avoid potential bias I would have to find and recruit someone who met the above criteria. This would enable the scores given on the FEAS to be checked and fully validated. This person would also have to be able to give their time and commitment to assessing the video interactions. I also felt it was important that this person be experienced in working with and assessing the needs of autistic children. This initially appeared to be a task that was impossible given the limited use of DIR/Floortime in Wales and the limited time available to support staff and teachers in schools. However through discussion and conversations with the DIR team a second rater was identified. They were a psychology graduate recently employed by the DIR team who was interested in developing her knowledge of DIR. It transpired that she was trained in the use of FEAS and had already had previous experience of providing feedback to school staff on their interactions during Floortime. Similarly, she also had time to help with assessing the videos. Again, a seemingly major obstacle had been overcome to enable the research to progress with meaning and authority.

Although the FEAS would allow exploration of the impact of DIR/Floortime on the children's functioning, in order to provide a realistic view of the efficacy of the intervention it would be necessary to consider and analyse the context in which the intervention would be carried out and the impact of other variables on intervention outcomes. As such the decision

was made to include a measure of teacher competency in delivering the intervention and to hold a focus group to explore the views of teachers and support staff in the delivery of the intervention. Exploration of the literature into education based research highlighted the impact of teacher participation and competency in delivering intervention on outcome measures (Arnold et al., 2012). This further supported the decision to develop the competency measure and to hold a focus group.

In order to explore the teacher/facilitator competencies in delivering the intervention a '4 point' Likert scale questionnaire was used. This questionnaire was designed by me. The questionnaire comprised of 4 questions. The questions sought to explore teacher confidence and competence in delivering the intervention, their views on how committed staff were to delivering the programme and how staff thought they incorporated DIR/Floortime into the school curriculum. The scale was validated (α=0.80) with 16 members of staff who had experience in delivering Floortime but were not directly involved in working with the children participating in this study. The reason for excluding the 8 members of staff working with the children was to avoid the potential of practice effects being included in the outcome.

Likert type frequency scales use fixed choice response formats and are designed to measure attitudes and opinions (Bertram, 2007). They can generate a statistical measurement of people's attitudes that can be used to test for relationships between variables. They allow for the degrees of people's opinions and are also relatively easy to design and easy for participants to read and complete, this would potentially produce a higher response rate.

The limitations of using a Likert scale design include central tendency bias, with participants avoiding extreme response categories. Agreement bias, participants may agree with statements as presented in order to please the experimenter, social desirability bias,

participants may portray themselves in a more socially favourable light and lastly the validity of scales is often difficult to measure (Bertram, 2007).

Some of the above bias could potentially be avoided by offering respondents anonymity to reduce social pressure to respond and also by assuring participants that only 'I' as the researcher would have access to the information. Confidentiality was an essential part to the whole process.

Another concern initially identified was that I would be using the scale to examine the views of teachers and support staff on their competency in delivering the DIR/Floortime intervention. However I would be asking for a retrospective account, which may be different now compared to during the intervention period, as teachers would have had more experience in delivering the intervention.

Conducting a focus group

Methods associated with the interpretive paradigm include focus groups, unstructured interviews and textual analysis.

Focus groups were chosen due to their potential to generate in depth discussion and there suitability to gaining several perspectives on the same topic. Focus groups were particularly suited to the study of people's experience, which is exactly what I wished to explore (Kitzinger, 1995).

Literature supporting the use of focus groups also suggested that participants' attitudes, feelings and beliefs were more likely to be revealed via a social gathering as questions are usually open ended and encourage discussion and exploration of the consensus on a particular topic.

Focus groups also facilitated the gathering of a larger amount of information in a shorter period of time. This was particularly beneficial when considering the period to carry out this piece of research and the competing demands of the DEdPsy programme.

However the planning for conducting a focus group posed some practical issues. Carrying out the focus group relied on the availability of a number of people at the same time. Within a busy school environment identifying a suitable time for a number of members of staff to meet presented a challenge. In this instance, it proved to be the biggest challenge of the whole research project. It soon transpired that being very reliant on the participation of others meant I subsequently had to work within their timeframes and manage competing priorities. Even despite arrangements being made to hold the focus group on a particular date and time at the point of recruitment, the session had to be postponed due to school commitments. The requirement for staff to attend training would also mean that the session would be postponed a further three times. Eventually the session had to be held at the end of January. This was just a few days before the initial submission of the first draft of this research project. This delay had a considerable knock on effect on analysis and interpretation of both the qualitative and quantitative results and the relationships between the two.

Now on reflection, maybe the periods for carrying out the piece of research could have been made more explicit to participants. I could have also been more forceful in ensuring that the focus groups were a priority and perhaps sought recognised peer support for the research at the outset.

However, it has to be recognised that participants were volunteering their time to this study. I felt that it was important to be patient and respectful of their commitments whilst also remaining mindful of the environment in which the participants worked. I was more than

grateful for their involvement and did not wish to jeopardise any current or future relationships I had built with the school.

A focus group, consisting of all teachers and support staff involved in delivering the DIR/Floortime intervention was set up to elicit views on the efficacy of the programme. The session took place at the school during an allocated time slot for team meetings. The support of the Head Teacher in these circumstances was critical and the ability to tap into an already arranged meeting was vital to it going ahead. The Focus group took approximately 1 hour and was held in the staff room at the school. The group was run by a trainee educational psychologist who recorded the session using a tape recorder. Ten, open ended questions were designed to help explore the use of DIR/Floortime in the school and seek the teachers views on the effectiveness of the intervention.

During the focus groups there was a clear need to remain mindful of dominant characters who may take over the discussions and ensuring that everyone had the opportunity to speak. This was also important to consider when analysing the transcript ensuring that quotations selected were not just representative of those who could 'shout the loudest'.

