

CONDUCTIVE EDUCATION REPOSITORY

Developing Interactions between Parents and their Young Motor
Disabled Children through Conductive Education

Wendy Baker

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Disabled Children through Conductive Education**

Wendy Baker

BA (Hons) PGCE

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Abstract

Typically developing infants exhibit their desire to interact with other human beings from birth. Babies learn and develop through sensitive interactions with their parents. Children with motor disabilities may also wish to interact, but communication attempts may be misleading, due to the effects of the children's conditions on their movements; ability to make and maintain eye contact; use facial expressions; babble and speak and associated difficulties. Parents often find it challenging to understand their children's actions and feelings and establish relationships. Normal learning and development in parent-child dyads may be acutely affected.

Conductive Education (CE), a system founded in Hungary and developed in the UK since 1980s, aims to intervene in learning and development processes with parent and child dyads to enable activity and independence. A centre providing conductive education services for young children and their parents has been the setting for this research.

Through a qualitative case-study approach, using multiple data gathering methods, the researcher has studied interactions between parents and their very young children with motor disabilities to determine how interactions are affected by the children's motor disabilities; how conductors can enhance dyadic interactions and the impact that subsequent improved relationships can have on the children's development and learning.

A survey of parents' views, detailed observations and interviews with parents and the conductor working with the children have provided data which has been integrated to draw conclusions about dyadic interactions and the part CE can play in motor disabled children's development and learning. Findings generally concur that children's motor disabilities affect dyadic interactions and relationship-building which subsequently affects children's learning and development. From the experiential research conducted it was concluded that dyadic interactions can be developed through CE and that enhanced interactions can have a positive and enduring effect on motor disabled children's development and learning.

Chapter 1

Introduction

1.1 Background to the Study

In typical human development infants make communication attempts from birth demonstrating their desire to interact with other humans. Through sensitive responses, continued interactions and resulting relationships, infants learn and develop. Children with motor disabilities may also desire to interact, but communication attempts can be confusing and parents find it difficult to understand their actions and feelings (Trevarthen and Burford, 1995). Consequently relationships are more difficult to establish. Motor disabilities affect a young child's ability to change position, move from place to place, reach, point, manipulate objects, make and maintain eye contact, develop facial expressions, babble and speak, amongst other things. Responses may also be misleading e.g. when a child with a motor disability is cuddled he may arch his back as a consequence of a startle reaction to close eye contact (Baker and Sutton, 2008). The normal cycle of learning and development in parent/child dyads may therefore become seriously distorted and result in a 'dislocation of development' (Vygotsky, 1993) or 'dysontogenesis'.

In her daily work with parents and their very young motor disabled children, at an establishment delivering Conductive Education services, to be known in this study as the Centre of Conductive Education (CCE), the researcher has realised the vital importance of interactions between each parent and child to the development of meaningful relationships; the effect these relationships have on children's overall learning and development and the role that an experienced conductor can play by intervening in this process (Trevarthen and Burford, 1995).

Conductive Education (CE) considers the effect of motor disability on parent-child interactions and subsequent effects on learning and development as 'dysfunction' (Hári and Ákos, 1988; Ákos and Ákos, 1991). The goal is to correct this 'dysfunctional cycle' through social intervention. The parent and child dyad are facilitated to develop an 'active orientation to learning' creating a 'virtuous cycle' of learning that in CE is known as 'orthofunction' (Baker and Sutton, 2008).

Research for a master's degree in Childhood in Society at Warwick University has involved detailed study into interactions between parents and their very young motor disabled children to determine

how conductors can enhance dyadic interactions and assess the impact subsequent improved relationships can have on children's development and learning. One assignment described and analysed parent and child interactive patterns between a young motor disabled child and his father which served as a pilot for this study.

Having given a background to the study; the context will now be set.

1.2 Context of the Study

Terms to be used in the study will be defined, statistics for cerebral palsy (CP) specified; traditional treatment for children with motor disabilities outlined and an overview of CE given. This will be followed by a description of the government's agenda for all young children, to provide a national context. To conclude this introduction, aims of the study will be elucidated and the research questions that will focus the direction of the study outlined.

1.3 Definition of Terms

1.3.1 Interaction

Recent studies researching interactions between parents and their new-born babies have stressed the importance of such interactions

to later emotional and social development and learning. An interaction can be described as an exchange, contact or communication between parent and child (Gopnik, Meltzoff, Kuhl, 2001; Johnson, 2002; Karmiloff-Smith, 1998; Stern, 1985; Trevarthen, 2001).

1.3.2 Young Children

In this study, the term 'young children' refers to children three years old or under.

1.3.3 Motor Disability

Motor disability can be defined as a movement problem caused by a neurological injury (Hári and Ákos, 1988). Many children with motor disabilities have a condition known as CP. CP has been defined as ‘a group of conditions characterized by motor dysfunction due to non-progressive brain damage early in life’ (Levitt, 2004, p.1). It is generally known to have associated difficulties which may be sensory, affect self-care, cognition, and communication or involve ‘emotional and social family difficulties’ (Levitt, 2004, p.1). CP has varying degrees of severity ‘related to functional mobility (movement and posture), daily living skills, and communication/socialisation skills [which] result from these impairments’ (Scope, 2007).

Terms to be used in the study have been defined; statistics for CP will now be given.

1.4 Statistics for CP

Over the last 50 years some causes of CP have increased, others have declined, but the proportion of one in 500 is thought to have remained. Statistics have been collected using various criteria, mild CP not always being included. Approximately 43% of children with CP are girls and 57% boys (Cerebra, 2008).

Having given the statistics for CP, causes of motor disability will now be explained.

1.5 Causes of Motor Disability

Whatever a child's motor disability, e.g. CP, the severity of brain damage depends on the type of injury and when it occurs. Causes include pre-natal infection; infection in the baby; birth asphyxia; multiple pregnancies, associated with poor intrauterine growth, pre-term delivery, birth defects and intrapartum complications, including the intrauterine death of a co-fetus and prematurity (Alberman, Blair & Stanley, 2000).

About half the babies born with CP are born prematurely, i.e. before 37 weeks gestation (Cerebra, 2008). Better obstetric care has meant fewer babies having CP due to birth trauma, but improved techniques have increased the survival rate of premature and low birthweight babies, who may be up to 50 times more at risk of CP (BBC, 2008). In very premature babies, bleeding into the brain (intraventricular haemorrhage) can cause extensive damage (Cerebra, 2008).

Having given the causes of CP, treatment traditionally offered will now be outlined.

1.6 Traditional Treatment for Motor Disability

Motor disability is traditionally treated using the multi-disciplinary medical model of physiotherapy, occupational therapy and speech therapy to mitigate effects of the conditions.

Levitt (2004) commented that physiotherapists have realised that children need to learn motor control and functional activities as well as being provided with treatment for medical problems. Therapy has tended to concentrate on physical aspects of a child's condition to compensate for what is seen to be a physical disability.

Having outlined traditional methods offered to children with motor disabilities, CE, an educational approach to motor disability will now be examined.

1.7 Conductive Education (CE)

CE originated in Hungary in the 1940s, pioneered by the physician, András Pető. It is a system of habilitation and rehabilitation for children and adults with motor disabilities (Ákos and Ákos, 1991; Hári and Ákos, 1988; Cottam and Sutton, 1986; Kozma, cited in Hegarty, 1995).

Although CE had been known of in Britain since 1960s, it was during 1980s that parents began to visit the Petö Institute in Hungary with their motor disabled children (Cottam and Sutton, 1986; Ákos and Ákos, 1991). Also during 1980s, Andrew Sutton, a psychologist, interested in Eastern European psychology and education, founded a charity. The Foundation for Conductive Education (FCE) was established in 1986, 'to develop and advance the science and skill of CE especially the teaching thereof' (FCE, 2008). Since that time a number of centres delivering CE services have become established throughout the UK.

Many people ask, 'What is CE?' One commentator states, 'There is no set method, there are the world's theories and experience to choose from, select anything which helps the child to help himself' (Siddles, cited in Cottam and Sutton, 1986, p. 153). Others have attempted to explain what CE is and how it works (Ákos and Ákos, 1991; Cottam and Sutton, 1986; Hári and Ákos, 1988; Kozma cited in Hegarty, 1995). Petö considered motor disability as a difficulty of learning to be overcome, rather than a condition to be treated (Ákos and Ákos, 1991; Cottam and Sutton, 1986; Hári and Ákos, 1988; Kozma cited in Hegarty, 1995). Problems of learning and

development are addressed through 'pedagogy and upbringing' (Baker and Sutton, 2008, p.18).

CE has been introduced and will be explained in more detail in the literature review; the national context for this study will now be outlined.

1.8 The National Context

1.8.1 Every Child Matters (ECM)

ECM is the government agenda which aims to join together services to support children and families, whatever their circumstances, to provide the support they need to: be healthy; stay safe; enjoy and achieve; make a positive contribution and achieve economic well-being (DCSF, 2008).

1.8.2 Early Years Foundation Stage (EYFS)

In 2008, a new EYFS statutory framework was introduced to provide a continuous curriculum for children aged 0-5 years, including those with disabilities, attending any setting in England. It aims to fulfill the five ECM outcomes.

This framework acknowledges the importance of working with parents to enhance young children's learning and development. All practitioners are expected to understand the diverse ways that children learn and develop and have the knowledge and understanding to actively support and extend children's learning in and across all areas and aspects of learning and development (DfES, 2008).

Having established the context for this study, the following section will describe the questions that this study aims to address.

1.9 Research Questions

This study aims to address the following questions:

1. How does a young child's motor disability affect his/her development and learning?
2. How do dyads of caregivers and young children interact when the children have motor disabilities?
3. How can dyads be supported to enhance the quality of their interactions through Conductive Education?
4. What impact do these enhanced interactions have on the child's learning and development?

The following section will outline the way that the study will progress.

1.10 Outline of the Study

Chapter one has contextualised the study; Chapter two will review literature concerning interactions between partners in dyads with typically-developing children and in dyads with children with atypical development, particularly those with motor disabilities. Effects of interactions on relationships and children's development and learning and the effects that atypical development has on these will be described. Literature concerning the contribution of CE to the development of interactions and relationships in dyads with motor disabled children and the subsequent impact on their development and learning will conclude the review.

Chapter three will detail the methodology used. Each method will be described and its contribution to answering each research question acknowledged.

Chapter four will describe the results of a survey of parents' views; observations of parent-child dyads will be described in chapter five and interviews with three parents reported in chapter six. An interview with the conductor working with the dyads will be reported in chapter seven. These will all describe understandings of

interactions and their contribution to motor-disabled children's development and learning through CE.

Chapter eight will integrate and discuss results obtained from all sources, draw conclusions, outline limitations and make recommendations for future research.

1.11 Summary

This chapter has introduced the study's theme and context and explained the researcher's interest in the topic. Terms to be used have been defined; statistics for children with CP in the UK given and the medical model traditionally prescribed for children with motor disabilities described. An overview of CE and the national context for the study have been given. This chapter concludes with the research questions and an outline of the study.

Chapter 2

Literature Review

2.1 Introduction

Firstly, literature regarding interactions between typically-developing infants and their parents will be reviewed, ascertaining effects of interactions on relationships and children's development and learning. Subsequently literature about interactions between partners in dyads with children with atypical development, particularly children with motor disabilities, will be studied. The effect of atypical development on interactions and children's development and learning will be considered. The chapter will conclude by considering literature concerning the contribution of CE to developing interactions between young disabled children and their parents and the impact on their development and learning.

2.2 The Nature of Relationships between Typically Developing Children and their Parents

Relationships are the basis of human life; understanding their formation is the key to understanding child development (Schaffer, 2003). Humans live in relation to others in families, at work and in communities. 'Young children are not solely entities in themselves but exist in dependent and active symbiotic relationship with their families' (Baker and Sutton, 2008, p.18).

Interactions between people are visible and over a period of time we can make conclusions about the relationships in which these interactions take place (Schaffer, 2003).

Early child psychologists overlooked the reciprocal nature of parent-child relationships, believing that parents moulded their children. Recent research shows that children play a crucial part in forming relationships by interacting with their parents from the beginning of life. These interactions and relationships have significant effects on children's development and learning.

Having set the context for the development of relationships, attachments between parents and children will be described.

2.3 Attachment

2.3.1 Theory

Bowlby was the first proponent of 'attachment theory' rooted in psychoanalysis in the 1960s, later being adapted by Ainsworth. It has since been appropriated by developmental psychology. The two functions of attachment are biological (survival), and psychological (gaining and maintaining security) (Schaffer, 2003).

Freudian tradition believed children's thoughts and beliefs to be shaped by primitive drives. Some theories saw human attachment or bonding as instinctive. Baby birds following the first moving thing they saw after birth, inspired Lorenz and the ethological tradition. Many psychologists currently believe that the quality of the mother-infant relationship determines the quality of relationships throughout a child's life (Stern, 1985). Attachment responses change as children develop cognitively, emotionally and physically. A six-month-old baby cries to attract her mother's attention; a three-year-old calls for her mother, follows her or moves to look for her (Schaffer, 2003). Attachment does not take place in a critical period but is a relationship that develops and changes over time.

Bowlby proposed four stages of attachment:

Stage 1, *pre-attachment*. Typically-developing new-born babies are predisposed to seek human attention and possess signalling systems to attract attention. Trevarthen considers that babies' preferences for their mothers' voices begin in-utero, enabling attachment relationships to begin at birth, sooner than supposed by Bowlby. Voice recognition facilitates face recognition. 'Hearing and seeing are used together to set up mutual awareness, to begin an attachment, and to regulate the first communicative exchanges' (Trevarthen, 2001, p.104).

Stage 2, *attachment in the making* normally occurs between 2-7 months when babies have acquired skills to begin synchronized face-to-face interactions. Babies learn to take turns in exchanges by vocalising and listening. A mother's still-face and silence, creates anxiety and agitation in her baby, demonstrating that affectionate, communicative behaviour is expected. Experiments ruling out other reasons for babies' distress were conducted and Trevarthen concluded, 'the original interpretation, that the communicative one- to two-month-old is anticipating a sympathetic and immediately responsive reaction from the mother is proved correct' (Trevarthen,

2001, p.105).

Stage 3, *clear-cut attachment*. Babies are aware if their mothers leave them and cannot be placated by others in the same way. Attachments become enduring.

Stage 4, *goal-corrected partnership* occurs from 2 years old. Children's behaviour becomes more intentional as they become increasingly aware of the consequences of their actions. They will cry deliberately to gain attention and adjust their actions to take into account other people's feelings.

Attachment patterns for typically-developing children fall into four basic categories. Most children are *securely attached* because they have positive early life experiences. They can be expected to form positive relationships themselves which promote self-esteem and enable positive engagement with cognitive tasks at school. Conversely, the *insecurely attached* groups of *avoidant* and *resistant* are regarded as disadvantaged because they do not appear to be so well-adjusted and later relationships may be affected. The *disorganised* group are thought to be most susceptible to developing psychopathology in later life.

Some interventions for dyads at risk of developing insecure attachments will now be described.

2.3.2 Some Interventions for Insecure Attachments

There have been attempts by various professionals to promote positive attachment relationships for the many dyads with insecure attachments. Crittenden in North America and Svanberg in England have been particularly instrumental in such interventions.

Crittenden (1988) developed the 'CARE-Index' as a screening tool to assess the quality of interactions between parents and children using video clips. Therapists can examine whether parent and infant exaggerate or minimize feelings. Intervention is then discussed with parents. Knowing the character of the non-sensitive adult interaction can help focus the intervention (Crittenden, 1988).

Svanberg, a clinical psychologist, in collaboration with health visitors, devised the Sunderland Infant programme focusing on prevention and early intervention. The programme aimed to increase the number of securely attached and socially competent children, screening interactions between parents and their eight to twelve

week old babies. 'The programme offered interaction guidance based on video-feedback and parent-infant psychotherapy if appropriate' (Svanberg, undated).

Svanberg contends that when a mother feels competent, well-supported and not overwhelmed by trauma or conflict she is 'more likely to be able to be warm, sensitive and responsive to her infant's needs which will very likely create a securely attached infant' (Svanberg, undated). Outcomes of the project included improvements in children's attachments to their parents and financial savings due to families using social and health services less frequently.

In conclusion, it can be seen that child and parent are inextricably linked together in an attachment dyad and one cannot function fully without the other (Bretherton, 1992).

Having acknowledged the importance of attachment relationships to children's development and learning, the contribution of 'maternal mind-mindedness' will now be examined.

2.4 Maternal Mind-Mindedness

'Mind-mindedness' involves mothers commenting on their babies' thoughts, desires, interests and knowledge as well as the processes they use, references to their emotional input, comments about their manipulation of others' beliefs and trying to make sense of interactions with their babies through dialogue. Securely attached children were more likely to have mothers who focused on their mental capabilities than their appearance or behaviour and mothers' appropriate mind-related comments were directly linked with their children's later understanding of mind (Meins *et al.*, 2003).

The contribution of mothers' mind-mindedness to children's attachment and later understanding of mind has been outlined. The development of social awareness in typically-developing babies, its relationship to interactions, the contribution of language and communication to social interaction and the contribution of social interaction to children's development and learning will now be described.

2.5 Development of Social Awareness in Typically-Developing

Babies

Babies quickly become intensely social creatures. By two to three months old, they have social smiles, vocalise to others, seek mutual

gaze and have strong preferences for human voices and faces. Within the first nine months of life babies can tell the difference between expressions of sadness and anger and match a happy expression with a happy tone of voice (Gopnik, Meltzoff, Kuhl, 2001).

Parents are sometimes unaware of their social interaction with their babies because they are so concerned with feeding, changing or soothing. At other times, they 'treat their infants as understandable beings, that is, as the people they are about to become, by working in the infant's zone of proximal development' (Stern, 1985, p.37).

Babies respond to other humans by imitation. Even tiny babies coo in response to gestures and gesture in response to rhythm in the caregiver's voice. 'When you talk the baby is still; when you pause, the baby takes her turn and there's a burst of coos and waving fists and kicking legs' (Gopnik, Meltzoff, Kuhl, 2001, p.31).

Stern (1995) considers that parents' social behaviours are exaggerated and stereotypic. He talks of 'baby talk' or 'motherese'; 'baby faces' and 'gaze behaviours'. Parents exaggerate to gain maximum responses from their babies. These behaviours are teaching and learning opportunities for parents and babies, forming

the basis at a very early age for social-emotional development. As babies become young children adults make fewer adjustments to their speech and children are gradually introduced to more complex language (Smith, *et al.*, 2003).

2.6 Language, Communication and Social Interaction

The complex acquisition of language begins at birth and appears to be the same in all languages. Babies progress through sound-making to cooing, babbling, single words which often express ideas, onto three and four word utterances and sentences by the time the child is about three years old (Gopnik, Meltzoff, Kuhl, 2001).

There are several theories about language acquisition. In the 1950s Skinner proposed that children learnt language because adults reinforced correct usage. The sounds made by babies were believed to be moulded into words and sentences by adults. This theory still remains to a certain extent, although imitation alone cannot account for language development as children's and parents' spontaneous speech is not grammatically identical (Smith *et al.*, 2003).

In 1959 Chomsky, proposed a biological theory for learning language with critical periods. He proposed that humans have an innate 'language acquisition device'. Many contemporary psychologists favour an 'interactionist' approach which considers the relationship between language and social interaction for learning to be vital (Smith *et al*, 2003, p.301).

Vygotsky stressed the active role that children play in their own development, balanced by the necessity for a more knowledgeable 'teacher'. As part of a social community, the child's progression is dependent upon being taught new concepts and skills within the 'zone of next/proximal development' (Smith *et al.*, 2003 p.27). This challenged Piaget's view that children needed to be 'ready' for the next stage before moving on. Language was key to cognitive development for Vygotsky. 'His perspective encompasses the use of language as a framework for thought and the use of language as a representation of the culture' (Smith *et al.*, 2003, p.360).

In normal language acquisition, children are initially immersed in language, receive continuous demonstrations of the functions of spoken language and engage in language with communication partners who expect they will succeed in speaking. Because adults believe children will become talkers, the children believe it too (Cambourne, 1998). The concept of 'expectation' will be returned to later when expectations concerning motor-disabled children will be discussed. Responsibility is shared between communication partners. Children's approximations are accepted and responded to by adults. Children use language in social interactions as well as to accompany play and actions. Constant interaction is vital for the

growth of language use (Cambourne, 1988). Children learn to talk to communicate with their parents, 'in collaborative activities in which the roles played are *reciprocal* rather than imitative' (Wells, 1987, p.42).

Having outlined the importance of language and communication for social interaction; the contribution of rhythm and music to children's development and learning will now be described.

2.7 Musicality

Trevarthen (2001), following Stern's work, proposed the term 'communicative musicality' to describe the many musical features in mothers' voices and behaviour and infants' reactions and anticipation to games and songs. Music gives a way of sharing emotional experiences and bonding with the baby (Davidson, undated).

It seems that babies synchronize their movements with rhythms and expressive changes in speech that they hear (Condon and Sander, cited in Trevarthen, 2001). The happy, musical quality of a mother's voice is important to maintain communication, a depressed-sounding voice will lead the baby to avoid joining in and making depressed sounds herself (Bettes, Gratier and Robb, cited in Trevarthen, 2001).

The Venda children of South Africa are taught to sing before speaking and to accompany singing with dance. Active participation enables children to learn how to think and act, to relate to others and regulate their own emotions (Blackling, cited in Davidson, undated).

Having described the contribution of rhythm and 'musicality' to communication and emotional development; the development of emotional expression will now be examined.

2.8 Expressing Emotions

Babies express positive and negative emotions from birth which mothers report being able to interpret in the first few months of life. After about seven months expressions of fear increase as babies become more aware of unfamiliar people and objects. It is debated whether infants' very early emotional displays are 'innate' or if babies learn emotional reactions from others (Smith *et al.*, 2003).

At about a year old babies start to point and look at what other people point at. Pointing requires a deep understanding of self and others. Even without talking, babies are able to communicate. When something unusual happens, babies check their parents' reactions and modify their own accordingly. 'If there's a smile, they'll crawl forward to investigate; if there's horror, they'll stop dead in their tracks' (Gopnik, Meltzoff, Kuhl, 2001, p.34).

As babies learn about shared interests, they also learn about different attitudes. As babies explore, their parents will try to protect them from dangers. The more the baby wants a dangerous object, the more her parent will try to remove it from her (Gopnik, Meltzoff, Kuhl, 2001).

By the age of two, children understand if they are doing something wrong and they test their parents out. They see that other people have different desires from their own. Younger babies will mirror emotions, but two-year-olds have also begun to show empathy for others. 'The 'terrible twos' show how powerful and deep-seated the learning drive is in these young children' (Gopnik, Meltzoff, Kuhl, 2001, p.38).

Emotional interactions have a profound effect on children's development. The concept of 'dyadic synchrony' and its contribution to children's development and learning will now be examined (Harrist and Waugh, 2002).

2.9 Dyadic Synchrony

Dyadic synchrony is interaction that is observable and 'mutually regulated, reciprocal and harmonious' (Harrist and Waugh, 2002, p.556). Harrist and Waugh (2002) studied the connection of 'dyadic synchrony' to children's development through a review of theoretical and empirical research. They established that the ability to achieve synchrony 'may represent a crucial developmental achievement for significant dyadic relationships, one that facilitates social, emotional, and cognitive growth for the child' (Harrist and Waugh, 2002, p.555).

They considered 'dyadic style' as well as the content or 'parenting dimensions' (Harrist and Waugh, 2002, p.556) of great importance to child development. Various authors have used similar terms. These include "reciprocal responsiveness" (Ainsworth, Bell & Stayton, 1974) and "mutual contingency" (Maccoby & Martin, 1983; Tronick, Als & Brazelton, 1977)' (Harrist and Waugh, 2002, p.556).

Harrist and Waugh compare dyadic synchrony to Ainsworth's 'continuum of caregiver sensitivity'. Studies carried out using rates of synchrony have found that synchronous exchanges account for less than 40% of total exchanges, however Bornstein *et al.* (cited in Harrist and Waugh, 2002), concluded that synchronous interactions could foretell much more than other maternal responses about children's development.

Maintained engagement is considered to be an essential part of dyadic synchrony when partners in exchanges visually track each other for prolonged periods and take turns in communicating (Stevenson-Barrett, Roach and Leavitt, 1992). In dyads that demonstrate dyadic synchrony, there is a rhythm which involves matching activity levels in body orientation, movements and facial expressions. It also involves vocal tone, pitch and visual gaze. Some

researchers have therefore described the interaction as being 'dance-like' (Stern, cited in Harrist and Waugh, 2002).

Infant vocalisation may be seen as a way of eliciting visual attention. Once gained, it can be maintained through smiling (Kay and Fogel, cited in Stevenson-Barratt, Roach and Leavitt, 1992).

Sensitive caregivers need to be responsive to subtle signals from infants and should be ready for interaction as well as disengagement through a process described as 'attunement' (Stern, cited in Harrist and Waugh, 2002, p.560). Attunement has proprioceptive and cognitive elements and requires extremely quick responses, leading some theorists to believe that parents are biologically adapted to intuitively attune to their infants (Harrist and Waugh, 2002).

Much work has been conducted observing responses of parents to their infants. If the parent's response is in the same form as the infant e.g. a smile or a frown, it has been suggested that this is a mimicked interaction. However other observations show that as an infant develops there are changes in the way interactions take place e.g. if the mother's voice becomes more excited, the child may express herself physically by moving her arms or legs. These types of interactions have been described as 'asymmetrical but

complimentary' (Harrist and Waugh, 2002, p.562). High-level attunement on the part of parents maximises engagement, promotes co-ordinated interactions and leads to 'dyadic synchrony' (Harrist and Waugh, 2002, p.562). A mother's unresponsiveness can lead to negative emotional reactions from the infant such as frustration, depression or shame (Trevarthen, 2001).

The function of synchrony between infants and their parents has been described as being 'biosocial' (Chappell and Sander, Emde, Gaensbauer, and Harmon, cited in Harrist and Waugh, 2002, p.562). It enhances multisensory processing, facilitates homeostatic regulation and facilitates attachment to the caregiver.

Visual information can enhance what babies hear and feel. The processing that results from these experiences enables children to develop self-understanding. 'The infant's experience of linked motor activity, sensation and emotion...are in theory, the basis for...developing understanding of self and other during the first year' (Harrist and Waugh, 2002, p.563).

Henri Wallon, a major figure in twentieth century thinking, was unique in his time in bringing together movement and mental capabilities. He

believed that 'the implications for the future sociability of the child are in his first bodily reactions. Motricity-movement is a means of expression...movement is emotion exteriorised' (Aubrey, 1987, p. 285).

Powers (cited in Harrist and Waugh, 2002) contends that some interactional states 'feel' right to the baby. Therefore when the baby is stimulated, performs an action and gets feedback as a response, a sense of 'effectance' is felt. Conversely if the interaction is mismatched, the baby will become distressed. It is how baby and parent manage this distress that affects the outcome of the interaction. 'Effectance' is seen as a very important part of developing a secure attachment relationship. It has been found that dyadic synchrony is a predictor of secure attachment between infant and parent. Ainsworth first showed a relation between sensitive infant-mother interactions and long-term relationship functioning.

Synchrony beyond the first few months of life has been less widely researched but terms such as 'sensitive play' (Crittenden, 1988) and 'Dyadic mutuality' (Deater-Deckard and O'Connor, cited in Harrist and Waugh, 2002, p.568) have been used to describe interactions between parents and their young children into toddlerhood and

beyond. As children become more mobile and verbal the quality of interactions with their parents changes. Synchronous parent-toddler interactions have been described as those in which 'both partners change their behaviour to smooth the course of the interactive behaviour' (Vizziello *et al*, cited in Harrist and Waugh, 2002, p.569).

There is evidence to suggest that synchrony between children and caregivers during the first two years of life enhances children's communication and language development, enables them to control their own behaviour and emotions in ways that will lead them to independence in these activities when their parents are not there (Harrist and Waugh, 2002).

Having considered the way in which typically-developing children and their parents interact and form attachment relationships, the effects of a child's disability on these interactions and relationships will now be examined.

2.10 Disabled Babies

2.10.1 Up-Bringing

Although mothers see differences between bringing up disabled and

non-disabled children, many of the principles and expectations are the same. It has been suggested, 'The presence of a child with a physical handicap may have pervasive effects on parent adjustment, and parent-child interaction' (Barakat and Linney, 1992, p.726).

Howe (2006) suggests that children with more severe disabilities are more secure. One explanation for this is that when disability is unequivocally present, parental understanding and acceptance increase, and expectations are more realistic. In children with CP, 'the need to focus on the practicalities of physical caregiving at the expense of emotional processing may foster organised parental attachment behaviours' (Howe, 2006, p.102).

It has been suggested that 'movement is intimately involved in children's psychological development' (Baker and Sutton, 2008, p.19). Children's facial expressions may also be distorted and misleading because of their disabilities and their responses slower than their peers (Trevarthen and Burford, 1995).

2.10.2 Assessment of Interactions between Disabled Children and their Parents

Tessier *et al.*, (2002), reported that research on interactions between parents and their physically disabled children has been limited partly

because traditional tests assessing the attachment relationship were based upon children's independent movement abilities. Recent assessment literature has acknowledged the complexity of human development and learning. Bronfenbrenner (cited in Ballard, cited in Mitchell and Brown, 2001) stressed the wide-reaching effects of environments in which families function on children's learning and development (Ballard, cited in Mitchell and Brown, 2001). Bronfenbrenner's perspective is transactional in that biological impairment is not seen as a static impediment to developmental progress, but a process which takes place through reciprocal interactions between children and their environments (Guralnick, 1982, cited in Ballard, cited in Mitchell and Brown, 2001). It is considered that 'infant learning is an interactive, reciprocal, social process' (Kendall, Lerner and Craighead, 1984, cited in Ballard, cited in Mitchell and Brown, 2001, p.132).

Much research on child development has been based on Piaget's studies who proposed that children progress through distinct stages of development. Scales derived from his work were devised by Uzgiris and Hunt in 1975, to assess a child's functional level within the sensori-motor period. These scales use the theory that sensori-motor intelligence is demonstrated through gross and fine motor

actions. Zelazo (cited in Ballard, cited in Mitchell and Brown, 2001) challenged these scales demonstrating that learning can occur independently of gross and fine motor performance, in the sensori-motor period, through the development of information-processing strategies in children under three. Through observations and heart-rate measures, Zelazo found that children with motor skill impairments could show anticipation and expectation of events, leading him to conclude that they need not have impaired intelligence although they may be unable to show understanding through movement in the same way as typically-developing children. Children with impaired motor skills may be labelled as having lower intellectual capabilities, which can result in lowered expectations and contribute to the origins of what Zelazo termed 'iatrogenic retardation' (Ballard, cited in Mitchell and Brown, 2001, p.135).

About half of babies born with CP are born prematurely (Cerebra, 2008). The following section will examine interactions between parents and their prematurely born babies, which will lead into an examination of the effects of a physical disability like CP on interactions and children's subsequent development and learning.

2.10.3 Interactions with Premature Babies

Research on interactions between premature babies and their parents in the first year of life has found that babies were 'less active and less responsive than full-term infants; vocalize and smile less frequently, and show less positive general affective tone' (Crnic *et al.*, cited in Rogers, 1988).

Stevenson-Barratt *et al.* (1992) studied dyads containing prematurely born children and compared their interactions with dyads containing typically-developing infants. They found fewer vocal and affective signals and greater fussiness amongst prematurely-born infants. Mothers of premature babies held them more and made more attempts at stimulation during free play activities. Patterns of low-level behaviour exhibited by the babies and high levels of responsiveness from the mothers led some researchers to conclude that mothers were trying to compensate for babies' lack of responsiveness. Premature babies studied showed higher responsiveness in vocal and affective channels, although they were all healthy babies from middle-class backgrounds. It may be hypothesised that parents of children born prematurely, who they know or suspect have disabilities, will also try to compensate for their children's lack of responses.

2.10.4 Stress and Cortisol

Cortisol is produced in response to stress. If production continues for long periods, the brain's ability to learn and remember may be affected. Babies with brain damage are highly susceptible to stress. 'Small babies who are touched and held can cope better with cortisol produced by stressful experiences, by developing ... "cortisol receptors" in the brain' (Bartram, 2007, p. 25).

Having described effects of disability on interactions, the review will now consider literature concerning relationships in dyads with disabled children.

2.11 Relationships between Physically Disabled Children and their Parents

2.11.1 Attachments

In a home-observation study of physically-disabled infants, it was found that proportions of attachment classifications were no different for disabled and non-disabled infants, but 'insecure disabled infants...showed lower levels of secure-base behaviour and physical contact with mother than their non-disabled counterparts and showed a marginal tendency to fuss more' (Tessier *et al.*, 2002, p.147).

Studies cited by Tessier *et al.* (2002) concluded that maternal problems affected attachment relationships more significantly than children's difficulties. 'When infants experience the less sensitive caregiving traditionally associated with the development of insecure relationships, their own problematic characteristics, such as disability, may contribute to amplify the experience of insecurity' (Tessier *et al.*, 2002, p.161).

This study focused primarily on children's responses to their parents and did not look in detail at parents' behaviour. It was hypothesised, that, 'Parents in relationships that develop into secure attachments may adjust their caregiving behavior to compensate for deficiencies in their child's mobility or other attachment behaviors' (Tessier *et al.*, 2002, p.162).

2.11.2 Interactions

It is recognised that the amount of communication exchanges occurring between parent and child from birth are 'rooted in the inherently emotional relationship between parent and child' (Bartram, 2007, p.54). Bartram observed a child with physical and learning disabilities during play with his mother noting her sensitive interactions:

she is ... responsive to his small cues. Equally importantly she leaves time and space for them...William begins to make little vocal sounds which have a friendly, conversational quality. When he begins to lose interest, he shows this by turning his gaze away from the toy. His mother is sensitive to this and waits (Bartram, 2007, p.52).

'Developmental psychologists stress the importance of pleasure and joy for child development' (Bartram, 2007, p.51). The more positive affect a mother shows, the greater pleasure her child receives from the interaction which positively affects the child's developmental outcomes (Mahoney and Powell, cited in Rogers, 1988).

A study carried out into the relationship between parenting behaviour, the mother's characteristics and the child's disability showed that mothers who showed 'greater worry showed less total support, were less sensitive and demonstrated less positive affect toward their child' (Button *et al.*, 2001, p.466). Mothers of children with CP showed greater worry and more pain in relationships with their children.

Many children with CP have delayed visual maturation or are blind, Fraiburg (cited in Rogers, 1988) comments that blind babies are unable to give affective feedback as they do not give eye contact or recognisable facial expressions to their mothers. The quality of interactions between these children and their parents is affected.

In Brooks-Gunn and Lewis' (1984) study of three comparison groups of children with different types of disability, including a group with CP, it was found that there was higher proximal and total behaviour

shown to children with CP, but this was ascribed to responses to the children's difficulty in interactions. Parents of children with CP were not however more responsive to their children's interactive attempts. They also found that children with CP use fewer bodily movements but use a social smile more frequently than other groups of disabled infants. This may be the child's way of keeping her mother nearby and engaged (Rogers, 1988). Moran *et al.* (1992) found that children with developmental delay had delayed facial, postural and vocal behaviour. This made normal interaction patterns difficult for mothers in these dyads.

Pennington and McConachie (2001) suggested that high levels of physical dependence of children with CP on their parents may lead to adult dominance in conversation and low levels of child independence. Adult domination would leave little room for children to develop a full range of interactional skills and lack of consistency in the children's movements would lead to unclear signals being given, preventing parents from knowing what their children wished to communicate. This could lead to narrow communication possibilities for the children e.g. only being provided with opportunities to give yes/no answers because those are clear to parents. Disabled children tend to initiate turn-taking far less frequently than their non-

disabled peers, also timing their interactions less successfully leading to clashes of responses (Rogers, 1988).

Studies have found that mothers of disabled children play more with toys with their children during their first two years and make far more communication attempts than mothers of non-disabled infants. However by 24 months mothers start to withdraw. Rogers (1988) suggests that this may be due to mothers' feelings about their children's lack of development.

Rogers (1998) commented that disabled babies give fewer and less recognisable cues to their mothers. They withdraw from social interaction and have difficulties in turn-taking during social exchanges. Stengel (cited in Rogers 1988) comments that because babies' signals are so difficult to read, mothers react indiscriminately to every signal. 'Spontaneous actions may lead to disappointment, frustration and failure for adult and child alike-and perhaps negative learning contrary to the original intention' (Baker and Sutton, 2008, p.19).