It was also difficult to avoid potential irrelevant discussion that distracted from the main focus of the session and encourage everyone to participate, which may have resulted in valuable opinions being missed. A clear focus for the group was essential.

I also would have liked to have had the opportunity to explore in more detail the teachers' opinions on the impact of DIR/Floortime on children's functioning, as answers were at times very brief. The positioning of this question towards the beginning of session may have elicited a more detailed response from the participants or providing the questions prior. Krueger (2002) suggests piloting questions prior to holding the focus group to avoid such issues and ensure suitability of question order.

Chosen method of analysis

"*The question of epistemology is usually determined when the research project is being conceptualised but can also raise its head again during analysis."*

(Braun and Clarke, 2006)

Thematic Analysis was chosen because it is compatible with both essentialist and constructionist paradigms that were suited to the general mixed nature of this study. A critical realist approach was taken to analysis, acknowledging the way in which participants make meaning of their experiences whilst retaining a focus on reality.

The focus group recordings were transcribed verbatim and coded via thematic analysis. The analysis was a 5 stage process involving (1) transcription, (2) generating initial codes for basic ideas and pattern (3) sorting initial codes into themes in relation to the research question (4) reviewing themes and (5) defining and naming themes (Braun and Clarke, 2006).

According to Braun and Clarke (2006) your research epistemology guides what you can say about your data and informs how you theorise meaning. As such taking an essentialist and interpretive approach to analysis allowed me to theorise motivations, experience and meaning in a straight forward way but also allowed for an understanding of the socio-cultural context underlying the individual accounts provided. This aligned with the mixed methods design of this study.

Data was identified using a combination of both bottom up and top down approaches exploring the data at both the semantic and latent levels. It would have been impossible to claim use of a pure bottom up approach as this would assume that the analysis of the data was not influenced by my epistemological and theoretical commitments. I had to be realistic in terms of how objective I could be considering the likely influence of my prior knowledge of autism and personal views of the DIR/Floortime intervention. I had to regularly remind

myself of this during analysis, for example, during initial coding of the transcript I had to be careful not to disregard negative feedback about the intervention as I personally had a very positive view of the intervention. This matter has been a particular learning curve that has proved invaluable.

I also had to remain mindful of my relationship with the DIR/Floortime team. This had developed throughout the course of undertaking the research and of its possible impact on any bias in my analysis of the available data throughout and at its conclusion.

The Importance of Supervision

Asking for help is not a strong point of mine. It is something that does not always sit comfortably with me. It is an area that I have had to work hard on throughout the research process. However, supervision has been invaluable and has helped me to realise that it is not a weakness.

I do not have an extensive research background. I was therefore entering into a mine field of new concepts and a language that I was unfamiliar with and had to spend a considerable amount of time reflecting and analysing these facts. Supervision has helped to put my mind at ease about the things I felt I did not know and to help me realise that this was a learning process and that I was not expected to know everything before getting started. I was also certainly able to share ideas and glean some of the expertise of my supervisor during the supervision process and utilise the opportunity to bounce ideas around and reflect on different approaches and viewpoints.

I came across a multitude of different, complex challenges throughout the research process and undoubtedly the supervision provided to me throughout the process has helped me to problem solve these issues and find creative solutions.

It is during supervision that I have been most reflective. When caught up in the research process it is difficult to remain objective and conscious of your decision making. You can almost lose sight of the purpose behind what you are doing and it requires the questioning of a neutral mind to help you regain that focus and to see problems from another point of view.

Supervision led to positive outcomes on a personal level in terms of improving my belief in my ability as a novice researcher. It has also helped me to ensure that I was detailed in my analysis and reflection; this also helped me to have a deeper understanding of the research process. The main outcome of supervision was that I became more confident in my decision making and more assertive in my belief that the study had purpose. I also had the self-belief that it was contributing to the literature and the educational psychology profession.

Contribute to my Practice as an Educational Psychologist.

A growing, and certainly encouraged area of the educational psychologist work and role is that of research. Working within education, educational psychologists are in a key position to carry out effective and relevant research. They have the ability and opportunity to seek to contribute to the evidence base for educational practice. They can, inform and develop policy and strategy. They can explore ideas and encourage reflective practice with their colleagues and peers.

The educational psychologist's role is to support schools to evaluate new ways of working and to develop effective and relevant practice. It can seek to stimulate and encourage informed debate and look to enhance the experiences of children and parents within the educational environment.

The opportunity to empower children and parents / care-givers should also be considered and encouraged so that their lives can be enriched and fulfilled as far as is reasonably practicable.

Within their role Educational Psychologists provide important guidance for schools in terms of identifying effective interventions and providing recommendations for teacher practice. An Educational Psychologist's understanding of typical child developmental patterns and how this differs for children with ASD is essential to understanding the importance of early interactional skills and the development of the early building blocks of communication for children on the spectrum. Educational Psychologists are very likely to have to communicate why an intervention like DIR/Floortime is going to be helpful across a number of different systems and settings, for example, in consultation with parents, schools and other agencies.

Within their role Educational Psychologist are frequently required to deliver training on effective ways to work with children with ASD. This is both on the whole school and individual level by carrying out direct work with children in order to model relevant approaches. Thus a clear and detailed understanding of 'What works' is central to their role. Likewise, so is evaluating research into interventions such as this in order to establish their relevance and benefit to the education of children with ASD.

What I Would Have Liked to Have Done Differently

Although not the main focus of this study, on reflection, I would have liked to explore the use of DIR/Floortime with children with ASD in both mainstream and specialist settings. This would have enabled me to make direct comparisons between the two settings. Exploring the use of DIR/Floortime within a mainstream setting would have helped to ascertain whether the use of DIR/Floortime is generalizable across a variety of educational settings.