Knowledge of disabling conditions may affect mothers' interactions with their children and the responses they receive. Mothers

interacted less frequently with babies they were told were premature and chose immature toys to play with. They were also less physically active (Stern and Hilderbrandt, cited in Rogers, 1988). This endorses Cambourne's theory about expectations described earlier.

Landry, Smith and Swank (2003), found that mothers of disabled children who showed greater increases in warm responsiveness behaviours had children who showed the largest increase in cognitive and social skills. Mothers who gave greater physical affection, close contact, appropriate pacing and positive voice tone, used frequent praise and avoided negative comments, responded to their children promptly and accepted their needs and interests were those whose children developed more. As the children developed mothers saw their need for independence and supported their explorations. Consistency of responsiveness was also an important factor in children's learning and development.

There may be wide-reaching effects of difficulties in establishing interactions in dyads of mothers and their disabled children. Disabled children attending pre-school have been noted to have the same relationship patterns with peers as they have with their mothers i.e. they make fewer initiations in social interactions and their non-

disabled peers dominate more (Rogers, 1988).

Having established that disabilities can have a profound impact on children's development and learning, the following section justifies interventions for dyadic interactions affected by children's physical disabilities.

2.12 Interventions for Dyadic Interactions Affected by Children's Physical Disabilities

Singer *et al.* (1999) suggested that more programmes should be devised to enable parents and babies with physical disabilities to have more meaningful social interactions. Zelkowitz *et al.* (2008) studied children and their parents in a neonatal intensive care unit (NICU) and concluded that parents of prematurely-born children who may have brain damage would be anxious, distressed and have reduced sensitivity to their babies' cues. The babies may be fragile, irritable and lack responsiveness. The authors concluded that interaction difficulties in these dyads may affect the children's developmental outcomes. The children were less likely to involve their mothers in play at 24 months corrected age. This pointed to difficulties in maintaining joint attention which can lead to cognitive and communication difficulties later in childhood (Smith and Ulvund,

cited in Zelkowitz *et al.*, 2008). It was concluded that preventative intervention should be employed to support the mother-child relationship.

Forcada-Guex *et al.* (2006) found that a controlling pattern was more prevalent among mothers of premature babies and was a risk to children's later development. They too recommended early family-based interventions in order to reduce maternal stress, increase self-esteem and improve parent-child interactions.

Other studies have found that intrusive maternal behaviour can be related to withdrawal and negativity in infants and toddlers and concerns by mothers over their children's developmental progress prevents children from being autonomous or exploring their environments (Ispa *et al.*, cited in Zelkowitz *et al.*, 2008).

Goldberg (cited in Rogers, 1988), devised a programme for developing parent competence which led to strengthened parent sensitivity and produced long-term benefits in terms of the children's psychological well-being. McCarton *et al.* (1995) concluded that parents who received knowledge and support could provide their premature babies with a more optimal learning environment.

Underdown *et al.* (2008) reported Onozawa's study on the effects of baby massage on mother-child interactions for post-natally depressed mothers. After 5 weeks of intervention there were significant improvements in infant interaction and a significant reduction in the amount of intrusive interactions by mothers.

Recent research suggests that the most significant development occurs when intervention is initiated within the first two years of a disabled child's life and when parents are meaningfully involved from the beginning (Sailor and Haring, 1978, cited by Ballard, in Mitchell and Brown, 2001).

Kendall, Lerner and Craighead (1984, cited in Ballard, cited in Mitchell and Brown, 2001) suggested that assessment for intervention should take into account the dynamic nature of child development. Children respond and interact in a variety of ways in different settings and with different people, also influencing those people who influence them. This view was also held by Ákos and Ákos, major contributors to the limited literature about CE.

Having described the effects of a disability on dyadic interactions and

on infants' development and learning, an explanation of the contribution of CE to developing interactions between parents and their motor disabled children and the effects CE has on children's development and learning will follow.

2.13 Conductive Education

2.13.1 CE with Young Children

There is a dearth of literature regarding CE, especially regarding young children and their parents. It is briefly mentioned by Hári and Ákos (1988), 'The mother learns ways of evoking activity and so the child becomes more and more active' (Hári and Ákos, 1988, p.212). The goal of CE for the mother is to, 'activate the child...The child should become more and more interested, turn towards impulses, become active, show pleasure when the mother approaches, learn to play and go on playing, build up its endurance' (Hári, cited in Cottam and Sutton, 1986, p.51).

The importance of interactions and the relationship between mother and child for the development of the child's personality and social awareness is at the heart of *Dina* (Ákos and Ákos, 1991):

In the first three years of a child's life the mother has an exceptional influence on the development of the child's personality. She can bring about a dramatic change in the life of her motor disordered child, if she educates him using the Petö system with patience and perseverance (Ákos and Ákos, 1991, p.194).

Interactions between mother and child are considered central by Baker and Sutton (2008), Cotton (undated), Gordon (1997), Jernqvist, (1986), Lind (1998), McGee and Sutton (1989) and Trevarthen and Burford (1995). 'Fine grained analyses have shown that even children with profound disabilities interacting with sensitive adults respond to the timing and quality of effective interactions in much the same way as young infants' (Trevarthen and Burford, 2005, p.142).

It is considered that CE for children at an early age provides 'appropriate compensatory measures, above all measures of a social nature...CE aims to establish...a more normal interactive cycle, one that will continue under its own force once immediate intervention is complete' (McGee and Sutton, 1989, pp.3-4). CE engages and motivates child and mother evoking emotions in order to develop higher mental processes. This theory relates also to that proposed by Wallon (Aubrey, 1987). Parent and child are led to develop an active orientation to learning providing mutual reinforcement for each other

creating a 'virtuous cycle' of learning which in CE is called 'orthofunction' (Baker and Sutton, 2008, p.20).

'Human personality develops through mutually instructive relationships; there is an intercerebral field between mother and child' (Ákos and Ákos, 1991, p.76) and 'personality originates and develops in "anthropogenic cooperation" between personalities in a group. This is the reason for forming groups' (Ákos and Ákos, 1991, p.124).

People with motor disabilities have difficulties in bodily control which CE approaches as learning difficulties requiring teaching rather than conditions requiring treatment (Cottam and Sutton, 1986). Problems of learning and development are approached through pedagogy and upbringing; parents and children take control of their development and learn how to limit the effects of impairment on learning (Baker and Sutton, 2008).

Some common features of CE have been identified by a number of commentators. These will now be described to contextualise the work with young children and their parents.

2.13.2 'Contact'

'Contact' describes the emotional interaction that conductors or parents have with children. Motivation, provided by the conductor, or parent, leading to enthusiasm by the children and delight in their own successes, enables interactions to develop into meaningful relationships (Cottam and Sutton, 1986). A conductor needs to have an insight into how human intentions can be transformed into actions in response to the environment. Facilitation given by parent and conductor focuses attention to guide actions, not merely to train motor skills. Children's actions are given meaning and value by their parents (Trevarthen and Burford, 1995).

Seglow (1984, in Trevarthen and Burford, 1995, p.145), describes the mother as a 'pupil of her baby' following and acting on her cues. However children with motor disabilities need special handling and facilitation. A baby's uncontrolled movements can elicit misunderstandings and disturbed sensory channels can bring movements that appear avoidant e.g. a baby turning his head away

from his mother. This may be to hear better, not to avoid contact. Babies with visual impairment may respond unexpectedly e.g. they may not smile or give visual responses in the same way as sighted babies. Support for parent-child dyads from the conductor in these circumstances is vital to enable them to develop positive relationships. 'Mother-centred conductive education' is a term used to refer to how mothers are guided to overcome their feelings of powerlessness caused by their children's confusing responses. The mother has a huge influence over the development of her child's personality (Ákos and Ákos, 1991).

Bakeman and Adamson (1984, cited in Trevarthen and Burford, 1995) found evidence that babies playing with their mothers functioned at higher cognitive levels than those playing with children of their own age and development and that babies could gain optimum support from parents in order to learn and develop. Through CE parents begin to believe that they can influence the development of their child (Lind, 1998).

In describing the impact of CE on the relationship between parent and child one parent-author considered that the central difference between mainstream therapy and CE is that CE puts the family in the central role:

I felt bolstered by the importance CE places on the value the family has in developing the child's personality as well as positively affecting a strong self-image that doesn't necessarily have to accept all the limitations one believes is their only destiny (Gordon, 1997, p2).

The adult is the mediator of the child's learning (Jernqvist, 1986) and when the child becomes active and lively, through joint experiences, the relationship between parent and child is changed as are both individuals (Ákos and Ákos, 1991).

2.13.3 The Group

Group upbringing, common in Eastern Europe, is a feature of CE as it originates from Hungary. The group provides the atmosphere for learning and motivation for all members to succeed. The group removes pressure from individuals of being watched and expected to perform. 'It leaves him alone but not lonely, as he is a member of a group who all have the same aim in mind' (Seglow, cited in Cottam and Sutton, 1986, p.71). Group work enables parents to gain confidence and skill in teaching their children (Jernqvist, 1986). It is reported that new joiners to a group 'hear and see success stories from other parents and the children quickly begin to interact and play with their peers; important additional facilitations for learning' (Baker and Sutton, 2008, p.17).

A child with disabilities becomes used to persistent failures when trying to carry out activities, soon becoming frustrated. Therefore a parent or other group member who can make activities possible enables the child to become fulfilled and enlivened and maintains the child's receptiveness and ability to learn and develop. Ákos and Ákos (1991) contend that personality development begins in the group, which initially consists of the child and mother. This widens with the inclusion of more members and 'intercerebral cooperation' with other people will enable the development of the personality and the desire to co-operate with others.

Parent and child work in CE gives parents opportunities to work with other parents and observe how they interact with their own children. They see parents wait for responses, recognise communicative actions and sounds, pay attention to their child's needs and show empathy for their child (Trevarthen and Burford, 1995). Lind (1998) acknowledges the contribution of play to group relations and the subsequent development of communication.

The role of the group in CE in teaching children and parents is considered to be important. It is the mother's activity which leads to

success for the child:

It is an advantage that the mothers can compare their children to other children in the group and not only compare them with normal children. They can then better learn how to judge progress and be more optimistic and conscious of their goals (Cotton, undated, p.20).

A mother learning in a group is brought out of isolation and is strengthened by other parents' support (Seglow, 1984).

2.13.4 Rhythmical Intention, Verbal Regulation and Music in CE

Research has shown that rhythm and music have powerful effects on communication with young children (see chapter 2.7). Babies enjoy rituals, touching and movement where emotion is expressed physically being very perceptive to musical sounds (Burford, 1991, cited in Trevarthen and Burford, 1995). Rhythmic speech and songs create a sense of community (Ákos and Ákos, 1991). The beat and tune of music can give co-ordination to motor disabled children giving 'great value as a complement to the exercise of motor performances in conductive education' (Trevarthen and Burford, 1995, p. 143).

Following immersion in CE with his child, one parent commented on the fundamental difference between language use in therapy and CE. In CE children state their intention to carry out actions. He

believes that this strategy brings awareness to an action rather than distracting the focus often done in physiotherapy sessions. He took cues from his child. Even though she had a serious language retrieval problem she learnt to compensate, 'She is greatly empowered by words-especially her own' (Gordon, 1997, p.3).

Rhythmical intention facilitates learning and promotes the cohesion of the group (Hári and Ákos, 1988). Initially the parent is the mediator for the child's learning and provides the rhythm. As the child learns and develops, she can provide her own rhythmical intention to aid the completion of a task and the attainment of a goal (Ákos and Ákos, 1991).

Vygotsky theorised that intra-psychological processes grow out of social interaction and Wertsch's analysis showed that a child learns strategic skills working as one unit with an adult, while carrying out a task (Jernqvist, 1986). The way the task is shared depends upon the child's level of development. The adult guides the child verbally to complete appropriate actions. When the child carries out an action, she begins to understand the situation as a result of having created a relationship between speech and action. CE uses speech in a regulatory role, 'The primary aim of CE is to stimulate a

developmental process which would not come about spontaneously, and which will continue subsequently...' (Hári and Tillemans, 1984, cited in Jernqvist, 1986, p.9).

2.13.5 The Conductor

Describing the essence of CE, Dr. Hári, former Director of the Petö Institute, said that: 'rehabilitational purposes are achieved in a pedagogical way through ... the conductor. The personality and training of the conductor is the key factor in Conductive Education' (Hári, cited in Cottam and Sutton, 1986, p. 80).

Parents may feel disempowered when learning of their baby's disability and receive advice from a wide variety of professionals, losing confidence in their own instincts. The conductor empowers parents to regain central roles in their children's lives (Trevvarthen and Burford, 1995).

Lesley Rose, who attended mother and baby groups at the Peto Institute in Hungary with her son James, reported that the conductors showed James how they wanted something done, and when he tried, 'they knew exactly how much help to give him, and when to start withdrawing so that he could take over' (Walters, 1998, p.15).

The conductor co-ordinates the group enabling members to accept collective responsibility, although the success of every individual

within the group is of paramount importance to the conductor. Unity comes from interpersonal relationships (Hári and Ákos, 1988).

2.13.6 Encouragement and Praise

Parents and conductors who constantly observe children's interests and responses are likely to be the ones who have the most effective relationships. Vygotsky's 'zone of next development' provides an explanation for this. 'The way an adult provides encouragement and praise, as well as the material wherewithal to continue with the task, is an invaluable part of the child's will to make progress' (Trevarthen and Burford, 2005, p.142). Social warmth and contact provide the necessary conditions for learning and development. Encouragement and praise are integral elements of CE.

2.13.7 Activity and Play

Play in relation to other human beings enables babies to learn and develop. Babies with disabilities are not equipped with the same skills as their peers to engage in play. However, even profoundly disabled children retain subtle emotions, especially a sense of humour, which has an important role in facilitating learning (Trevarthen and Burford, 1995). For young children CE is based upon active play, games and social interaction. 'Children will only

learn if they strive actively for the goal and reach it' (Ákos and Ákos, 1991, p.175).

Parents learn how to teach their children to play through activity, endurance and purpose in everyday activities such as potty training, washing, dressing, eating etc. Parents enable their children to become alert and lively and to do things for themselves, rather than being dependent upon others (Baker and Sutton, 2008). 'The mother learns ways of evoking activity and so the child becomes more and more active' (Hári and Ákos, 1988).

Learning can then be transferred into the home environment enabling children to become autonomous functioning individuals and ending the cycle of total dependence (Rozsahegyi, 2006, cited in Baker and Sutton, 2008).

Most parents of children with motor disabilities need inspiration to find games that their children can take part in meaningfully. In CE sessions children and parents are activated and stimulated to see how others 'join in the play and it certainly gives valuable inspiration to continue doing this at home...especially when play is such a valuable factor in children's development and learning' (Lind, 1998, p.15).

2.14 Summary

Literature concerning interactions between typically-developing infants and their parents and the effects of these interactions on a child's development and learning has been reviewed. Literature has also been studied to see the profound and wide-reaching effects of disability on dyadic interactions and developing relationships. The review has ended by looking at the available literature about CE and concluded that there is a major contribution to be made by CE to the development of interactions and relationships which have a substantial effect on children's development and learning.

Chapter three will describe the research to be undertaken and the methods to be used.

Chapter 3

Methodology

3.1 Introduction

The research design will be outlined and use of a qualitative approach justified. Data collection tools will subsequently be described, considering outcomes of a pilot study conducted in the same setting.

3.2 Research Design and Timescale

Research questions were formulated, an approach to the study chosen and data gathering methods selected. Data gathering took place over three months. The questionnaire was piloted, comments considered and amendments made to ensure clarity and comprehension. Following analysis of the questionnaires three dyads were chosen and three, three-minute video-observations made of each dyad, allowing time for absences, and to ascertain consistent behaviours particularly with regard to the use of recording equipment. Semi-structured interviews with a parent from each dyad followed, based on themes gathered from analysing the video recordings. Results of questionnaires, videos and interviews were collated and analysed to guide the interview with the Conductor-in-Charge of the

Parent and Child Service.

3.3 Case Study

A case study was chosen as the best approach to investigate interactions between parents and their young motor disabled children through CE. Case studies are ways of, 'collecting and analyzing empirical evidence' (Yin, 2003, p.3). The design depends upon the research questions devised and the amount of control the researcher has over events (Yin, 2003). The context of the research is of vital importance (Robson, 1999) and case studies 'create understanding in a specific setting rather than producing generalisable results' (Rolfe and MacNaughton, in MacNaughton *et al.*, 2008 p. 8). The setting for this study was the Parent and Child Service at CCE where parents and their young motor disabled children work with a conductor. The aim was to create a deeper understanding of what happens during CE sessions to develop interactions between parents and their young motor disabled children and the impact this has on their learning and development, not to generalise results.

Four research questions were posed for this study. 'Defining the research questions is probably the most important step to be taken in a research study' (Yin, 2003, p.7). All questions were exploratory and required investigation, description and explanation of interactive

patterns between parents and children. They did not deal with prevalence. The case was contemporary and did not use historical information (Yin, 2003).

In summary, 'If your main concern is in understanding what is happening in a specific context, and if you can get access to, and co-operation from, the people involved-then do a case study' (Robson, 1999, p.168).

3.4 Qualitative Research

'Qualitative research usually emphasises words rather than quantification in the collection or analysis of data' (Bryman, 2004, p.266). The researcher tries to avoid too many preconceptions about results (MacNaughton and Rolfe, in MacNaughton et al., 2008). It is common to describe qualitative research 'as connected with the generation rather than the testing of theories. However there are studies in which qualitative research has been employed to test rather than generate theories' (Bryman, 2004, p.20). In this study results were compared with previous research literature.

Using a qualitative, interpretive approach means that data collection and analysis are not rigidly separated. Initial data was collected using

questionnaires which were used to choose the dyads for observation. An analysis of the results of the observations was used to plan the interviews (Robson, 1999).

3.5 Data Gathering Tools

3.5.1 Triangulation

To ensure validity, more than one data collection method from a variety of methodological sources was used to ensure triangulation (Bryman, 2004; Edwards, cited in MacNaughton, *et al.*, 2008; Robson, 1993; Roberts-Holmes, 2007; Siraj-Blatchford, and Siraj-Blatchford, in MacNaughton, *et al.*, 2008; Yin, 2003). 'One important benefit of multiple methods is in the *reduction of inappropriate certainty*' (Robson, 1999, p.290). Multiple data gathering tools are recommended in the case study approach (Yin, 2003).

3.5.2 Sampling Strategy

A maximum variation strategy was used because this attempts to incorporate as wide a range of participants as possible, including extremes. Maximum variation sampling is a type of purposive sampling (Robson, 1999; Miles and Huberman, 1984) used when the sample size is very small and no exact population information is

available. Miles and Huberman (1984) consider sampling options as the setting (CCE parent and child service); actors (parents and conductor in this service) and processes (sampled through three parents and three observations for each dyad).

Parents attending parent and child sessions at CCE make up a large proportion of all parents involved in such sessions as CCE is one of a few settings in the United Kingdom that offers this type of provision.

All parents of children attending parent and child sessions at CCE were asked to complete a questionnaire. There were therefore no issues of unfair or non-representative sampling except for those parents who did not respond. The return rate was noted in the results.

The questionnaire asked parents if they were willing to be interviewed. From the self-selected sample three were chosen to highlight similarities and differences between dyads who had attended sessions for different lengths of time. These three parents were observed with their children before taking part in semi-structured interviews to obtain views of interactions to triangulate findings with observations and questionnaires.

The following table provides an overview of the data collection methods which were used to answer each research question.

Table 3.1: Research Questions and Data Collection Methods

Research question	Observations	Questionnaire	Interview with parent	Interview with conductor
1. How does a young child's motor disability affect his/her development and learning?	✓	✓	✓	✓
2. How do dyads of caregivers and young children interact when the children have motor disabilities?	✓	✓	✓	✓
3. How can dyads be supported to enhance the quality of their interactions through Conductive Education?	✓	✓	✓	✓
4. What impact do these enhanced interactions have on the child's learning and development?		✓	✓	✓

Each data gathering method will now be described in detail.

3.5.3 The self-completion questionnaire

3.5.3.1 Design

The self-completion questionnaire was designed to be clear and understandable to all parents. It had to be easy to follow and its questions 'short, clear and unambiguous' (Roberts-Holmes, 2007, p.148).

The design was such that respondents could answer all the questions without inadvertently omitting any (Bryman, 2004).

3.5.3.2 Piloting

It was important to ensure clarity of function and reasonableness in the time expected for parents to complete the questionnaire (Bryman, 2004), so a pilot was completed by a parent who had previously attended parent and child sessions whose child now attends a nursery-aged group. She was asked to answer questions about clarity, how long it took to complete and whether she thought this was reasonable (Appendix 1a). She responded that it took 15 minutes, that this was reasonable and that the questions were clear and understandable. She considered that there was a 'good balance of one word/tick answers and descriptive answers' (Questionnaire

response, January 2009).

3.5.3.3 Types of questions

The questionnaire (Appendix 1b) contained a total of seventy four questions. Section one requested demographic and factual information about each child's condition and diagnosis and two open questions. The second section focused on interactions between parent and child and had a mixture of closed and open questions. The open questions required short answers. Section three concerned developing interactions through CE. It contained closed questions and two open questions. Eight questions collected information using a Likert scale, with questions followed by a range of options e.g. I feel more confident in shared interactions with my child and we experience mutual delight: strongly disagree, disagree, neither agree nor disagree, agree or strongly agree. Closed questions allowed comparisons to be made between parent responses, whereas open questions allowed for collection of qualitative data (Siraj-Blatchford and Siraj-Blatchford, in MacNaughton *et al.*, 2008).

3.5.3.4 Advantages and Disadvantages of Self-Completion Questionnaires

Although questionnaires are a time- and cost-efficient way of collecting data for respondent and researcher and responses are not

affected by interviewer variability (Bryman, 2004), there are also drawbacks.

The researcher cannot prompt respondents who find questions difficult and cannot probe for further answers. It is important that questions are straightforward and that the questionnaire does not take too long because respondents may tire and not complete it. The respondent may not wish to answer a question which would be less likely to happen in an interview situation. Questionnaires also favour educated, literate respondents.

3.5.3.5 Response Rate

One of the most important considerations when using self-completion questionnaires to collect data is the risk that there will be a lower response rate than using interviews (Bryman, 2004). Mangione, (cited in Bryman, 2004) suggests that below 50% return is unacceptable and over 85% excellent. Cohen and Manion (cited in McNaughton *et al.*, 2008), suggest a realistic response rate is 75%.

3.5.3.6 Maximising the Return

In order to maximise responses, parents were asked to return completed questionnaires within two weeks. Reminder letters and

further copies of the questionnaire were sent to parents who had not returned their questionnaires after two weeks. All parents had signed agreement forms to participate so were aware of the nature of the study and each questionnaire was accompanied by a letter explaining the importance of the questionnaire to the research (Appendix 1c).

The questionnaire was carefully designed to ensure ease of reading, clarity of instructions and professionalism, being produced in booklet form (Dillman, 1983, cited in Bryman, 2004). It was carefully laid out with enough room for margins. All questions began and ended on the same page, preventing respondents omitting questions or failing to complete them because of lack of understanding. It was easy on the eye (Dillman, 1983, cited in Bryman, 2004); headings and instructions were in bold font and questions in regular font. A Likert scale was used in horizontal form for answers to question six in section three. This scale provided consistency for respondents and was easy to compare answers when analysing the data (Bryman, 2004).

The questions were of direct interest to respondents as they all involved interactions with their children.

There was an emphasis on closed questions and questions using a scale rather than open questions, so that busy parents were not expected to take a long time in completion.

3.5.4 Direct Observations

3.5.4.1 Advantages and Drawbacks

Direct observations observe events as they happen and put them into context. They are an appropriate technique for 'getting at "real life" in the "real world"' (Robson, 1999, p.191). Direct observations of parent-child interactions are conducted because they 'are invaluable for...examining research questions about the mechanisms involved in social interaction' (Aspland and Gardner, 2003, p.136). However they are time-consuming, which adds a human cost; selective, unless there is a broad coverage; and may proceed differently because the observer is present (Yin, 2003).

To combat these drawbacks, regular sessions attended by families were used and outcomes of the study used to reflect on the work of the setting, as well as for the study, making observations time-efficient; several observations were carried out over a period of two

months gathering common themes, preventing a one-off snapshot view. Time-constraints prevented observations over an extended time period. The researcher is part of the setting's team, so parents and children were familiar with her, albeit, not usually as an observer. The observations were non-participant (Bryman, 2004). Video recording was used, as it frequently is in the setting so the children and parents were used to it. Issues of time-sampling were overcome as different parts of sessions were analysed so that, 'a false impression of that pupil's [or parent's] behaviour' was not generated (Bryman, 2004, p.172).

3.5.4.2 Implementation

Dyads were chosen for observation using the strategy described in 3.5.2. Structured observation follows rules for recording behaviour. Unstructured observations aim to record behaviour in as much detail as possible to give an account (Bryman, 2004). This study used a semi-structured approach to observation. An observation schedule was drawn up with areas for observation (Appendix 2a). This was based on Crittenden's CARE-Index (1988). 'It is vital to choose behaviours that are...common enough to be observed during a brief session' (Aspland and Gardner, 2003, p.137).

Each observation lasted three minutes, notes were taken and the

recording viewed and analysed by the researcher and a 'critical friend', an experienced conductor who did not work with the parent and child group, to ensure consistency.

Activities took place in the parent and child room to ensure familiarity and routine for dyads. Interactions between each parent and child and between the professional and the dyads were studied. Information from observations provided opportunities for triangulation with other data gathering methods.

3.5.5 Semi-Structured Interviews

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3.5.5.1 Advantages and Drawbacks

Much information gained through interviews would not be obtained through questionnaires as the questions are more open-ended 'which enable a more varied and in-depth participant response' (Cannold, in MacNaughton *et al.*, 2008, p.180). Open-ended questions could also shed light on something the researcher had not thought of or had misinterpreted. Follow-up questions could assist clarification and encourage further elaboration. The researcher needed to be aware, however, that the interviewee could answer questions that the researcher planned to ask before she had the opportunity to ask

them. Flexibility on the interviewer's part was therefore required (Cannold, in MacNaughton *et al.*, 2008).

The researcher needed to be aware that issues addressed with parents of motor disabled children could elicit emotional responses. Therefore she needed to be gentle, open and ethically sensitive but simultaneously critical and steering to obtain information required to answer the research questions (Kvale, 1996, in Bryman, 2004).

3.5.5.2 Implementation of Interviews with Parents

Dyads were chosen for interview using the strategy described in 3.5.2.

Each interview began with the researcher and the parent watching one of the three-minute observations together to stimulate discussion.

'Research interviews are structured conversations between researcher and participant in which the researcher seeks to elicit the participant's subjective point of view on a topic of interest to the researcher' (Cannold, in MacNaughton *et al.*, 2008, p.179). In a semi-structured interview, 'the interviewer has a list of questions or

fairly specific topics to be covered, often referred to as an *interview guide* (Appendix 3a), but the interviewee has a great deal of leeway in how to reply' (Bryman, 2004, p.321). The guide was a framework to enable the interview to be 'concise and productive' (Cannold, in MacNaughton *et al.*, 2008, p.179). New questions were introduced and flexibility employed. A list of memory prompts enabled the interview to be informal. Areas to be covered were formulated following analysis of recorded observations. The interviews loosely followed the five-point model suggested by Robson (cited in MacNaughton *et al.*, 2008) with an introduction; warm-up, which involved watching the video recording; main body of the interview; cool-off and closure.

Interviews were recorded and transcribed to capture and analyse answers. The interviewer needed to be responsive to interviewees' answers so decided not to make notes during interviews. 'One of the main ingredients of the interview is listening' (Bryman, 2004, p.327).

As the interviews contained sensitive information it was decided that the recordings would be voice only, as video may have made participants feel self-conscious and less likely to respond fully.

3.5.5.3 Interview with the Conductor

A semi-structured interview, favoured by qualitative researchers (Bryman, 2004), with the Conductor-in-Charge of the Parent and Child Service at CCE also took place. An interview was chosen to obtain her views rather than a questionnaire as she is the only person working consistently with these parents and children.

This interview was the last in the series of interviews and was conducted after all questionnaires were returned and observations completed. Therefore the researcher had a broad perspective from the research already completed. Questions posed could take into account all other findings (Interview Guide, appendix 4a).

3.6 A Pilot Study

3.6.1 Introduction

A pilot study was conducted to assess the suitability of a case study approach with the chosen data collection tools for a wider sample of dyads in the same setting, not to generalise findings (Bryman, 2004).

3.6.2 Findings from the Pilot Study and Implications for Choice of Research Methods and Data Gathering Tools

3.6.2.1 Piloting the Case Study

The pilot involved a father and his multiply disabled child, selected because the child was an extreme example of the children attending the setting. 'One... possibility is that the pilot case represents a most complicated case, compared to the real likely cases, so that nearly all relevant data collection issues will be encountered in the pilot case' (Yin, 2003, p.79).

3.6.2.2 Piloting a Qualitative Approach

The pilot successfully used qualitative methodology to study social interaction, making this a relevant approach for subsequent similar studies. Theories from literature were tested, but new suggestions also made.

3.6.2.3 Implications of the Pilot for Further Studies

The case study, using qualitative data, was found to be suitable for studying interactions between a parent and his disabled child. Therefore a case study was chosen for this more detailed investigation.

Observations were a powerful data collection tool in the pilot. Findings suggested that more numerous observations over a longer period may have produced differences in dyadic interactions as the

child developed. Therefore three observations were carried out with each dyad, but time did not allow for longitudinal study.

The observation schedule proved valuable for recording observations, but revisions were recommended for future studies. The schedule was amended to include recording of interactions between parent and conductor and child and conductor. Notes were made of who initiated interactions, responses, if any and if so what they were. It was considered useful to compare frequencies of interactions between sessions and dyads, hence the reduction in duration of observations from five minutes to three minutes to prevent an overload of information.

It was suggested that watching recordings of dyadic interactions with the researcher could provide valuable insights into parents' own views of interactions. Different interpretations could be made by researcher and parents. A critical friend could also have been engaged to watch the recording to verify the researcher's findings. These recommendations were put into practice in this study.

The interview was an extremely valuable way of examining the father's views of his interactions with his child. Voice recording was

vital to listen repeatedly to the interview. A visual recording could have aided interpretation through analysis of body language, although this was considered to have been more intrusive for the parent and was therefore not used. It was suggested that other family members could have been interviewed about their perceptions of the father's interactions with his son and their own. This is a possibility for further studies, as time and project length did not allow this to happen.

The use of multiple data gathering tools was essential to provide triangulation. The pilot study concluded that this would be essential for future studies.

Having described the process of the study, ethical implications, confidentiality, access, timescale and likely outcomes will now be considered.

3.7 Ethics

Researchers must be aware of ethical implications of their studies. Four areas of concern have been proposed: harm to participants, lack of informed consent, invasion of privacy and deception (Diener and Crandall, 1978, cited in Bryson, 2004).

This study guarded against these by awareness of the participants' vulnerability; sensitivity in devising the questionnaire and during observations and interviews. 'Research relationships are frequently characterized by disparities of power and status. Despite this, research relationships should be characterized, whenever possible, by trust and integrity' (British Sociological Association, 2002). The purpose and planned documentation of the study was explained at the outset. Consent was obtained in writing from parents and the Chief Executive of the CCE. There was no attempt to deceive observations being overt. All interviews were conducted in private, recorded with prior consent.

3.8 Protection of Participants

The researcher had to consider the participants' vulnerability in this study. Some parents had only recently learnt of their children's disabilities and may not have fully understood their extent or been able to accept them. Therefore the researcher had to be prepared for emotional responses during interviews and needed to be sensitive to parents' feelings, offering breaks if necessary. Usual breaks were offered to children participating in the programme. These were not affected by the research.

Parents were informed that they could withdraw consent to participate in the research at any time and that no parent or child would be discriminated against if they chose to withdraw. Cultural and religious values are always taken into account in work at CCE.

3.9 Confidentiality

The name of the centre and participants' names were changed to ensure confidentiality.

Video recordings were made sensitively and assurances given that recordings would be used only for the purposes of this research. Permission for recording is requested from all parents when children begin attending sessions at CCE. Children and parents always work together so there was no time when children were observed alone. DVD material was used only for the research and has been kept by the researcher.

If the researcher wishes to use material for future research papers or presentations, parents will be asked for their permission on each occasion.

3.10 Access

Access to the group was straightforward as parents and children attend regularly. The researcher visited the group by prior arrangement with the conductor responsible for the group and the participants. All parents received letters explaining how the study was to be conducted and signed to give their consent.

3.11 Likely Outcomes

Observations gave the researcher the opportunity to gather themes. Parents also had this opportunity while watching the DVD with the researcher enabling them to talk about what they had seen, as well as what they remembered. Actions may have been intuitive and difficult for them to describe, but recordings helped overcome this difficulty. Completion of questionnaires also gave parents opportunities to prepare for their interviews.

It was expected that questionnaires findings and observations would concur with the interviews with some interesting differences, possibly regarding what parents did with their children intuitively and had not previously thought of or may have been unable to describe.

It was expected that the professional interview would provide information on how conductors work with dyads to develop interactions between parents and their young motor disabled children and what impact the conductor sees on these children's development and learning.

Chapter 4

Results of Survey of Parents' Views of the Parent and Child Services at CCE

4.1 Introduction

Chapter three has described the methodology and data gathering tools. This chapter will describe and analyse the survey of parents' views constructed to address the four research questions. Conclusions reached by combining information from all data sources will be discussed and recommendations made in chapter eight.

4.2 Aims

The aim of using a questionnaire (Appendix 1b) was to provide data to address the research questions detailed in table 3.1.

4.3 Methods

4.3.1 Participants

Questionnaires were distributed to all twenty-seven parents attending parent and child sessions at CCE. These parents represented a cross-section of society in terms of socio-economic group, and ethnicity (National Statistics on-line, 2009).

4.3.2 Procedure

Questionnaires were distributed with accompanying letters detailing when and how they were to be returned. Most were distributed personally, five were sent by e-mail.

4.3.3 Materials

The questionnaire, as described in chapter 3.5.3, collected data using open and closed questions. Closed questions allowed easy comparisons between parent responses, whereas open questions allowed for collection of qualitative data.

The questionnaire was designed to be accessible to all parents and was piloted by a parent in order to ensure clarity and reasonableness of completion time.

4.3.4 Collection of Results

The results obtained from questionnaires were summarised in a table (Appendix 1d). This table was used to analyse results, display frequencies for closed questions, and identify common and discrepant themes for open questions.

4.4 Analysis with Response Rate

A total of nineteen questionnaires were returned, a response rate of 70%. They were all completed by mothers.

4.4.1 Results Section 1: Children's Conditions and Diagnoses

This section summarised conditions, diagnoses and disabilities of children whose parents completed questionnaires and parents' views on whether those disabilities have affected interactions and relationships.

Parents of eleven boys and eight girls completed the questionnaire. The majority of children were born prematurely. Fourteen of them had cerebral palsy, but all were reported to have movement difficulties. More than half were said to have speech and language difficulties and four learning difficulties.

When told of their children's difficulties, fifteen parents were very concerned or concerned and sixteen parents wrote comments about

how their children's disabilities had affected dyadic interactions, particularly at the beginning. Some felt that they over-protected their children or accepted behaviours that they would not have done if their children had not been disabled. Nine parents felt that their children's disabilities had impacted on relationship-building, four felt they had not.

4.4.1.1 Summary

A majority of parents felt that their children's disabilities had affected their interactions, almost half felt that this had impacted on relationship-building. Section two will describe parents' views of how they interact with their disabled children.

4.4.2 Results Section 2: Interactions between Parents and their Children

Section two asked about interactions between parents and their children.

Most parents reported that they use most of the strategies suggested to gain their children's attention. The most popular were: calling the child's name, touching and stroking, making eye contact, singing, making sounds and smiling.

More than half the parents said that they sing to maintain their children's attention; almost half said they made interactions enjoyable, five parents use touch and five maintain eye contact.

The majority of parents reported using touch, calling their child's name, smiling, placing their child facing them and making eye contact to gain responses. All nineteen parents said that their children could end exchanges. They usually did this by turning their heads away or moving their bodies. Only four said their children would stop talking.