Exploring the generalisability of the skills gained by the children to other interactions and relationships i.e. with parents, siblings and peers would have also added to the efficacy of the use of the intervention in schools and would have added another dimension to the study.

More rigorous investigation including the use of a control or wait list group would have also gone further to define the efficacy of the intervention.

In the future I would like to replicate these findings with a larger sample base. I would like to try to be more controlled in seeking to identify how much DIR/Intervention is considered to be the optimum amount for children. Finally, I would have also liked to be more directly involved in the delivery of the intervention and seek parents / care-givers thoughts on the process and its perceived benefits.

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Appendices

Appendix.1. Parental Consent

Dear Parent / Carer

My name is Laurie Davies and I'm an educational psychologist in training. I am hoping to do some research into the effectiveness of DIR/Floortime and its use in schools. To do this I will be collecting information from video recordings of Floortime sessions with your child that have been taken by the DIR/Floortime team, I will be looking at video's from when your child first started DIR/Floortime and comparing those to videos a year later to see how they have progressed.

If you are happy for me to do this please fill in your details below and return the slip to the school.

It is important that you know that all information will be held confidentially and I will be the only person who has access to this information along with the DIR/Floortime team, the videos will be watched with a member of the DIR team present at all times and no children's names will be used in the research.

If you would like further details about my involvement, please don't hesitate to call me on the telephone number below.

Laurie Smerdon

Tower Building, Park Place

Email: smerdonln@cardiff.ac.uk

Telephone: 07791916481

Yours Sincerely,

Laurie Smerdon

(Trainee Educational Psychologist)

I give permission for information about my child to be used by trainee educational psychologist from Cardiff University for this piece of research.

Name of child/children: _____

Class: _____

Parent/Carer name: _____

Signature: _____

Appendix.2. Information sheet

The school has been invited to take part in a study carried out by a trainee educational psychologist from Cardiff University. The focus of this research is to evaluate the effectiveness of running the DIR/Floortime programme and training in schools. As you are most likely aware DIR/Floortime is a developmental intervention that is based on the idea that due to individual processing differences children with ASD do not master the early developmental milestones that are the foundations of learning. DIR outlines six core developmental stages that children with ASD have often missed or not mastered. These are, Stage One: Regulation and Interest in the World, Stage Two: Engagement and relating, Stage Three: Two way intentional communication, Stage Four: Continuous social problem solving, Stage Five: Symbolic play, Stage Six: Bridging ideas (Greenspan & Wieder, 1997).

Joint attention and the promotion of shared interaction are at the centre of the DIR model, which is designed to increase socialization, improve language and decrease repetitive behaviours (Greenspan, 2006).

Please read the following for more details:

The purpose of the study

The purpose of this study is to evaluate the effectiveness of providing DIR/Floortime training in schools.

Why have I been chosen?

As members of staff selected for participation in the training, you are in a perfect position to observe and comment on the potential impact the training has had on the child that you are working with and to comment on the efficacy of the DIR/Floortime programme.

If you would like to take part in this study, you will be asked to sign a consent form, which indicates that you understand the purpose of this study and what it will involve. If you agree to take part, you will be free to withdraw from the study at any time, and do not need to provide a reason for this.

What will taking part involve?

I will arrange a focus group at a time convenient to you after the DIR/Floortime programme has been administered and the pre and post-test measures carried out. We will need to meet once for approximately one hour at a mutually convenient time on school premises. During the focus group I will be asking you to describe your experience of the training and administration of the programme. I am interested in both positive and negative observations and experiences.

Information from the discussion will be analysed and included in the report on the effectiveness of the study.

Are there any risks involved in taking part in this study?

Taking part in this study has few risks. However, you might feel uncomfortable discussing possible issues with the programme. If this occurs, you may have some time to discuss these issues further with Dr Simon Claridge who is supervising this study. Dr Claridge's details are included at the end of this information sheet.

What are the benefits of taking part?

Taking part in this study could benefit both children and staff at your school.

What will happen as a result of this study?

Following this study a research report will be prepared for examination by the University of Cardiff. No personally identifiable information about you will be used throughout this process. All the information I collect in relation to you will be kept confidentially and then anonymised after the data has been analysed. This means that no one will be able to tell if you took part in this study by looking at the data that I have collected.

Who has given permission for this study to go ahead?

This study has been reviewed by Cardiff University's School Research Ethics Committee and they have agreed for this study to ahead.

Who can I contact for further information about this study?

You can contact Dr Simon Claridge research director on the DEdPsy programme. His contact details are below.

Thank you

Laurie Smerdon

(Trainee Educational Psychologist)

Tower Building Park Place

Email: smerdonl@cardiff.ac.uk

Telephone: +44(0) 2920 20875393

Dr Simon Claridge,

Research Director

Tower Building, Park Place

Email: ClaridgeS@cardiff.ac.uk

Appendix.3. Consent Staff

School of Psychology, Cardiff University

Consent Form - Confidential data

I understand that my participation in this project will involve discussing the effectiveness of the DIR/Floortime programme based on observed changes in behaviour following the Floortime sessions, which will require approximately and hour (maximum) of my time through participation in a focus group.

I understand that participation in this study is voluntary and that I can withdraw from the study at any time without giving a reason.