Thirteen parents reported that their children copy their facial expressions in some way; five said that they did not. Seven mentioned smiling as the main copied expression.

Eighteen children were said to be able to initiate interactions. Most children did this by crying out to attract their parents' attention. Vocalisation and touch were the other most popular ways reported.

All parents except one made comments on how interactions influenced their children's learning and development, several parents

mentioned the amount of time they spend with their children, some referred to this as 'work' or using 'all my resources, mental and physical'. Five parents expressed difficulties in communication as leading to difficulties in interactions, both in children's difficulties in understanding parents and parents in understanding their children's needs.

4.4.2.1 Summary

This section has summarised the methods reported of ways in which parents interact with their disabled children and how interactions affect development and learning.

4.4.3 Results Section 3: Developing Interactions through CE

Section three concerned the contribution of CE to the development of dyadic interactions and their subsequent contribution to learning and development.

Dyads had attended CE sessions for between three months and three years. Twelve dyads had attended individual and group sessions, six group sessions only and one individual sessions only.

Seventeen parents said that relationships with their children had changed since attending sessions; two said they had not. Parents

focused on the positive ways that CE had helped them to understand their children better and have higher expectations or beliefs in their children's abilities. Some parents talked of the confidence they and their children have gained; others of the different ways they try to control their children's behaviour. Some spoke of learning new skills themselves. One considered the group to be particularly important.

When asked which aspects of dyadic relationships had developed since attending CE sessions, the majority of parents reported increases in confidence and ability to respond to their children's communication attempts, understanding and awareness of their children's wishes and intentions and developments in their children's learning.

The impact of singing on interactions must be acknowledged. Although most parents sang to their children prior to attending CE sessions, all parents said that they sang following taking part in CE. Children were reported to join in, move their bodies and connect singing with actions. Some parents stated that singing helps with concentration and attention.

Almost all parents responded positively to questions about CE sessions and interactions with their children. A majority either agreed

or strongly agreed with all statements given on the questionnaire except for the first question about understanding language when just under half of the respondents agreed or strongly agreed. They felt that the conductor had enabled more effective communication and raised their expectations for their children's learning and development. Most felt more confident in interactions with their children and that the experiences they shared in parent and child sessions had enabled closer relationships with their children to develop. The majority felt that the speed of their children's learning had also increased.

Eleven parents made further comments about how their children's learning and development had been affected through developing interactions. All wrote positively about how CE had affected their children's learning and development. Some wrote of knowledge of their children's needs developing through joint activities and others of the development of their relationships. Some parents described the increased confidence and enjoyment in each other's company they and their children had gained through CE and the improvements in their children's behaviour patterns, concentration and stamina. Other parents wrote of the increased expectations they now have for their children and a more positive hope for the future. The conductor was

described as a role model.

Nine parents said that they would be willing to take part in an interview to discuss their views in more depth.

4.4.3.1 Summary

This section has summarised parents' perceptions of how interactions with their children have developed through CE and what impact this has had on their children's development and learning. The following section will discuss findings from the questionnaire.

4.5 Summary and Discussion

Most children were born prematurely and most had cerebral palsy. All children had movement difficulties. Half were reported to have speech and language difficulties. Most parents were concerned or very concerned when they received their children's diagnoses. The majority of parents considered that their children's disabilities had affected dyadic interactions and over half the parents surveyed felt that their children's disabilities had impacted on relationship building.

All parents used a variety of methods to gain their children's attention. They all called their children's names. Most also employed

touch, singing and smiling, made sounds and eye contact. To maintain attention the majority of parents sang.

Nearly all children responded to their names being called, being touched and smiled at. Placing a child facing the parent also brought a significant response in most cases and all children responded to singing in some way.

All children were reported to be able to end an exchange. The majority of parents said that their children could copy some facial expressions. Nearly all parents said that their children could initiate interactions, most did so by crying out.

All parents except one made comments on how interactions influenced their children's learning and development, several mentioning the extra input they had invested.

All nineteen parents made positive comments about how CE has affected either their relationships with their children or how CE has affected their children's development and learning. Some wrote of their own development.

The vast majority of parents believe that their understanding and awareness of their child's wishes and intentions; the ability to

respond to their child's wishes and intentions and their confidence in responding to their child's communication attempts had increased as well as their child's ability to learn. A majority considered that there had been developments in all aspects proposed. Singing was considered to be an important factor in development and learning by all parents.

Eleven of the nineteen parents wrote additional positive comments about how CE had affected their children's learning and development.

4.6 Conclusions

It must be recognised that motor disability affects dyadic interactions and relationship-building. Children's learning and development is consequently affected and requires additional professional input to establish meaningful communication in order to interpret children's intentions, build relationships and facilitate learning.

Parents surveyed were generally very positive about the effects that CE had on their interactions with their children. Through conductors' understanding of children's conditions, communication of this to parents, and modelling facilitation techniques, dyadic relationships had developed which had advanced children's learning and

development. It is very important to establish these dyadic interactions as early as possible in a motor disabled child's life as intuitive interactions may be harder to establish with children with motor disabilities.

4.7 Chapter Summary

A summary of parent answers to the self-completion questionnaire has been provided and results discussed. The following chapter will provide the results of the dyadic observations which will be integrated with the questionnaire and interview results, discussed and conclusions drawn in chapter eight.

Chapter 5

Results of Observations Carried out in Parent and Child Services at CCE

5.1 Introduction

Following the survey results, three parent-child dyads were chosen to be observed from those agreeing to be interviewed. This chapter will describe and analyse these observations, carried out to address three of the four research questions. Observation results will be combined with other data sources, discussed and conclusions presented in chapter eight.

5.2 Aims

The observations (Appendix 2b) aimed to provide data to address three of the research questions detailed in table 3.1.

5.3 Methods

5.3.1 Participants

Nine of the nineteen parents who returned questionnaires indicated that they were willing to be interviewed. The researcher wished to use data from interviews and observations of the same dyads. Dyads

were chosen because of the different lengths of time they had attended parent and child sessions (Child G, six months; Child S, one year; Child O, two years); their ages (Child G, one year seven months; Child S, two years ten months and Child O, three years eight months); and because they all attend regular sessions.

5.3.2 Procedure

The researcher made three, three minute video-recordings of each dyad over several weeks allowing time for absences, getting used to the recording equipment and to ascertain consistent behaviours. Brief notes were taken during the observations, but recordings were the primary source for analysis of results.

5.3.3 Materials

An observation schedule was devised by the researcher using a key (Appendix 2a). The schedule was used throughout the data gathering process and analysis to maintain consistency and make the process manageable.

The schedule was divided into five second sections to show when each interaction took place; who initiated or continued the interaction; what form it took; what response was gained, if any; what the effect

of the response was; whether the conductor was involved in the interaction and what the effects were of the conductor's involvement.

5.3.4 Collection of Results

Each observation was recorded in an observation schedule. A 'critical friend' sampled one observation of each dyad to ensure consistency of recording. This 'critical friend' noted a few omissions and some minor amendments were made. These observation schedules were summarised (Appendix 2b) and analysed.

5.4 Analysis

5.4.1 Summary of Observations of Child G

Three observations were made of child G who is one year and seven months old. He has attended sessions at CCE for six months. In the first observation he was taking off his socks, the second session was a table-top activity and the third, floor mobility tasks.

Child G initiated interaction once during each three-minute observation. He was engaged throughout each observation and responded to initiations by the conductor and his mother. In the first observation, G's mother was dominant in continuing interactions; in the second the conductor continued interactions more frequently; in the third interactions were more balanced between all conversation

partners, but the conductor took the dominant role.

Child G was very young, but had found ways of communicating his wishes to his mother and the conductor. He used movements such as waving, extending his body and lifting his bottom up and down in a lying position as well as smiling to express his enjoyment. He used visual tracking to continue engagement with his mother and the conductor during all three observations.

The purpose of child G's interactions was to gain and maintain his mother's attention, especially ensuring her closeness; express his needs and wishes e.g. he looked at his mother and then back to the activity to show his desire to join in; display his enjoyment and excitement; show his understanding through appropriate responses; his desire to interact with other children and his pride e.g. he smiled when receiving praise.

G's mother relied on touch, physical closeness and facial expressions such as smiling in order to interact with him. She relied much less on verbal interaction. The purpose of her interactions was to encourage; provide physical and emotional security; have fun with her child; maintain emotional closeness; maintain her child's position;

teach concepts (colour name) and physical skills and to praise her child.

During these three observations the conductor used verbal interaction including repetition, touch and physical positioning as well as smiling in order to enable engagement and active involvement of child and parent; motivate and teach parent and child; reward the child for trying; enable success; create a good atmosphere; facilitate learning; maintain attention; enable development of language and communication; break down the task to simplify it and teach movement skills.

5.4.2 Summary of Observations of Child O

Three observations were made of child O who is three years eight months old. He has attended sessions at CCE for two years. In the first observation he was picking up beads with his toes, in the second he was taking off his socks and in the third he was engaged in a table-top activity. All these were individual sessions.

In the first and third observations, child O did not initiate interaction, but in the second observation he initiated twice. Both parent and conductor initiated two interactions in the first observation, one each

in the second but in the third only the parent initiated interaction. On the first and second occasions the child was more dominant in continuing interactions and the parent in the third. The conductor interacted less on the first occasion than during the second and third observations.

Interaction strategies used by parent and conductor with the child were very similar, both choosing to use verbal interaction to engage the child; using touch, changing position, looking at the child, smiling and laughing to enhance their use of language. Both adults used interactions to explain and direct the child, teach and reinforce language use concepts, demonstrate, praise and reward, share enjoyment, teach perseverance and control behaviour. The conductor also wished to ensure active involvement of the child and parent; to create a good atmosphere and to facilitate all-round learning, particularly the development of motor co-ordination skills, language, communication and social skills. The conductor also modelled activities for the parent to engage in with her child.

Child O relied on physical movement, looking at his communication partner and making sounds as well as using short verbal phrases to interact. He was concerned with gaining and maintaining the

attention of the adults sometimes by pleasing them; expressing his needs and wishes sometimes trying to follow his own desires by refusing to take part in the planned activity; expressing his enjoyment and excitement and using his imagination by including others in his play. He also used commentary on his own actions.

5.4.3 Summary of Observations of Child S

Three observations were made of child S who is two years, ten months old. He has attended sessions at CCE for one year. In the first observation he was involved in group sitting and standing tasks, in the second and third he was engaged in individual floor mobility tasks.

Child S is severely physically disabled and has no verbal communication. However, he initiated interactions with his mother and the conductor in all observations. He was also very active in continuing interactions throughout all the observation sessions. He showed that he could use various methods of communication to make his feelings known such as making sounds which increased in volume; looking at his mother; looking at the conductor; changing his position; frowning; making eye contact; smiling and looking at other children.

Child S used these strategies to gain and maintain attention; express his needs and wishes e.g. looking at toy he wanted or kicking it to make it move; express his enjoyment and excitement; please his mother and the conductor; make responses and self-praise e.g. he smiled when rolling independently and reaching the toy.

In the first observation, the conductor was working with another child and S had been given an activity to continue with his mother. S was upset and showed that he did not want to engage in the activity. His mother spent most of the three minutes calming him, rocking him on her knee. In the second and third observations, S was taking part in individual sessions. He was happier and more focused.

Child S's mother used touch and physical positioning as well as eye contact and facial expression to interact with S, using verbal communication to augment these. These strategies let her child know of her physical and emotional closeness; calmed; praised; explained; encouraged; controlled behaviour; motivated him and promoted mutual enjoyment. She asked questions of the conductor to support her child's development.

The conductor was directly teaching the child and particularly his mother in sessions two and three, answering queries and enabling her to put what she had learnt into practice at home. The conductor used verbal interaction, smiling, touch, singing, looking at the child and changing her own position to enable active involvement of child and parent. She did this by maintaining attention, facilitating, motivating and teaching them. The strategies used enabled success; created a good atmosphere by joking and teasing; enabled development of language and communication skills; broke down tasks to simplify them; encouraged independent movement; explained and provided praise, a reward for trying.

5.5 Summary and Discussion

All three children showed the desire and ability to interact with their mothers and with the conductor working with them, and to different degrees, with the other children attending the group sessions. The differences in the ways the children did this became apparent from the observations. Child O had recently begun to speak and used single words and short phrases with facial expressions and physical bodily movements augmenting his communication. Child S was more severely physically disabled than either child O or child G and relied on facial expression, making sounds e.g. crying and moving

his position to initiate and continue interactions. Child G was the youngest child observed. He used eye contact, facial expression and movement to indicate his wishes and needs and to initiate and maintain interaction.

Parents of all children and the conductor working with them had to be aware of the subtle signs that they sometimes gave in order to recognise an interaction was being initiated, continued or concluded. Adults also adapted their own interactions in order to accommodate the children's differing needs.

5.6 Conclusions

In the observations, strategies used by the conductor to teach children and parents were evident. The conductor communicated an understanding of these children's motor disabilities to their parents and modelled facilitation techniques so that parents could develop their own interaction techniques and hence enable the children's development and learning.

5.7 Chapter Summary

A summary and discussion of the nine observations carried out has been provided. The following two chapters will provide the results of interviews with parents from these dyads and the conductor working with them. All results will be integrated, discussed and conclusions drawn.

Chapter 6

Results of Parent Interviews

6.1 Introduction

Three parents were chosen from those agreeing to take part in an interview. These same parents were observed with their children in three, three-minute sessions. Chapter six will describe and analyse these interviews. Results obtained will be compared with other data sources, discussed and conclusions drawn in chapter eight.

6.2 Aims

The parent-interviews (appendix 3b) aimed to provide data to address the four research questions detailed in table 3.1.

6.3 Methods

6.3.1 Participants

Nine of the nineteen parents returning questionnaires indicated that they were willing to be interviewed. The researcher wished to use data from interviews and observations of the same dyads. Justification for choice of these dyads can be seen in Chapter 5.3.1.

6.3.2 Procedure

The researcher carried out pre-arranged semi-structured interviews with three parents. These were voice-recorded and transcribed to capture and analyse answers. The interviews followed the procedure described in chapter 3.5.5 beginning with an introduction describing the project, followed by the warm-up when we watched one of the three-minute videos made of the child and the parent; the main body of the interview; the cool off and closure.

6.3.3 Materials

To provide an aide-memoire an 'interview guide' was used (Bryman, 2004, p.231) (Appendix 3a). However the interviews all proceeded in different ways according to parents' answers to initial questions and individual sensitivities known to the researcher.

6.3.4 Collection of Results

Each interview was recorded and transcribed. All interviews were then analysed.

6.4 Analysis

The headings of the research questions were used to provide common and discrepant themes. These are recorded in appendix 3b.

6.5 Summary and Discussion

It was assumed by all parents that the researcher knew their children's difficulties. Therefore, in these interviews, parents did not dwell on the ways in which their children were affected by their motor disabilities. They did all, however, comment on their children's enjoyment of humour and jokes. All three parents also commented on their feelings before and after their child's diagnosis.

Child S's inability to speak and child G's distractibility and slower rate of learning were important factors for these parents affecting their children's development and learning. Child O's mother felt that if she had known about her child's disability earlier, the way she treated him and the expectations she had of him may have been different. This could have had a detrimental effect on his learning and

development.

The parents of the two more severely disabled children felt that they had different relationships with their children because of their disabilities; the third parent did not feel that this was the case.

All parents considered that they have had to find different ways of doing things with their children because of their disabilities; one said that being taught to do activities in a different way at CCE had enabled her child to become more independent and another said that these activities have now become part of everything they do at home. Two of the three parents mentioned using specific means of communication with their children which do not involve speech. One parent spoke of limiting the number of words she uses with her child, while conversely another said that she uses speech in every activity to explain what to do.

One parent said that her child interacts with her using bodily movements to express his needs and emotions. Another spoke of her own difficulties in learning how to interact with her child.

All parents felt that CE had enabled them to teach and interact with

their children more purposefully and to incorporate activities into their daily lives, which they saw as important to their children's development and learning. They all considered the higher expectations that they had been taught to anticipate and the increased hope they now had for their children had changed dyadic relationships and led to positive developments in their children's development and learning. One parent mentioned the mutual enjoyment she and her child share through taking part in joint activities.

All parents' comments showed that they felt more positive about their children's conditions and futures and the speed at which their children learn had increased since taking part in CE sessions. One parent commented on the holistic nature of CE and the development of her child's self-esteem. Parents felt pride in their children's achievements, they were more aware of their own child's abilities and how they could enable progress.

6.6 Conclusions

All three parents interviewed considered that CE has played a very important role in establishing purposeful communication, interpreting children's intentions, building relationships and facilitating learning.

6.7 Chapter Summary

A summary and discussion of the three parent interviews has been provided. The following chapter will describe the interview with the conductor working with the parents and children. All results will be integrated, discussed and conclusions drawn in chapter 8.

Chapter 7

Results of Interview with Conductor-in-Charge of Parent and Child Services at CCE

7.1 Introduction

Following interviews with parents an interview was conducted with the Conductor-in-Charge of the parent and child service at CCE in order to triangulate findings from other data sources. This chapter will describe and analyse this interview. Comparisons with other data sources will be made and conclusions drawn in chapter eight.

7.2 Aims

The conductor-interview (Transcript in appendix 4b) was designed to provide data to address the four research questions and compare information acquired with data already collected. It aimed to provide data to address the four research questions detailed in table 3.1.

7.3 Methods

7.3.1 Participant

The Conductor-in-Charge of the Parent and Child Services at CCE is an experienced conductor, trained at the Petö Institute in Hungary. She has worked in the parent and child service at CCE for two years. She works with all the dyads involved in this study.

7.3.2 Procedure

The researcher carried out a pre-arranged semi-structured interview with the conductor-in-charge which was voice-recorded and transcribed to analyse answers.

7.3.3 Materials

An 'interview guide' was used (Bryman, 2004, p.231) (Appendix 4a) to structure the interview and to ensure nothing was forgotten.

7.3.4 Collection of Results

The interview was recorded, transcribed and analysed.

7.4 Analysis

The headings of the research questions will be used to provide

themes which emerged from the interview.

7.4.1 How does a young child's motor disability affect his learning and development?

The following themes emerged from the interview with the Conductor:

- Motor disability always affects a child's learning and development.
- Effects are felt to different degrees depending on the characteristics, level and complexity of the motor disability.
- Motor disability affects physical, cognitive, speech and communication, behavioural, social and self-care development.
- These difficulties affect children differently depending on the support each child receives.