I understand that I am free to ask any questions at any time. I am free to withdraw or discuss my concerns with Dr Simon Claridge, Research Director on the DEdPsy Programme at Cardiff University, using the contact details below:

Location: Tower Building, Park Place

Email: ClaridgeS@cardiff.ac.uk

Telephone: +44(0) 2920 20875393

The researcher's details are:

Location: Tower Building Park Place

Email: smerdonl@cardiff.ac.uk

Telephone: +44(0) 2920 20875393

I understand that the information provided by me will be held confidentially, such that only the trainee educational psychologist can trace this information back to me individually. I understand that my data will be anonymised at the end of the study and that after this point no-one will be able to trace my

information back to me. The information will be retained for up to four years when it will be deleted/destroyed. I understand that I can ask for the information I provide to be deleted/destroyed at any time up until the data has been anonymised and I can have access to the information up until the data has been anonymised.

I also understand that at the end of the study I will be provided with additional information and feedback about the purpose of the study.

I, _____ (NAME) consent to participate in the study conducted by [*name of student*] School of Psychology, Cardiff University with the supervision of *[name of supervisor*].

Signed:

Date:

Appendix.4.Gatekeeping Letter

Dear_____

I am a postgraduate student on the Doctorate Educational Psychology programme in the school of psychology, Cardiff University. I am aware that you have invested in DIR/Floortime at your school and in training for staff that are currently supporting children with ASD and other social communication difficulties.

As part of my doctoral training I am hoping to carry out a study to explore the effectiveness of DIR/Floortime training and explore the possible outcomes of providing and running this type of intervention in schools.

My involvement would require the collection and analysis of data from children and school staff involved in the DIR/Floortime intervention prior to receiving Floortime and after receiving the intervention for a period of time.

My involvement would include taking measures of the children's functional behaviours through the analysis of Floortime interactions video recorded by *** and her team as part of the DIR/Floortime training using the Functional Emotional Assessment Scale (FEAS).

I would need to analyse the data collected and would also like to set up focus groups with members of teaching staff, in order to obtain views on the effectiveness of the DIR/Floortime programme. The focus groups will take approximately 45-minutes to 1 hour during school hours, such as a lunch break and will be held at a time considered appropriate for individual members of staff. All of the information collected will be held anonymously.

I would be grateful if you would allow me to carry out this piece of research in your school. I have attached a consent form for completion by the parents of the children that maybe selected for participation to ensure consent for their child's involvement in this study.

Should you have any further questions or would like to further discuss my involvement please do not hesitate to contact me using the details below, you can also contact my supervisor Dr Simon Claridge, Research Director on the DEdPsy programme at Cardiff University.

Many thanks in advance for your consideration of this project.

Regards,

Laurie Smerdon

(Trainee Educational Psychologist)

Tower Building Park Place

Email: smerdonl@cardiff.ac.uk

Telephone: +44(0) 2920 20875393

Dr Simon Claridge

Tower Building, Park Place

Email: ClaridgeS@cardiff.ac.uk

Appendix.5. Focus Group Questions and Introduction

Good afternoon and welcome to this session. Thanks for taking the time to join me to talk about the running of the DIR/Floortime intervention in your school. My name is Laurie Davies and I'm a student at Cardiff University. I would like to get some information about your perceptions of DIR/Floortime and its implementation. I would like to know what you liked and disliked about the intervention and how effective you think it has been in supporting children with ASD in your school.

You were invited because you have direct experience of delivering the DIR/Floortime intervention.

There are no right or wrong answers but rather differing points of view. Please feel free to share your points of view even if it differs from what others have said. Keep in mind that I am just as interested in negative comments as positive comments.

You've probably notices the tape recorder. I'm recording the session because I don't want to miss any of your comments and am not able to write fast enough to get them all down.

You can be assured of complete confidentiality as the data will be transcribed anonymously.

Well let's begin.

1. If I say 'DIR/Floortime' what adjectives come to mind?

2. Can you take me through your first experiences of using DIR/Floortime?
3. What do you like about DIR/Floortime? What are the positives? What works well?
4. What don't you like about DIR/Floortime? What are the negatives? Are there any elements that stand out as difficult or troublesome?
5. How do you find incorporating DIR/Floortime into the school routine?

6. How well do you find DIR/Floortime marries with the curriculum?
7. What advice would you offer another school thinking of investing in DIR/Floortime?
8. Do you think DIR/Floortime supports outcome for children with social communication or Autistic Spectrum Disorders in school?
9. How easy/difficult do you find monitoring children's progress when using DIR/Floortime?
10. What are the barriers to DIR/Floortime being a successful intervention? What elements of the model ensure its success?

I wanted to evaluate the use of DIR/Floortime in your school. Particularly its use with children on the Autistic Spectrum, is there anything we've missed? Is there anything you came wanting to say but didn't get a chance to say?

Thank you all for your time and cooperation

Appendix.6. Teacher Competency Scale

The below questions are likert scale questions. Questions require the recipient to rate themselves from 1-4, with 1 being the lowest and 4 the highest rating you can give yourself, explanations for each rating are given at each question. Please circle the answer that most applies.

All questionnaires are confidential and once the data has been analysed, will be destroyed. Until destroyed the questionnaires will be held securely and confidentially.

Thank you in advance for your participation in this study.

How competent do you feel you are in facilitating/delivering DIR/Floortime sessions?

1	2	3	4
Not competent at all	Slightly competent	Competent enough	Very competent

How confident are you in your understanding of the DIR/Floortime model and principles?

1	2	3	4
Not confident at all	Slightly Confident	Confident enough	Very confident

How well do you feel you have incorporated the principles of the DIR/Floortime model into the classroom?

1 Not well at all (we hardly ever use the principles or carry out floortime sessions)

2 Slightly well (we apply the principles and carry out floor time as often as we can)

3 Well enough (We use and think about the principles frequently and carry out floor time sessions daily)

4 Very well (The principles have become part of the classroom ethos. Floortime forms part of the classroom routine)

How committed do you feel you are to the delivery of DIR/Floortime sessions?