7.4.2 How do dyads of caregivers and young children interact when the children have motor disabilities?

The following themes emerged from the interview with the Conductor:

- The effects of a child's motor disability can be felt in the relationship between parent and child and depends on many components.
- If the child's disability is mild, interactions are usually more easily established. If it is more complex and includes speech or behaviour difficulties, the relationship is often more difficult to establish.
- Some parents ask for help when they know they have difficulties in relationship-building, others do not realise there are difficulties or do not admit them.
- Children's development depends upon their parents' personalities and knowledge.

7.4.3 How can dyads be supported to enhance the quality of their interactions through CE?

The following themes emerged from the interview with the Conductor:

- Parents can be enabled to gain understanding and knowledge about their children's disabilities and needs.
- Parents can be helped to set achievable targets for their children.
- Conductors must demonstrate achievement and success is possible for children.
- Conductors must provide activities which enable parents to strengthen interactions with their children e.g. self-care, play.
- When parents see their children improving they will gain confidence which will develop their competence in dealing with the motor disability and interactions with their children.
- CE can enable parents to 'keep up the hope' (Interview transcript) which in many cases has been lost as they have received little support from other professionals. One parent from those interviewed had lost hope when she started

attending services; she found it difficult to interact with her own child and with other parents. She has now gained confidence and relationships with her child and other parents and their children have improved.

- Parents can share difficulties and concerns in the group at CCE. Advice from other parents is often more powerful than from professionals as parents feel empathy for each other and trust other parents who are in the same situation as themselves.

7.4.4 What impact do these enhanced interactions have on the child's learning and development?

The following themes emerged from the interview with the Conductor:

- Enhanced interactions at an early age can reduce the effects of the motor disability on a child's development.
- Improved interactions can vastly affect a child's development and learning. Parent and child work as a team, listen to each other more and want to please each other.
- If positive two-way relationships are well-established, children can develop greatly and reach their full potentials.
- Enhanced interactions lead to better understanding between dyadic partners. This can dramatically reduce children's frustration levels through realistic expectations and management of behaviour.

7.5 Summary and Discussion

The conductor considered that all motor disabilities affect dyadic interactions to different degrees. Children's development and learning can be affected by the complexity of their conditions and the interactions which parents have with their children.

Dyadic partners can learn more about each other through CE activities planned by the conductor. The realisation of targets gives parents and children confidence which helps their relationships to develop. Parents have a role to play in supporting each other and building each other's confidence. The development of dyadic relationships will enable children's learning to develop.

7.6 Conclusions

Outcomes from the conductor's interview indicated that dyadic relationships were affected by a child's motor disability, that dyads can be supported to positively affect their interactions through CE and that these enhanced interactions can have a positive and lasting effect on a child's development and learning.

7.7 Chapter Summary

The conductor interview has been summarised and discussed. The following chapter will summarise and integrate all results and draw

conclusions.

Chapter 8

Conclusions

8.1 Introduction

This chapter will summarise conclusions from all data sources and compare them with information collected from literature using research questions as headings.

8.2 Summary of Information from all Sources

8.2.1 How does a young child's motor disability affect his learning and development?

Most parents surveyed reported movement and mobility; speech and language; learning and concentration; visual cognition and behaviour as their children's major difficulties. In interview, the conductor stated that motor disability affects physical; cognitive; speech and communication; behavioural; social and self-care development.

Observations confirmed these answers. Older children tended to use immature physical initiations and responses, rather than verbal interaction. Children with significant physical disabilities relied on their parents to provide play opportunities. Pennington and

McConachie (2001) suggested that high levels of dependence may lead to low levels of child independence. Exploration possibilities were determined by parents and those they had close relationships with in their environments (Kendall, Lerner and Craighead, 1984, cited in Mitchell and Brown, 2001). Child O, who had less significant disabilities, was able to make his own choices about the location and purpose of his play. He could move away from or manipulate an activity through physical or verbal means more easily than the children with more significant difficulties. The conductor commented that effects of motor disability on children's learning and development are felt to different degrees depending on the characteristics of the motor disability.

Parent interviews concentrated on children developing differently from their peers; speech and communication difficulties; slowness of response and ease of distractibility and the need to carry out activities with their children more slowly. Trevarthen and Burford (1995) commented that physically disabled children tend to have slower responses than their peers. One parent commented that her child was more 'distant' when he was a baby. All three parents commented on their children's enjoyment of humour and teasing. Even profoundly disabled children have been found to retain subtle

emotions, especially a sense of humour, which has an important part to play in facilitating learning (Trevarthen and Burford, 1995).

The conductor suggested that difficulties caused by motor disability affected children's learning and development in different ways depending on the support they received. Literature suggested that children with motor disabilities need not be cognitively impaired, but may show understanding in different ways from typically-developing children because of limited movement. Unpredicted responses may lead to expectations of lower cognitive capabilities and 'iatrogenic retardation' (Ballard, cited in Mitchell and Brown, 2001, p.135).

Motor disability affects children's learning in a variety of ways. The next section will consider how dyads interact when children have motor disabilities.

8.2.2 How do dyads of caregivers and young children interact when the children have motor disabilities?

Psychologists now agree that children's development occurs within relationships and that attachment is an important part of that process (Stern, 1985; Schaffer, 2003; Trevarthen, 2001). As typically-developing children learn, the nature of their interactions change; for example a six-month old baby will cry for attention, a three-year-old

will call for her mother or go to find her (Shaffer, 2003). By the age of two to seven months babies are able to take turns in communication exchanges (Trevarthen, 2001). Questionnaire responses showed that children's disabilities had affected dyadic interactions and over half the parents surveyed felt that their children's disabilities had impacted on relationship-building. All parents reported using a variety of methods to gain their children's attention. They all called their children's names. Most also employed touch, singing and smiling, sound-making and gaining eye contact. To maintain attention the majority of parents sang.

Children usually responded to hearing their names, being touched or smiled at or being placed facing their parents and all children responded to singing in some way.

All children were reported to be able to end an exchange. The majority of parents said that their children could copy facial expressions in some way. Nearly all parents said that their children could initiate interactions, most did so by crying out. Several parents commented on the extra input required to develop interactions with their motor disabled children and the additional motivation needed for them to respond. Some parents considered that they were over-

protective of their children and others that they accepted different behaviours from their children because of their disabilities.

Rogers (1988) commented that disabled babies avoid social interaction and have difficulties in turn-taking, but from observations of dyadic interactions at CCE it was found that all the children initiated and responded to interactions with their parents. It must be remembered that these dyads had been taking part in CE sessions for at least six months and, depending upon the children's disabilities the interactions sometimes manifested themselves in different ways from those of typically-developing children of the same age. Parents and the conductor had to be aware of the subtle signs that children gave in order to recognise an interaction was being initiated, continued or concluded. Bartram (2007) commented on the need for parents to leave time and space in interactions with their disabled children and be sensitive to their small cues. Child O used single words, short phrases and facial expression with physical bodily movements to communicate. Child S was more severely physically disabled than child O or child G and relied on facial expressions, making sounds e.g. crying and moving his position, to initiate and continue interactions. He particularly used a social smile. Rogers (1988) considered that children with cerebral palsy use social smiles

more than other disabled children to keep their mothers nearby and engaged. Child G was the youngest child observed and used eye contact, facial expression and movement to indicate his wishes and needs and to initiate and maintain interaction.

In interviews, parents of the two more severely disabled children concluded that their interactions and relationships were affected by their children's disabilities. One described methods she used to communicate which included signing and reducing the number of words in utterances. Children were reported to initiate interactions by kicking, laughing, facial expression and crying out rather than by vocalisation or speaking as would be expected of typically-developing children of their age. Tessier *et al.* (2002) considered that parents in dyads that go on to develop secure attachments may adjust their behaviour to compensate for their children's lack of mobility. The parent of the least significantly disabled child of the three did not feel that her relationship with her child was different because of his disability, although she did feel that if she had known earlier of the extent of her child's brain damage, she may have been tempted to treat him differently, which she feels may have impacted on their relationship. Stern and Hildebrandt's study (cited in Rogers, 1988) concluded that a mother's knowledge of a disabling condition

could subtly affect the way a mother interacts with her child and hence the response she receives. The conductor's comments concurred with these views. She suggested that if a child's disability was mild, interactions were usually more easily established. If it was more complex and included speech or behaviour difficulties, the relationship was usually more difficult to establish. She also considered that children's development depended upon their parents' personalities and knowledge.

Mahoney and Powell (cited in Rogers, 1988) found that the amount of pleasure a child experiences in interactions with a parent is related to maternal style. The greater the pleasure, the greater the positive effect on the child's development. Children receiving warm responses increased the most in their cognitive and social skills. Parents who gave physical affection, close contact, appropriate pacing, positive voice tone, frequent praise and avoided negative comments were those whose children developed more (Landry, Smith and Swank 2003).

One parent said in interview that she had needed to learn how to interact with her child. Interaction was not intuitive to her. All three parents said that they had needed to find different ways of carrying

out activities with their children because of their disabilities.

The conductor also stated that in her experience, some parents ask for help when they know they have difficulties in relationship-building, others do not realise there are difficulties or do not admit to them.

The third section will examine how CE can support dyads to enhance the quality of interactions.

8.2.3 How can dyads be supported to enhance the quality of their interactions through CE?

Studies carried out with disabled children and their parents have concluded that programmes should be available to enable parents to have more meaningful social interactions with their children (McCarton *et al.*, 1995; Rogers, 1988; Singer *et al.*, 1999; Zelkowitz *et al.*, 2008; Forcada-Guex *et al.*, 2006). Intervention is regarded as most beneficial when begun in the first two years of life and when parents are meaningfully involved from the beginning (Sailor and Haring, 1978, cited by Ballard, in Mitchell and Brown, 2001).

Parents need to be made aware that although their motor disabled children may be unable to speak, as they learn and develop, they

may be able to understand much more than at first sight they are able to display if subtle signs are noticed. In typical development children are gradually introduced to more complex language as their responses to parental interaction are gauged (Smith, *et al.*, 2003) and 'motherese' reduces (Stern, 1995). Parents of disabled children may be tempted to continue to speak to their children in this way, unintentionally affecting their children's development. The use of personal verbal intention in CE is one of its special features, which, along with the rhythm, provided by the parent as mediator through songs and rhymes; enables tasks to become concrete, creates a relationship between speech and action and enables attainment of goals (Ákos and Ákos, 1991, Hári and Tillemans, 1984, cited in Jernqvist, 1986).

All parents surveyed commented on the power of music and song, a prominent feature of CE, in enabling their children's development and learning, especially concentration and attention. Children were said to join in, move their bodies and connect singing with actions. The beat of music gives rhythm to movement and creates a sense of community in CE (Trevarthen and Burford, 1995, Ákos and Ákos, 1991).

CE is an intervention designed specifically for children with motor disabilities to 'establish a more normal interactive cycle' (McGee and Sutton, 1989, p.3-4). Seventeen parents' questionnaire responses reported that dyadic relationships had changed since beginning to attend sessions; two said they had not. Parents focused on the positive ways that CE had helped them to understand their children better and have higher expectations of their abilities. The conductor saw enabling parents to set achievable targets for their children as an important part of her role. One parent spoke of the conductor as a role model for her own learning. Trevarthen and Burford (1995) considered that conductors empower parents to regain central roles in their children's lives.

In questionnaire responses some parents talked of the confidence they and their children had gained; others of the different ways they now try to control their children's behaviour. Some spoke of learning new skills themselves. The conductor concurred with this view stating that parents can be enabled to gain understanding and knowledge about their children's disabilities and needs.

Overall, parents reported an increase in self- confidence and skill in responding to their children's communication attempts; developing

understanding and awareness of their children's wishes and intentions and developments in their children's learning abilities. Hári and Ákos (1988) stated that through CE mothers learn ways of evoking activity enabling their children to become more active. Activity also enables children to develop a self-concept which is not one of dependence (Baker and Sutton, 2008). The conductor stated that it is her role to demonstrate that achievement and success is possible for children. She said that when parents see their children improving, their confidence grows which develops their competence in dealing with children's motor disabilities and enables them to develop interactions with their children. Improved interactions have an effect on the children's development and learning.

The conductor believed that enabling parents to maintain a sense of hope, which in many cases had been lost, was very important.

From questionnaire responses, parents felt that the conductor had enabled more effective communication with their children and that enjoyment experienced through joint activities during sessions had enabled them to establish closer relationships with their children. The conductor stated that her role was to provide activities which could enable parents to strengthen interactions with their children e.g. self-

care, play.

Questionnaire responses also showed that parents considered other parents as role-models to enable the establishment of more effective shared communication and play with their children. The conductor said that in her experience, parents can share difficulties and concerns in the group situation at CCE. Seglow (1984) considered that the group strengthens the mother and brings her out of isolation. The conductor said that advice from other parents is often more powerful than from professionals as parents feel empathy for each other and trust others who are in the same situation as themselves.

Observations recorded strategies used by the conductor in teaching children and parents. The conductor communicated an understanding of children's motor disabilities to their parents and modelled facilitation techniques to enable parents to develop their own interaction techniques and hence enable the children's development and learning. This was confirmed in interviews when parents commented on being taught how to handle their children and how to teach independence. They considered this of particular importance as their children learned differently from other children.

All parents interviewed said that CE had enabled them to teach and interact with their children more purposefully and incorporate challenging activities into their daily lives which they saw as an important factor in their children's development and learning. Vygotsky's 'zone of next development' provides a theoretical framework for these claims. Encouragement and praise provided by an adult, and the conditions and equipment provided to continue a task is an essential part of the child's desire to make progress (Trevarthen and Burford, 2005). Parents felt they had been given a better understanding of how their children learn and that their frustration had decreased because of increased knowledge. They also all considered that the higher expectations that they had been taught to anticipate and the increased hope they had for their children had changed dyadic relationships and led to positive developments in their children's development and learning. One parent mentioned the enjoyment she and her child share through taking part in joint activities.

Interview comments showed that through taking part in CE sessions all parents felt more positive about their children's conditions and futures. They all considered that their children's speed of learning had increased since taking part in CE. One parent commented on the

holistic nature of CE and the development of her child's self-esteem.

8.2.4 What impact do these enhanced interactions have on the child's learning and development?

Outcomes of the parent questionnaire focused on changes in relationships between parents and children and the impact on their children's learning. Facilitation provided by parents and conductor focuses attention to guide actions, not only to train motor skills. These actions are given meaning (Trevarthen and Burford, 1995). All parents wrote positive comments about how CE had affected their children's learning and development. Some parents described the increased confidence and enjoyment in each other's company they and their children have gained through CE and the improvements in their children's behaviour patterns, concentration and stamina. More than half the parents agreed or strongly agreed that CE had enabled their child's development and learning. The conductor commented that if positive two-way relationships are well-established, children can develop greatly and reach their full potentials. Parents and children take control of their development and learn how to limit the effects of impairment on learning (Baker and Sutton, 2008). Improved interactions can significantly affect a child's development and learning. As a relationship develops, parent and child work as a

team, listen to each other more and want to please each other. The conductor considered that enhanced interactions enable better understanding between dyadic partners. Enhanced understanding can lead to falls in children's frustration levels through realistic parental expectations and management of behaviour. In parent interviews children's passive to active attitude changes were seen to be a very important aspect of development enabled through CE. Their ability to match activities with children's learning abilities was seen to be a vital part of teaching their children.

Some parents' questionnaire answers described the increased expectations they have for their children and a more positive hope for the future.

Parent interviews confirmed views expressed in questionnaires and the conductor's interview. All three parents felt that CE had enabled them to incorporate activities into their daily lives, which they saw as an important factor in their children's development and learning. The higher expectations that they had been taught to anticipate and the increased hope they now had for their children had changed dyadic relationships and led to positive developments in their children's development and learning.

All parents interviewed said that through taking part in CE sessions they felt more positive about their children's conditions and futures. They all considered that the speed at which their children learned had increased. Physical development was considered to be more speedy than expected. One parent stated that her child would have been six months behind in his development had they not attended CCE and another commented on her child's use of newly-learned automatic movements. Parents also commented on children's developing listening skills, responses to requests, self-awareness and willingness to try new things alone with associated increases in self-esteem. One of the three parents commented on the holistic nature of CE. Parents were more aware of their children's abilities and how they could enable them to make progress.

Having examined the data gathered from all sources and compared it with the literature; limitations of the study will now be outlined.

8.3 Limitations of the Study

One of the main limitations of this study was the size of the group used and therefore the inadvisability of generalisation from this small sample in terms of validity.

The time available for the study meant that all parents were surveyed by questionnaire. More parent interviews and dyadic observations could have been illuminating. The time-scale also prevented longitudinal data providing evidence of the impact of CE over a period.

Implications of this for further study will now be outlined.

8.4 Implications for Further Research

As the size of the study was limited to one setting and results not generalisable, other centres offering CE could be approached to gain data from parents attending their parent and child services to compare with data from CCE.

Studies carried out over a longer time period would also be valuable to study parents' views in more depth; to find out if they still felt the same after a period of time about their experiences with their very young motor disabled children; how their children developed in the long-term and if they saw these developments as being attributable to CE.

8.5 Conclusions

Data from questionnaires, observations, parent interviews and the conductor's interview have been revisited and interrogated with findings from the literature. The limitations of the study have been outlined and opportunities for further study suggested.

Findings confirm that children's motor disabilities affect dyadic interactions and relationship-building which subsequently affects children's learning and development. The empirical research conducted clearly shows that dyads can be supported to develop their interactions through CE and that these enhanced interactions can have positive and lasting effects on children's development and learning.

21,997 words

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Appendix 1

Appendix 1a	Parent Letter for Pilot Questionnaire
Appendix 1b	Blank Parent Questionnaire
Appendix 1c	Letter Accompanying Parent Questionnaire
Appendix 1d Responses	Summary of Parent Questionnaire

Appendix 1a Parent Letter for Pilot Questionnaire

13th January 2009

Dear parent

Developing Interactions between Parents and their Young Motor Disabled Children through Conductive Education

Thank you for agreeing to pilot the questionnaire for the above project.

I would be grateful if you could complete the questionnaire and then answer the following questions:

1. How long did the questionnaire take to complete? _____ minutes.

2. Was this,

A reasonable amount of time? An unreasonable amount of time?