1	2	3	4
Not committed at all	Slightly Committed	Committed enough	Very committed

Appendix.7. Debrief Sheet

An Evaluation of the Effectiveness of DIR/Floortime training in schools.

I would like to thank you for your participation in this study.

The purpose of the study was to explore the effectiveness of DIR/Floortime training in schools.

Data collected will be held anonymously until completion of the study. You can ask for the information you provided to be deleted/destroyed at any time up and can have access to the information up until it has been anonymised.

If you would like further information on DIR/Floortime the following link maybe helpful;

www.stanleygreenspan.com

Thanks again,

Laurie Smerdon

Appendix.8. Phase Description of the process

1. Familiarising yourself with your data: Transcribing data (if necessary), reading and rereading the data, noting down initial ideas.

2. Generating initial codes: Coding interesting features of the data in a systematic fashion across the entire data set, collating data relevant to each code.

3. Searching for themes: Collating codes into potential themes, gathering all data relevant to each potential theme.

4. Reviewing themes: Checking in the themes work in relation to the coded extracts (Level 1) and the entire data set (Level 2), generating a thematic „map" of the analysis.

5. Defining and naming themes: Ongoing analysis to refine the specifics of each theme, and the overall story the analysis tells; generating clear definitions and names for each theme.

6. Producing the report: The final opportunity for analysis. Selection of vivid, compelling extract examples, final analysis of selected extracts, relating back of the analysis to the research question and literature, producing a scholarly report of the analysis.

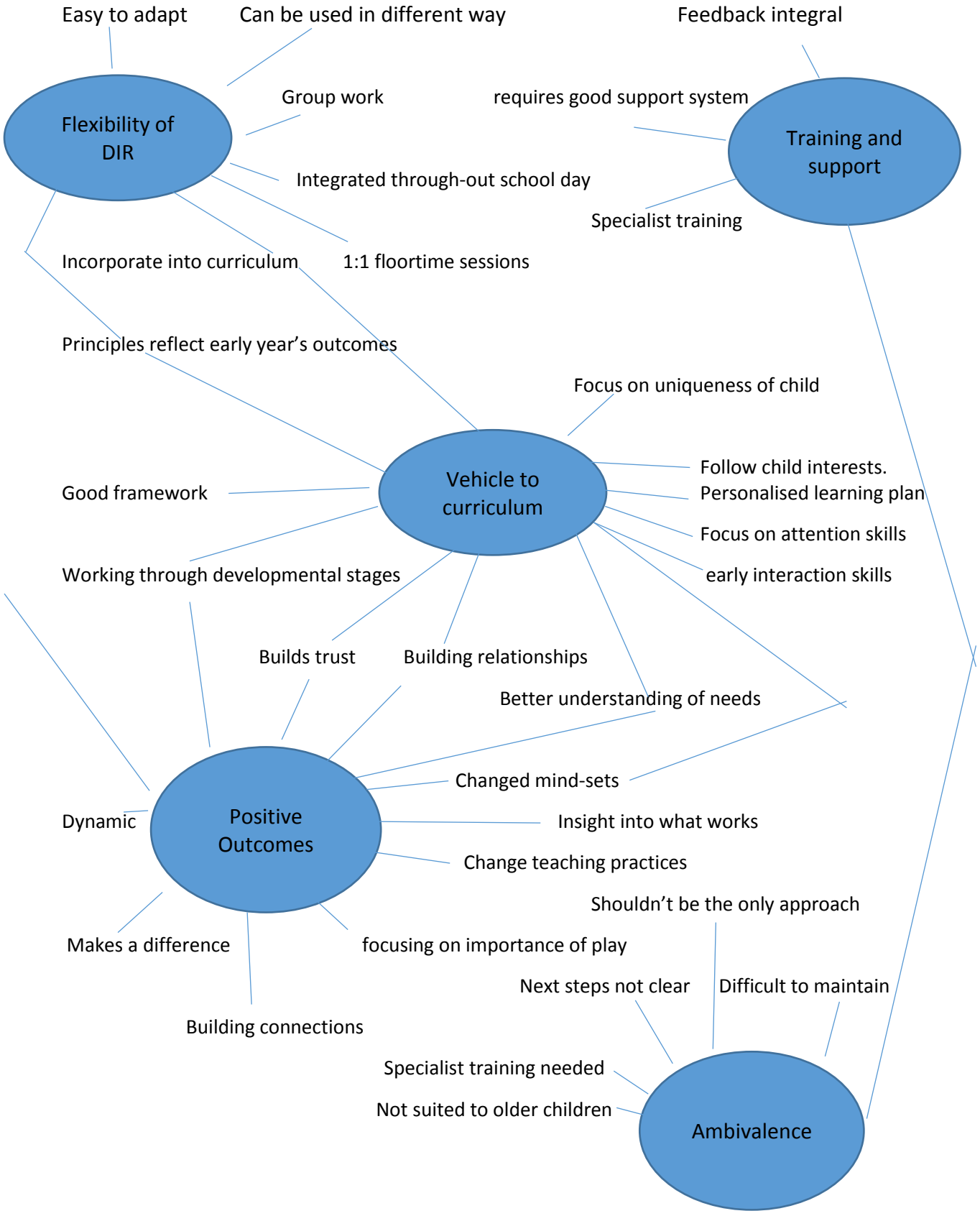
Appendix.9. Generating Initial Codes

1. Incorporated in whole time table
2. Using Floortime throughout day
3. 1:1 sessions
4. Group sessions
5. Adapting the Floortime curriculum
6. Exposure to DIR principles as beneficial as 1:1
7. No call for Floortime with older children
8. Not suitable for PMLD children
9. Principles based on developmental psychology
10. Good Framework
11. Not used as prescribed
12. Not used exclusively
13. Focus on the uniqueness of the child
14. Gives good insight into the child
15. Individual differences is the focus
16. Personalised learning plan
17. Focus on importance of play
18. Early interaction
19. Developing relationships
20. Moving through stages of development
21. Focus on attention skills
22. Not a unique approach
23. Fit with foundation phase