Please circle

3. Were all the questions clear and understandable?

Yes No

If no, which questions were unclear and why?

Section 1

1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

Section 2

1a	
1b	
1c	
1d	
1e	
1f	
1g	
1h	
1i	
2	
3a	
3b	
3c	
3d	
3e	
3f	
3g	
3h	
3i	
3j	
4	
5	
6	
7	

Section 3

1	
2	
3	
4a	
4b	
4c	
4d	
4e	
4f	
4g	
4h	
4i	
4j	
4k	
4l	
5	
6a	

6b	
6c	
6d	
6e	
6f	
6g	

Please write below any comments that would improve this questionnaire for other parents

Thank you very much for taking the time to complete this pilot questionnaire. Your comments are very valuable.

Yours sincerely

Wendy Baker

Appendix 1b Blank Parent Questionnaire.

Originally produced in booklet form in size 12 font with larger boxes for responses. Questionnaire has been condensed for margins.

Developing Interactions between Parents and their Young Motor Disabled Children through Conductive Education

All the answers that you give will be used for the purposes of this project only and you will not be identified in the study. Your name is required to match the observations and interviews that will be carried out during the study with your questionnaire.

Section 1: Your child's condition and diagnosis

1. Your name: _____

2. Your child's date of birth: _____

3. Is your child Male or Female? **Please circle**

4. At how many weeks gestation was your child born? _____ weeks

5. What is your child's diagnosis? (if any) _____

6. How old was your child when you were told of his/her diagnosis?

7. What would you say are your child's main difficulties? **Please list**

8. How did you feel about the future immediately after you were told of your child's diagnosis? **Please circle**

Very Concerned Uncertain Confident Very
concerned
Confident

9. Do you feel that your child's disability has affected the way you interact with your child? Yes No **Please circle**

If yes please say how.

10. What impact has this had on relationship building? **Please circle**

No Little Not Some Great
Impact impact sure impact impact

Section 2: Interactions between you and your child

1. How do you gain your child's attention? **Please tick all those that apply**

	Yes	No	Don't know
a.) Touch/Stroking			
b.) Making sounds			
c.) Calling child's name			
d.) Placing your child facing you			
e.) Moving your body			
f.) Smiling			
g.) Changing your facial expression			
h.) Making eye contact			
i.) Singing			
Other (Please state what below)			

2. How do you maintain your child's attention? **Please state**

3. How does your child respond to the following: (if your child does not respond please write 'does not respond') **Please state**

a.) Touch/Stroking	
b.) Making sounds	
c.) Calling child's name	
d.) Placing your child facing you	
e.) Moving your body	
f.) Smiling	
g.) Changing your facial expression	
h.) Making eye contact	
i.) Singing	
j.) Holding securely	

4. Can your child signal that he/she wishes to end an exchange?

Please circle

Yes

No

If yes, how does he/she do this?

Turns

Moves

Stops

Other

head away

whole body

talking

Please

state _____

5. Does your child copy your facial expressions? **Please circle**

Yes No

How does he/she do this? **Please state** e.g. sticks out tongue, smiles

--

6. Does your child initiate interactions with you? **Please circle**

Yes No

If yes, how does he/she do this? **Please tick all that apply**

Moves body towards you	<input type="checkbox"/>
Makes eye contact	<input type="checkbox"/>
Touches you	<input type="checkbox"/>
Cries out	<input type="checkbox"/>
Vocalises	<input type="checkbox"/>
Starts talking	<input type="checkbox"/>
Other (Please state)	

7. How do you feel interactions between you and your child affect his/her learning and development? **Please state**

--

Section 3: Developing Interactions through Conductive Education

1. How long have you been attending parent and child sessions with your child?

Please state _____

2. Have you attended individual sessions? Group sessions Both

3. Has your relationship with your child changed from when you began P&C sessions? **Please circle**

Yes

No

If yes please say how.

--

4. Which of the following aspects of your relationship with your child have developed since you have been attending parent and child sessions at NICE

Please tick as many as apply

	Yes	No	Don't know
a.) My understanding and awareness of my child's wishes and intentions			
b.) My child's understanding and awareness of my wishes and intentions			
c.) My ability to respond to his/her wishes/intentions			
d.) My confidence in responding to my child's communication attempts			
e.) Attending to each other			
f.) Turn-taking in exchanges			
g.) Playing together for longer periods of time			
h.) Greater playfulness			
i.) Increased sensitivity to one another			
j.) My child is easier to comfort			
k.) It is easier to gain my child's co-operation			
l.) We have growing affection for each other			
m.) My child's ability to learn			
Other Please state			

5. Did you sing to your child at home before attending CE sessions?

Yes No

Do you sing to your child at home now?

Yes No

How does your child respond to singing? **Please state**

6. Please answer the following in relation to the CE sessions and your interactions with your child. **Please circle**

a.) The sessions have enabled my child to understand language more easily

Strongly Disagree Not Agree Strongly
agree disagree sure

b.) The conductor has helped me communicate more effectively with my child

Strongly Disagree Not Agree Strongly agree
disagree disagree sure

c.) The conductor has raised the expectations I have for my child's learning and development

Strongly Disagree Not Agree Strongly agree
disagree disagree sure

d.) Other parents have acted as role models to enable me to establish shared communication and play with my child more effectively

Strongly Disagree Not Agree Strongly agree
disagree disagree sure

e.) I have offered other parents advice/support to enable them to enhance their own responsiveness and relationship building with their children

Strongly disagree Disagree Not sure Agree Strongly agree

f.) I feel more confident in shared interactions with my child and we experience mutual delight

Strongly disagree Disagree Not sure Agree Strongly agree

g.) Joint experiences at P&C sessions have enabled me to establish a closer relationship with my child

Strongly disagree Disagree Not sure Agree Strongly agree

h.) The speed at which my child learns has increased

Strongly disagree Disagree Not sure Agree Strongly agree

Please write any further comments on how your child's learning and development has been affected through your developing interactions below

Thank you very much for completing this questionnaire. If you would be willing to take part in an interview to discuss your views in more depth, please tick

Appendix 1c

Letter Accompanying Questionnaire

9th February 2009

Dear parent

Developing Interactions between Parents and their Young Motor Disabled Children through Conductive Education

I wrote to you some time ago asking for your agreement to take part in a study for my Masters Degree in Education at Warwick University.

I would now be most grateful if you could complete the attached questionnaire to give your views about interactions between you and your child and your child's development and learning.

Thank you very much for taking the time to complete this questionnaire. Your comments are very valuable.

Could you please return the completed questionnaire as soon as possible and at the latest by **Monday 23rd February**.

With kind regards
Yours sincerely

Wendy Baker

Appendix 1d Summary of Questionnaire Responses

Section 1: Your child's condition and diagnosis

Q1.	Names were kept confidential.
Q2.	Age range of children attending was one year seven months to five years. The five-year old was outside the original age-range of the study but still attends parent and child sessions. This child has complex needs and answers were illuminating, so data belonging to this dyad was included.
Q3.	Parents of eleven boys and eight girls completed the questionnaire.
Q4.	Twelve children were born pre-term (between thirty and forty weeks), four were born at full-term (forty weeks), and three were born post-term.
Q5.	Fourteen of the children had CP, one had an additional hearing impairment; three had chromosomal abnormalities, one of whom had a hearing impairment; one had an undiagnosed condition; one had an unconfirmed metabolic disability.
Q6.	The ages of the children when the parents received a diagnosis ranged between three days and two years.
Q7.	When asked to describe their children's main difficulties, all stated mobility or movement difficulties; ten speech or language difficulties; four global developmental delay; four learning or concentration difficulties; one visual cognition; one heart problems and one behavioural difficulties.
Q8.	When told their children's diagnoses, fifteen parents reported feeling very concerned or concerned and four were uncertain.
Q9.	Fourteen parents felt that their children's disabilities had affected the ways in which they interacted with their children; five that they had not. Sixteen parents made comments on how interactions had been affected. Most answers focused on how initial interaction had been difficult with a focus on medical needs. Some emphasised the additional care requirements for children with special needs, some felt they over-protected their children and were more tolerant of different behaviours because of their children's additional needs. Some mothers described how their own feelings affected their dyadic relationships.
Q10	Nine parents considered that their children's disabilities had impacted greatly or had some impact on relationship building, four considered there had been no impact, three considered there had been little impact and three were unsure.

Section 2: Interactions between you and your child

Q1. How Parents Gain their Children's Attention	Yes	No	Don't know	No answer
a.) Touch/Stroking	17	1	0	1
b.) Making sounds	16	2	0	1
c.) Calling child's name	19	0	0	0
d.) Placing your child facing you	14	2	0	3
e.) Moving your body	14	2	0	3
f.) Smiling	15	1	0	3
g.) Changing your facial expression	12	2	1	4
h.) Making eye contact	16	1	0	2
i.) Singing	16	1	0	2
In addition 2 mentioned clapping; 1 signed English; 2 turn their children's heads towards them; 1 repeats his name; 1 tickles the child or gives him/points to an object of interest; 1 plays with toys and reads stories; 1 said her child responds in a normal way.				
Q2.	To maintain their children's attention ten parents reported that they sing; eight make interactions fun and enjoyable; five maintain eye contact; five touch or hold; three talk; one gives positive feedback and praise and one parent stated that the child's brothers play a large part in maintaining his attention.			
Q3	Parents were asked how their children responded to the elements mentioned in question 1.			
3a.) Touch/stroking	Seventeen said their children responded positively by smiling, laughing etc. one did not respond and another said her child often pulled away.			
3b.) Making sounds	Nine children laugh or smile; six children try to copy; three children make little or no response to sound.			
3c.) Calling child's name	Seventeen children respond by smiling or looking . Two children do not respond.			
3d.) Placing your child facing you	Fourteen children respond by smiling or reaching; two move away; one makes a variable response; one looks around; one did not answer.			
3e.) Moving your body	Five laugh or smile; four respond well; three move in response; three do not respond; one has a variable response; one watches; one turns the parent towards him and one did not answer.			
3f.) Smiling	Sixteen smile; two do not respond; one did not answer.			

3g.) Changing your facial expression	Five smile or laugh; four react; four do not respond; two are reported to understand the mood of the expression; one copies; one looks away; one enjoys; and one did not answer.
3h.) Making eye contact	Fourteen make eye contact in some way; two smile; one looks away; one does not respond, one did not answer.
3i.) Singing	Five love singing; five smile and join in; three look and smile; three smile and vocalise; two react and one dances.
3j.) Holding securely	Six respond with a similar movement e.g. putting arm around parent; four love it; four wriggle away; three smile; one does not respond; one did not answer.
Q4	All nineteen parents reported that their children could end an exchange. Fourteen said their children turn their heads away; six said they move their whole bodies; four said they stop talking. Nine parents said their children also respond in other ways. These included changing the subject, going quiet, saying 'no' or 'bye' or closing her eyes and lying down.
Q5	Thirteen parents reported that their children copy their facial expressions, five said they do not. One said her child sometimes copies expressions. Seven mentioned smiling. One said her child will mimic most things, one that her daughter practices the expressions later in the mirror. One said her child copies accurately even trying to wink and one that her child's CP does not affect his facial movements.

Q6	Eighteen parents said that their children initiate interactions with them. One said her child does not. They did it in the following ways:
Moves body towards you	12
Makes eye contact	12
Touches you	13
Cries out	16
Vocalises	13
Starts talking	4
Other ways that children initiate interactions were given as: makes you stroke her hand; comes and holds my hand or pushes me towards his area; brings toy/book etc over to play with and starts singing.	

Q7	All parents except one made comments on how interactions influenced their children's learning and development, stating the extra input required. Several parents mentioned the amount of time they spend with their children, some referred to this as 'work' or using 'all my resources, mental and physical'. Five parents expressed difficulties in communication as leading to difficulties in interactions, both in children's difficulties in understanding parents and parents in understanding their children's needs. Several mentioned extra motivation and making situations fun; three mentioned singing as being important; two parents mentioned the need for positive interaction and praise and two spoke of the positive nature of interactions for the development of their children's speech and communication. One parent commented that incorporating CE into their daily lives has helped a lot with her child's development. Another commented on the unusual nature of her child's interactions.
----	--

Section 3: Developing Interactions through Conductive Education

Q1	Dyads had been attending CCE for three months to three years.
Q2	Twelve dyads had attended group and individual sessions, six group sessions only and one individual sessions only.
Q3	Seventeen parents said that their relationships with their children had changed since they began attending sessions; two said that they had not. Parents focused on the positive ways that CE had helped them to understand their children better, have higher expectations or beliefs in their abilities. Some parents talked of the confidence they and their children have gained; others of the different ways they try to control their children's behaviour . Some spoke of learning new skills themselves. One considered the group to be particularly important.

Q4	Parents were asked which of the following aspects of their relationships with their children had developed since they had been attending parent and child sessions at CCE:			
	Yes	No	Don't Know	No Answer
a.) My understanding and awareness of my child's wishes and intentions	17	1	1	0
b.) My child's understanding and awareness of my wishes and intentions	13	3	2	1
c.) My ability to respond to his/her wishes/intentions	16	2	1	0
d.) My confidence in responding to my child's communication attempts	18	1	0	0
e.) Attending to each other	10	3	3	3
f.) Turn-taking in exchanges	12	3	2	2
g.) Playing together for longer periods of time	13	3	1	2
h.) Greater playfulness	13	2	1	3
i.) Increased sensitivity to one another	13	1	2	3
j.) My child is easier to comfort	9	3	4	3
k.) It is easier to gain my child's	14	2	3	0

co-operation				
l.) We have growing affection for each other	14	1	2	2
m.) My child's ability to learn	17	0	1	1
Other Please state				
Q5	Seventeen parents sang to their children before attending parent and child sessions, two did not. All nineteen parents now sing to their children. The positive answers included children joining in, moving their bodies and connecting singing with actions. One said that singing 'even stops him from vomiting', another that singing calms her child if he is having a tantrum. Others stated that singing helps with concentration and attention. Two parents did not answer.			

Q6	Parents were asked to answer the following in relation to the CE sessions and interactions with their children:				
	Strongly disagree	Disagree	Not sure	Agree	Strongly agree
a.) The sessions have enabled my child to understand language more easily	1	2	6	6	3
b.) The conductor has helped me communicate more effectively with my child	0	2	0	9	8
c.) The conductor has raised the expectations I have for my child's learning and development	0	1	2	4	12
d.) Other parents have acted as role models to enable me to establish shared communication and play with my child more effectively	0	3	2	9	4

e.) I have offered other parents advice/support to enable them to enhance their own responsiveness and relationship building with their children	0	5	3	8	2
f.) I feel more confident in shared interactions with my child and we experience mutual delight	0	1	1	9	8
g.) Joint experiences at P&C sessions have enabled me to establish a closer relationship with my child	0	2	1	6	10
h.) The speed at which my child learns has increased	0	1	6	6	6

Eleven parents responded when asked to write further comments on how their child's learning and development had been affected through developing interactions. All wrote positively about how CE has affected their children's learning and development. Several of them referred to children's learning and development increasing; some wrote of their own knowledge of their children's needs developing through joint activities and others of the development of their relationships through attending CE sessions. Some parents described the increased confidence and enjoyment in each other's company they and their children have gained through CE and the improvements in their children's behaviour patterns, concentration and stamina. Other parents wrote of the increased expectations they now have for their children and a more positive hope for the future. The conductor was described as a role model.

One parent considered that the sessions at CCE had given her more ideas for practising what she was already doing but found the individual sessions much more useful than group sessions as they could be tailored to her son's individual needs more readily.

Nine parents said that they would be willing to take part in an interview to discuss their views in more depth.

Appendix 2

Appendix 2a Blank Observation Schedule.

Appendix 2b Observation Summaries for Child G, O, S.

Appendix 2a

Observation points for 3 minute interactions between a parent, a child with a motor disability and a conductor

Parent and child dyad identification letter: G O S (circle)

Child's age:

Child's diagnosis and difficulties:

Length of time dyad has attended P&C sessions:

Observation number: 1 2 3 Date:

Key:

Parent	Child	Conductor
Changes position (P) Looks at child (LCh) Makes eye contact (E) Looks at conductor (LC) Touches (T) Facial expression: Smile (S) Frown/grimace (F) Laugh (L) Vocal expression: Makes sound (So) Talks, verbalises (V) Sings (Si) Calming (C) Change in volume of voice (V+ or V-) Change in pitch of voice (P+ or P-) Holds child (H) Other (state)	Changes position (P) Looks/gazes at parent (LP) Looks at conductor (LC) Touches (T) Facial expression: Smile (S) Frown/grimace (F) Laugh (L) Vocal expression: Makes sound (So) Talks, verbalises (V) Calming (C) Change in volume of voice (V+ or V-) Change in pitch of voice (P+ or P-) Sings (Si) Clings to parent (CP) Other (state)	Changes position (P) Looks at parent (LP) Looks at child (LCh) Touches (T) Facial expression: Smile (S) Frown/grimace (F) Laugh (L) Vocal expression: Makes sound (So) Talks, verbalises (V) Calming (C) Change in volume of voice (V+ or V-) Change in pitch of voice (P+ or P-) Sings (Si) Other (state)

Time 3 rd minute	Interaction ✓= yes X = no	Who initiates the interaction? P=parent Ch=child C=Conductor	What is the interaction? See key and colour	Is there a response? ✓= yes X = no ✓parent ✓child ✓conductor	If yes, What is response? See key and colour	Effect of response	Conductor involvement in interaction ✓= yes If yes, what? See key	Effect of involvement?
1-5 secs								
5-10								
10-15								
15-20								
20-25								
25-30								
30-35								
35-40								
40-45								
45-50								
55-60								

Devised with information from Crittenden's CARE-Index (1988): Aubrey, (2007), and Harrist and Waugh, (2002).

Appendix 2b Observation Summaries for Child G, O, S

Observations of Child G and his Mother

Child G is one year seven months old. He has attended sessions for six months.