24. Use of other approaches within DIR
25. Curriculum remains main focus
26. Incorporating DIR into the curriculum
27. Individualising the approach
28. Focus on incorporating DIR principles
29. Suitability for older children
30. Doesn't clearly outline next steps for older children
31. DIR example of good practice
32. Dynamic in nature
33. Customise to meet child's needs
34. Easy to carry out
35. Fits well with foundation phase
36. Importance of curriculum
37. Difficult to carry out with older children
38. Can't opt out of teaching the curriculum
39. Using DIR Philosophy
40. Curriculum no.1. priority
41. Not suitable for Key stage 4
42. Marri's well with curriculum
43. Time is an issue
44. Focus on 1:1 sessions
45. Difficult to maintain with teaching demands
46. Focus on developing relationships
47. Vehicle to the curriculum
48. Allows for a better understanding

49. Builds trust
50. Requires a good support system
51. Feedback important for successful delivery
52. Specialist training required
53. Continued support from specialist team
54. Requires funding
55. Better understanding of ASD
56. Focus on child's interests to improve motivation
57. Makes a difference to children with ASD
58. Principles reflect early years outcomes
59. Clear assessment of developmental stage

Appendix.10. Thematic Map



Combination of approaches needed

Time consuming

Heavy on resources

Child's name:_____ Age:_____

The Functional Emotional Assessment Scale F.E.A.S.
NEW RESEARCH VERSION (2010) Administration and Scoring Form

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With contributions from: Andrea Davis, Rick Solomon, Devin Casenhiser, Carrie Alvarado, Carol Brown, Patricia Dallas, Joleen Fernald, Robin Hauge, Sara Kole, Yolanda Lusane, Nadia Markovic, Crystal Merril, Cinthia Puccio, Tammy Willard, Amy Zier, Monica Osgood

Name of Child: Date of Testing:
Age of Child:
Person Playing
With Child: Mother: Father:
Caregiver: Examiner:

General Scoring

Scoring is on a two-point scale, and uses the following scoring for most items, except where indicated:
0 = not at all
1 = present some of time
2 = consistently present
Where indicated to convert a score, transform the scoring as follows:
0 becomes a 2
1 = 1
2 becomes a 0
Indicate N/O for behaviors that are not observed
On items where we are suggesting improvement of wording the original wording is in **black font** and the new wording is in ***italics and blue font***

Child's name_____ Age:_____

SELF-REGULATION AND INTEREST IN THE WORLD 0 1 2

1. Is **interested and attentive** to play with **toys**.

Scoring:
0 = not at all
1 = some of the time
2 = consistently present

2. ORIGINAL WORDING

Explores objects freely without caution

NEW WORDING

Explores objects freely (spontaneously, child is actively searching for objects)

Scoring:
0 = not at all
1 = some of the time
2 = consistently present

3. **Remains calm** for play period with no signs of distress (crying or whining), showing appropriate frustration.
Scoring:
0 = not at all *(child is not calm, shows significant distress)*
1 = some of the time
2 = consistently present *(remains calm throughout the play period)*

4. Is **comfortable touching textured** toys AND in being touched by caregiver.
Scoring:
0 = not at all *(child is not comfortable with textures toys and with being touched by caregiver)*

1 = some of the time *(child is some of the time comfortable with either textures toys OR with being touched by caregiver)*

2 = consistently present *(child is clearly comfortable with textured toys AND with being touched by caregiver)*

5. **Enjoys moving** on equipment or engaging in roughhouse play.
Scoring:
0 = not at all
1 = some of the time
2 = consistently present

Child's name_____ Age:_____

6. ORIGINAL WORDING

Is **overly visual**, looking at toys rather than playing with them.
NEW WORDING
*Is **overly visual**, looking at details of the toys rather than using them purposefully, and focusing on the toys rather than the caregiver*
 *Converted Score** Score of 0 converts to 2
0 = consistently present *(child spends most the time looking at toys rather than playing with them purposefully)*
1 = some of the time *(child spends some the time looking at toys rather than playing with them purposefully but ALSO spends some of the time playing with toys purposefully)*
2 = not at all *(child is not overly visual, he might observe a toy to explore it but does not spend significant amount observing the toy rather than playing with it purposefully)*

7. Shows **happy, content affect**
Scoring:
0 = flat, somber, or depressed affect
1 = content but neutral
2 = happy and content, robust smiles, warm and engaging affect
8. Remains **focused on objects** or caregiver **without being distracted** by sights or sounds.
Scoring:
0 = distracted frequently; no focused play for more than a few seconds at a time

1 = distracted some of the time with brief periods of focused play
2 = remains focused in play most of the time with only brief distractibility

NOTE: SCORE ONLY ITEM 9a OR 9b, WHICHEVER APPLIES.

9a. ORIGINAL WORDING
Under reactivity: Appears **sluggish or withdrawn**
NEW WORDING
*Appears **sluggish or withdrawn***
Scoring:
0 = **withdrawn**, difficult to engage
1 = **sluggish or slow-paced** in actions but **can eventually be aroused** or engaged
2 = shows a bright, alert state with focused play throughout
Child's name_____ Age:_____

9b. ORIGINAL WORDING
Overreactivity: Appears **over aroused** by toys and environment
NEW WORDING
*Appears **over aroused** by toys and environment*
Scoring:
0 = **Very active**, moves quickly from one toy to the next or wanders away from caregiver and toys constantly
1= **Moderately active**, occasional bursts of changing activity quickly or wandering away, then settles into play with one toy for short period
2 = Well-modulated in pace and activity level, focusing on a toy or caregiver for long periods before changing activity.
Total For Self-Regulation and Interest in the World
(Maximum possible score: 18)

FORMING RELATIONSHIPS, ATTACHMENT,
AND ENGAGEMENT 0 1 2
10. Shows **emotional interest and connection with caregiver** by vocalizing **and** smiling at him or her.
Scoring:
0 = not at all *The child does not vocalize, smile or show in any way that he or she enjoys playing with caregiver*
1 = some of the time *The child vocalizes and/or smiles at caregiver some of the time*
2 = consistently present *The child vocalizes and smiles at caregiver, sharing his/her joy in playing with caregiver*
11. Evidences a **relaxed sense of security** and/or comfort when near caregiver. *(If child is active and moves away from caregiver, he or she references the caregiver from across space and **shows relaxed security in distal space**.)*
Scoring:
0 = not at all *The child might give the impression of being afraid of the caregiver or show no attachment at all*
1 = some of the time. *The child shows some sense of security and/or comfort when near caregiver by smiling, looking, getting close, and/or asking for help*
2 = consistently present *The child shows clear sense of security and/or*

comfort when near caregiver by smiling, looking, getting close, and/or asking for help

12. ORIGINAL WORDING

Anticipates with curiosity or excitement when **caregiver** presents an interesting **object or game**.

NEW WORDING

Shows curiosity and/or excitement by looking or smiling at caregiver when he or she presents something new, and/or by exploring the new object or game.

Scoring:

0 = not at all *The child ignores objects or games presented by caregiver*

1 = some of the time *The child shows some curiosity and/or excitement by looking or smiling or exploring some objects or games presented by caregiver*

2 = consistently present *The child shows clear curiosity and/or excitement by looking or smiling or exploring most of the objects or games presented by caregiver*

13. Displays **signs of discomfort, displeasure, or sadness** during interactive play if **caregiver should become unresponsive** or engage in anticontingent behaviors.

Scoring:

0 = not at all *(child is indifferent when caregiver becomes unresponsive or engages in anticontingent behaviors or is not able to express discomfort, displeasure or sadness in an organized way for observer to see)*

1 = some of the time

2 = consistently present

(If caregiver is responsive or contingent all the time, note that this was not observed with "N/O", then assign 2 points.)

Child's name_____ Age:_____

14. **Recovers from distress when caregiver provides social overtures** to reengage child.

Scoring:

0 = not at all

1 = some of the time

2 = consistently present

(If no distress is observed, note "N/O", then assign 2 points)

15. ORIGINAL WORDING

Initiates physical closeness to caregiver but is not clingy; if child is active and moves away from caregiver, child maintains a visual or verbal connection with caregiver

NEW WORDING

Initiates physical closeness to caregiver

Scoring:

0 = not at all

1 = some of the time

2 = consistently present

16. Turns head away, **averts gaze**, moves away, or sits facing away from caregiver without social referencing caregiver. Appears indifferent, aloof, withdrawn, or **avoidant of caregiver**.

 *Converted Score** Score of 0 converts to 2

Scoring:

0 = consistently present

1 = some of the time

2 = not at all
17. **Social references caregiver while** playing with toys.
Scoring:
0 = not at all
1 = some of the time
2 = consistently present
18. **After moving away, communicates to caregiver from across space** by looking, gestures, or vocalizations.
Scoring:
0 = not at all
1 = some of the time
2 = consistently present
Total for Forming Relationships, Attachment, and Engagement
(Maximum possible score: 18)
Child's name_____ Age:_____
TWO-WAY, PURPOSEFUL COMMUNICATION 0 1
2
19. **Opens circles of communication**: **Initiates** intentional actions with objects **while also engaged in interactions with caregiver** (i.e., manipulates object then looks at mother and smiles or vocalizes).
Scoring:
0 = not at all
1 = some of the time
2 = consistently present
20. Gives signals: **Initiates purposeful and intentional actions** in play **with objects**.
Scoring:
0 = Needs considerable help to get started in play or to engage in purposeful actions; **no clear gestures or organized intent**
(original wording)
No clear or very few gestures (1 or 2) or organized intent, actions appear aimless AND disorganized*, even when receiving considerable help from caregiver to get started in play or to engage in purposeful actions.*
1 = Initiates play but **engages in stereotypic actions**; i.e., lining toys up, mouthing toys for long periods of time, banging toys without engaging in any other actions with the same toy OR initiates play but actions appear aimless or disorganized. (original wording)
Initiates play with some clear intent, and some gestures (3-4), but actions still appear disorganized, without much variety. *Child might perseverate in one organized action (e.g. lining toys up) but play shows little variety.*
2 = Play shows **intentionality and variety**, engaging in two or more different behaviors with a given toy or activity. Gestures are specific and activity is functionally tied to objects.
Child's name_____ Age:_____
21. ORIGINAL WORDING
Closes circles: **Responds to caregiver's cues in contingent manner** (i.e., mother offers toy, child takes it and puts it in a container).
NEW WORDING
Closes circles: ***Responds to caregiver's cues in contingent manner*** *(i.e.,*

caregiver cue=mother offers toy; ***child response****=child takes it and puts it in a container).*

Scoring:

0 = **Does not notice** caregiver's response

1 = **Notices** caregiver's response and looks, but **does not respond contingently** through actions; instead does something that has nothing to do with what caregiver did (i.e., *caregiver cue* = mother holds toy out for child; *child response* = child looks at mother and toy, then returns to what he was doing before)

2 = Notices caregiver's *cue*, then **responds contingently** by elaborating on what caregiver did, by taking toy held by caregiver and examining it, by imitating her, or some other response that is clearly linked to what caregiver did.

22. **Shows anger**, frustration, **aggressive behavior** (e.g., hitting), or protest **repeatedly**.

 *Converted Score** Score of 0 converts to 2

Scoring:

0 = consistently present

1 = some of the time

2 = not at all

23. ORIGINAL WORDING

Uses language (e.g., sounds, words, and/or gestures) during interactions. Circle which ones were used.

NEW WORDING

Uses sounds, words, and/or gestures to ***show communicative intent*** *during interactions. (Circle which ones were used)*

Scoring:

0 = not at all

1 = some of the time

2 = consistently present

Total for Two-Way, Purposeful Communication

(Maximum possible score: 10)

Child's name_____ Age:_____

BEHAVIORAL ORGANIZATION, PROBLEM-SOLVING, AND INTERNALIZATION (A Complex Sense of Self) 0 1 2

24. Engages in **complex patterns of communication stringing** ***(organizing)*** **together several circles of communication** (**see definition of circles of communication) **with caregiver** (initiated and elaborated on by child) using gestures, vocalizations, and/or words.

Scoring:

0 = *Not at all, closing no more than 2 circles in a row. There is no rapid back and forth or continuous flow of communication*

1 = *Some of the time, closing 3 to 5 circles in a row. There is some of the time a brief flow of rapid back and forth communication that does not extend beyond 5 circles in a row*

2 = *Consistently present, closing more than 6 or more circles in a row. There is rapid, continuous, rhythmic back-and-forth communication (multiple circles, too many to count)*

25. **Imitates or copies something new** that the **caregiver** introduces, **then incorporates idea into play** (i.e., caregiver feeds doll; child copies this).

Scoring:

0 = not at all *The child does not imitate any actions or ideas from caregiver*
1 = some of the time *The child imitates a few actions from caregiver without clearly incorporating them into play*
2 = consistently present *The child clearly imitates several actions or ideas from caregiver, incorporating them into play*
26. *NEW ITEM TO BE ADDED (item for problem solving)*
27. *NEW ITEM TO BE ADDED (item for sense of self)*
Total for Behavioral Organization, Problem-Solving, and Internalization
(Maximum possible score:4)
Child's name_____ Age:_____
REPRESENTATIONAL CAPACITY (Elaboration)
0 1 2
26. **Engages in symbolic play with the various toys or equipment** going beyond simple concrete actions like just feeding self with cup or just rolling a truck (e.g., places doll on back, covers with blanket, kisses goodnight)
Scoring:
0 = not at all
1 = some of the time
2 = consistently present
27. Engages in pretend play patterns of **at least one idea in collaboration with caregiver** (e.g., one part of a script or scenario played out).
Scoring:
0 = not at all
1 = some of the time
2 = consistently present
28. **Uses language** or pretend play (e.g., playing out with doll figures) to **communicate needs, wishes, intentions, or feelings**.
Scoring:
0 = not at all
1 = some of the time
2 = consistently present
29. **Uses pretend play** to express **themes around closeness or dependency** (e.g., putting dolls to sleep next to one another; feeding caregiver and dolls).
Scoring:
0 = not at all
1 = some of the time
2 = consistently present
30. **Uses pretend play** to express **themes around pleasure and excitement around humorous theme** (e.g., imitating humorous behaviors).
Scoring:
0 = not at all
1 = some of the time
2 = consistently present
31. Uses pretend play to express **themes around assertiveness** (e.g., cars racing).
Scoring:
0 = not at all
1 = some of the time
2 = consistently present
32. **Creates pretend drama with two or more ideas** that are **not related or logically connected.**
Scoring:

0 = not at all
1 = some of the time
2 = consistently present
Total for Representational Capacity (Elaboration)
(Maximum possible score: 14)
Child's name_____ Age:_____
REPRESENTATIONAL DIFFERENTIATION (Building Bridges Between Ideas and Emotional Thinking) 0 1 2
33. Pretend play, however unrealistic, involves **2 or more ideas, which are logically tied to one another.** Child may build on adult's pretend play idea.
Scoring:
0 = not at all
1 = some of the time
2 = consistently present
34. Elaborates on pretend **play sequence** of two or more ideas, which are logically connected and **grounded in reality**. There is a planned quality and child **can elaborate on "how", "why", or "when" questions, giving depth to drama**.
Scoring:
0 = not at all
1 = some of the time
2 = consistently present
35. Uses pretend play or language to communicate themes containing **2 or more ideas dealing with closeness or dependency** (e.g., doll gets hurt, then gets kiss from daddy, then plays ball together).
Scoring:
0 = not at all
1 = some of the time
2 = consistently present
36. Uses pretend play or language to communicate themes containing **2 or more ideas dealing with pleasure and excitement in humorous game** (e.g., imitates funny word heard, watches how caregiver reacts, then laughs).
Scoring:
0 = not at all
1 = some of the time
2 = consistently present
37. Uses pretend play or language to communicate themes containing **2 or more ideas dealing with assertiveness** (e.g., soldiers search for missing person, find her, then battle to save her again)
Scoring:
0 = not at all
1 = some of the time
2 = consistently present
Total for Representational Differentiation (Emotional Thinking) (Maximum possible score:10)
Total Child Score (Maximum possible score: 74 original; 78 with 2 new items for stage 4)