<i>Child G Observation 1: 13.3.09. Group session, taking off socks</i>
<i>Number of seconds when no interaction observed: 15 seconds.</i>
<i>Initiation of interactions:</i> Parent: 2 Child: 1 Conductor: 1
<i>Strategies used by parent for interaction (in order of most frequently used first):</i> Touch, looking at child, verbal, smiling, changing position.
<i>Purpose of parent's interactions:</i> Encouraging, providing emotional security, having fun together, enjoyment.
<i>Strategies used by child for interaction (in order of most frequently used first):</i> Looking at mother; smiling; looking at conductor; physical, change of position; sounds; eye contact.
<i>Purpose of child's interactions:</i> Gaining and maintaining mother's attention, expressing needs and wishes, expressing enjoyment, looking to parent for security, showing understanding and responding appropriately.
<i>Strategies used by conductor for interaction (in order of most frequently used first) Conductor was working with the group during these three minutes after giving parent instruction of what to do.</i> Verbal, smiling, laughing, singing.
<i>Purpose of conductor's interactions:</i> To create a calm and positive atmosphere, facilitation, development of language and communication, development of independence in self-care skills, developing and extending attention of child, developing sense of rhythm and purpose, modelling to parent, maintaining focus, reward for trying.

<i>Child G Observation 2: 13.3.09. Group session. Table-top activity.</i>
<i>Number of seconds when no interaction observed: 10 seconds</i>
<i>Initiation of interactions:</i> Parent: 3 Child: 1 Conductor: 6
<i>Strategies used by parent for interaction (in order of most frequently used first):</i> Touch, looking at child, changing position, verbal (2 occasions).
<i>Purpose of parent's interactions:</i> Maintaining emotional closeness, maintaining child's position, description (colour name), praise.
<i>Strategies used by child for interaction (in order of most frequently used first):</i> Physical, change of position e.g. waves arm four times to express enjoyment and desire to join in; looking at parent; smiling; looking at conductor; looking at other children.
<i>Purpose of child's interactions:</i> Gaining and maintaining attention, expressing needs and wishes e.g. looks at mother and then back to activity to show wish to join in, expressing enjoyment and excitement, desire to interact with other children.
<i>Strategies used by conductor for interaction (in order of most frequently used first):</i> Verbal, singing, smiling, change of position, making sounds.
<i>Purpose of conductor's interactions:</i> Engagement and active involvement of child and parent, motivating, teaching child and parent, teaching sitting position and development of fine motor skills, modelling, explaining, praise-reward for trying, creating good atmosphere, facilitation, maintaining attention and turn-taking skills, development of language and communication.

<i>Child G Observation 3: 20.3.09. Individual session. Floor mobility.</i>
<i>Number of seconds when no interaction observed: 0 seconds</i>
<i>Initiation of interactions:</i> Parent: 1 Child: 1 Conductor: 7
<i>Strategies used by parent for interaction (in order of most frequently used first):</i> Changing position e.g. thumbs up, clapping to praise, verbal e.g. 'Lift your head up', 'Go, go, go'; looking at child; smiling; touch.
<i>Purpose of parent's interactions:</i> Letting child know of physical and emotional closeness, praise, mutual enjoyment, teaching and learning.
<i>Strategies used by child for interaction (in order of most frequently used first):</i> Physical, change of position, turning head to seek out mother or conductor; looking at mother, tracking her movements; smiling.
<i>Purpose of child's interactions:</i> Gaining and maintaining attention, ensuring mother's closeness, pride e.g. smiles when receiving praise.
<i>Strategies used by conductor for interaction (in order of most frequently used first):</i> Verbal; touch; changing position; smiling; singing.
<i>Purpose of conductor's interactions:</i> Engagement and active involvement of child and parent, motivating, teaching parent and child, praise-reward for trying, enabling success, creating a good atmosphere, facilitation, maintaining attention, development of language and communication, breaking down task to simplify it, teaching independent movement.

Observations of Child O and his Mother

Child O is three years eight months old. He has attended sessions for two years.

<p><i>Child O Observation 1: 10.3.09. Individual session. Sitting barefoot on stools. The aim of the session was to pick up the beads with toes and place them in the pot.</i></p>
<p><i>Number of seconds when no interaction observed: 25 seconds.</i></p>
<p><i>Initiation of interactions:</i> Parent: 2 Child: 0 Conductor: 2</p>
<p><i>Strategies used by parent for interaction (in order of most frequently used first):</i> Verbal, touch, looking at child, changing position, smiling, laughing.</p>
<p><i>Purpose of parent's interactions:</i> Explanation and direction, teaching perseverance, teaching and reinforcing language use, teaching concepts, demonstration, praise/reward, shared enjoyment, controlling behaviour, teaching physical skills.</p>
<p><i>Strategies used by child for interaction (in order of most frequently used first):</i> Physical, change of position; looking at mother; verbal; smiling; looking at conductor; eye contact; making sounds; laughing.</p>
<p><i>Purpose of child's interactions</i> Gaining and maintaining attention, expressing needs and wishes, expressing enjoyment and excitement, pleasing parent and conductor, using imagination-including others in play.</p>
<p><i>Strategies used by conductor for interaction (in order of most frequently used first):</i> Verbal, including change in pitch of voice; touch; smiling and laughing; changing position.</p>
<p><i>Purpose of conductor's interactions</i> Active involvement of child and parent; teaching parent and child; engaging parent and child in activity; praise-reward for trying; creating a good atmosphere; facilitation; development of language and communication.</p>
<p><i>Child O Observation 2: 13.3.09. Individual session. Child, parent and conductor sitting on the floor. Child is putting on shoes and socks.</i></p>

<i>Number of seconds when no interaction observed: 5 seconds</i>
<p><i>Initiation of interactions:</i> Parent: 1 Child: 2 Conductor: 1</p>
<p><i>Strategies used by parent for interaction (in order of most frequently used first):</i> Verbal, looking at child, touch, changing position, looking at conductor.</p>
<p><i>Purpose of parent's interactions:</i> Acknowledging how hard he was trying, joining in imaginative play, modifying behaviour, challenging, explaining, teaching, persuading, motivating, demonstrating, distracting.</p>
<p><i>Strategies used by child for interaction (in order of most frequently used first):</i> Physical, change of position; verbal including increasing volume of voice; looking at mother; smiling; looking at conductor; eye contact; making sounds; laughing.</p>
<p><i>Purpose of child's interactions</i> Gaining and maintaining attention, expressing needs and wishes e.g. 'Go away!' staring in order to get his own way, expressing his enjoyment and excitement, pleasing parent and conductor.</p>
<p><i>Strategies used by conductor for interaction (in order of most frequently used first):</i> Verbal including increasing volume of voice, looking at child, touch, smiling, making sounds.</p>
<p><i>Purpose of conductor's interactions:</i> Engagement and active involvement of child and parent, motivating, teaching parent and child, praise-reward for trying, creating good atmosphere, facilitation, maintaining attention, developing language and communication, maintaining child's safety, managing behaviour.</p>

<p><i>Child O Observation 3:</i> 31.3.09. Individual session. Table-top activity with eggs that come apart, some with chicks inside. Parent and child sitting side by side.</p>
<p><i>Number of seconds when no interaction observed:</i> 15 seconds</p>
<p><i>Initiation of interactions:</i> Parent: 1 Child: 0 Conductor: 0</p>
<p><i>Strategies used by parent for interaction (in order of most frequently used first):</i> Verbal, looking at child.</p>
<p><i>Purpose of parent's interactions:</i> Teaching, especially teaching child how to interact socially and behaviourally e.g. kindness, gentleness; enabling emotional development; teaching fine manipulation skills; teaching and reinforcing language and use of concepts e.g. open, on; praise e.g. 'Good try'; encouraging e.g. 'You can do it'; empathy 'I know it's really hard'.</p>
<p><i>Strategies used by child for interaction (in order of most frequently used first):</i> Verbal; physical, change of position; looking at mother; smiling; looking at conductor; eye contact; making sounds.</p>
<p><i>Purpose of child's interactions</i> Gaining and maintaining attention, expressing needs and wishes e.g. 'I wanna', imaginative play, response to adults; emotional reward, self-praise e.g. 'I can do it!', accompanying actions with commentary e.g. 'in' 'look' 'stroke'.</p>
<p><i>Strategies used by conductor for interaction (in order of most frequently used first):</i> Verbal, looking at child, touch, changing position.</p>
<p><i>Purpose of conductor's interactions:</i> Engagement and active involvement of child and parent; motivating; teaching parent and child; praise-reward for trying; enabling success; creating good atmosphere; facilitation; maintaining attention; developing language and communication e.g. 'pull' 'empty' 'nothing'; teaching fine manipulation skills e. g. using both hands, 'Keep your fingers together'; developing turn-taking skills e.g. 'Is it for me?'</p>

Observations of Child S and his Mother

Child S is two years, ten months old. He has no verbal communication. He has attended sessions for one year.

<i>Child S Observation 1: 27.2.09. Group session. Sitting and standing.</i>
<i>Number of seconds when no interaction observed: 0 seconds.</i>
<i>Initiation of interactions:</i> Parent: 0 Child: 2 Conductor: 3
<i>Strategies used by parent for interaction (in order of most frequently used first):</i> Changing position; touch; calming; looking at child, verbal; smiling.
<i>Purpose of parent's interactions:</i> Calming, explanation and direction, encouraging, controlling behaviour, supporting.
<i>Strategies used by child for interaction (in order of most frequently used first):</i> Sounds which increase in volume; looking at mother; looking at conductor; physical, change of position; frowning; eye contact; smiling; looking at other children.
<i>Purpose of child's interactions:</i> Gaining and maintaining attention, expressing needs and wishes, expressing enjoyment.
<i>Strategies used by conductor for interaction (in order of most frequently used first) Conductor was working with another child during these three minutes after giving parent instruction of what to do.</i> Singing, Verbal.
<i>Purpose of conductor's interactions:</i> Creating a positive atmosphere, facilitation, developing language and communication.

<i>Child S Observation 2: 16.3.09. Individual session. Floor mobility tasks.</i>
<i>Number of seconds when no interaction observed: 0 seconds</i>
<i>Initiation of interactions:</i> Parent: 3 Child: 1 Conductor: 1
<i>Strategies used by parent for interaction (in order of most frequently used first):</i> Eye contact, looking at child; touch; smile; verbal; changing position; looking at conductor.
<i>Purpose of parent's interactions:</i> Explaining, praising, asking questions, motivating, enabling.
<i>Strategies used by child for interaction (in order of most frequently used first):</i> Physical, change of position; eye contact with parent; smiling; looking at conductor; looking at toy.
<i>Purpose of child's interactions:</i> Gaining and maintaining attention, expressing needs and wishes, expressing enjoyment and excitement, pleasing parent and conductor.
<i>Strategies used by conductor for interaction (in order of most frequently used first):</i> Verbal, smiling, touch, singing, looking at child.
<i>Purpose of conductor's interactions:</i> Engagement and active involvement of child and parent, motivating, teaching child and particularly parent, explaining, praise-reward for trying, creating a good atmosphere, facilitation, maintaining attention, developing language and communication.

<i>Child S Observation 3: 16.3.09. Individual session. Floor mobility.</i>
<i>Number of seconds when no interaction observed: 5 seconds</i>
<i>Initiation of interactions:</i> Parent: 0 Child: 2 Conductor: 2
<i>Strategies used by parent for interaction (in order of most frequently used first):</i> Smiling, changing position, verbal, looking at child.
<i>Purpose of parent's interactions:</i> Letting child know of physical and emotional closeness, praise, mutual enjoyment.
<i>Strategies used by child for interaction (in order of most frequently used first):</i> Physical, change of position e.g. kicking legs and moving arms rapidly to show enjoyment, turning head to seek out mother or conductor or toy; looking at mother; smiling; looking at conductor; eye contact.
<i>Purpose of child's interactions:</i> Gaining and maintaining attention; expressing needs and wishes e.g. 'looking at toy he wants or kicking it to make it move; response to adults; self-praise e.g. smiles when achieving rolling and getting the toy.
<i>Strategies used by conductor for interaction (in order of most frequently used first):</i> Touch, verbal, changing position, looking at child, singing.
<i>Purpose of conductor's interactions:</i> Engagement and active involvement of child and parent, motivating, teaching parent and child, praise-reward for trying, enabling success, creating a good atmosphere, facilitation, maintaining attention, development of language and communication, joking and teasing, breaking down task to simplify it, encouraging independent movement.

Appendix 3

Appendix 3a Interview Guide

**Appendix 3b Common and Discrepant Themes in Parent
Interviews**

Appendix 3a Interview Guide

Areas for interview with parents

Watch 3 minute DVD together-comments?

Early life and diagnosis

Relationship with child

Establishing relationship?

Special relationship?

How do you interact with your child?

Is this different from your interaction with other children? Compensate for difficulties in mobility?

What have you learnt about developing interactions from taking part in CE sessions? What aspects have helped you?

What do you enjoy most?

What are your concerns/hopes for the future?

Appendix 3b Common and Discrepant Themes in Parent

Interviews

How does a young child's motor disability affect his learning and development?

Common themes	Discrepant themes
All parents said their children enjoy jokes and being teased (G, O, S).	
Before diagnosis, mother knew something was wrong as child did not need her like a typically developing child does; he was more distant (O). Child was not developing in same way as nieces and nephews (G). Parent was very worried when she realised her child's disability (S).	
	Child is not yet aware of his own differences (O).
	Child becomes easily distracted (G).
	Child is unable to speak (S).
	Parent feels that if she had known of disability earlier she may have spoiled her child or done more for him. She feels this could have had a detrimental effect on his learning and development (O).
	Parent carries out activities with her child at a slower pace because of his disability and responses are slower (G).

How do dyads of caregivers and young children interact when the children have motor disabilities?

Common themes	Discrepant themes
Children with disabilities have different relationships with their parents than typically developing children (G, S). 'The child is struggling and you don't understand why' (G).	Relationship with child is not different because of disability (O).
Parents use facial expression (G, S) and signing, eye-contact (G) to augment communication with their children.	
Parents need to find different methods of doing activities with their children (G, O, S).	
	Parent has been advised by speech and language therapist to repeat one-word utterances, not to 'babble' to her child, to keep things simple and not have more than one thing going on at a time because of his disability (G).
	Parent talks a lot to her child to explain what to do. She has a 'cerebral relationship' with him (O).
	Parent feels she has had to learn how to interact with her child. It has not been intuitive (G).
	Child gains parent's attention by kicking and vocalising as he is not able to speak. He kicks and laughs, cries and uses facial expressions, to show emotions such as jealousy. Mother feels she knows her child very well. He is very sociable and loves to be talked to. Mother feels child understands even though he cannot speak himself (S).

	Parent feels that she wants her child to be able to access all activities that other children can access, therefore she will try her best to give him every opportunity to make progress (O).
	Parent asks child to make choices between toys and objects to give answers to questions (G).
	Parent is pleased she did not find out the extent of her child's brain damage until he was older and had already begun to develop as she feels this would have had a detrimental effect on their relationship. She feels she has treated him normally (O).

How can dyads be supported to enhance the quality of their interactions through CE?

Common themes
CE sessions have taught parents how to teach and interact with their children and how to incorporate activities into daily lives (G, O, S).
CE has taught parents that their children need to be challenged to learn. This has made parents think differently about their children's potential. Conductors have high expectations of children (G,O). High expectations have made a 'huge' difference to the child 'in his own little mind' (O). Parent has learnt to be more forceful with her child and have higher expectations (G). CE has shown mother how to have consistent expectations which she finds helpful (S). CE gives parents hope for their children's future which has an effect on the way they view their children (G, S).
CE has helped parents in knowing about children's conditions and how to support them (G, S).
Parent and child have an intense relationship and common purpose when working together at NICE (O), parent and child experience mutual enjoyment through joint activities (S).
Parent has a better understanding of how her child learns and of his personality. They have grown together (G). CE has taught parent how to approach tasks in a different way in order to teach child to be as independent as possible (O).
Discrepant themes
Parent's relationship with her child has improved since beginning to attend CE sessions. At first she was scared and did not know what to do (G).
Parent has learnt to handle her child better since attending CE sessions (G).
Parent understands that child requires help to do things. Before she wanted him to be able to do it all alone. This has reduced her frustration (S).
Repetition is a helpful way of learning for parent and child (S).
Parent looks at how child learns differently and thinks now 'he can do it' (G).
'CE has become part of everything we do' (S).
CE has enabled parent to think of disability, in a positive way (O).

What impact do these enhanced interactions have on the child's learning and development?

Common themes
Physical development is much greater than parents expected (G, O). Can see benefit of working with child at home for just a week on the crawling (G).
Children learn new things and practice them at home. This often comes forward spontaneously following a teaching session at CCE (G, O).
Child used to be very sedentary; 'The lights came on' following short period of CE (O). Parent feels child would have been totally dependent on her if they had not attended CE sessions (S).
Parent feels her child would have been six months behind in his development if she had not attended CE sessions (G). The speed of child's learning has increased (S).
CE has brought the dyad closer together. Mother feels very proud of child's achievements through CE (O, G). CE gives you hope (G). Parent is positive about the future (S).
CE makes parents think about their children's capabilities. Parent now thinking 'What can we do next?' Child has learnt to do things like grasp and release (G). Parent now more aware of child's learning abilities e.g. ability to match (S).
Discrepant themes
Parent understands her child's needs much better (G).
Child has become more independent (S).
Child listens to parent and responds to requests more readily impacting on learning (O).
Children sometimes have to face difficult challenges to prepare them for the life ahead. CE prepares children for real life. Parent still fearful for the future and wants child to be as prepared as possible, building self-esteem and ability to look after himself is very important (O).
Child has learnt automatic movements through CE (O).
Child has developed a sense of self-awareness that parent feels could only have come through CE and would not have been gained through physiotherapy (O).
CE has enabled child to develop self-awareness, willingness to try new things and self-esteem (O).
CE is holistic and has an effect on every area of a child's learning and development (O).

Appendix 4

Appendix 4a
Appendix 4b

Interview Guide
Transcript of Interview with Conductor

Appendix 4a

Interview Guide

Areas for interview with conductor

How is a child's development and learning affected by a motor disorder?

In what ways do you think motor disorders affect interactions between parents and their children?

What can you do as a conductor to enhance or improve these interactions?

What effect do you think enhanced interactions have on a motor disabled child's development and learning?

Appendix 4b

Transcript of interview with Conductor in Charge of Parent and Child Services at CCE

W. You know that I've been doing my study on interactions between parents and their children and how these interactions affect a child's development and learning. I'd first like to ask you, how you feel a child's development and learning can be affected by having a motor disorder.

E. What I feel is that it's always affected because the motor disorder always affects different areas of the development and that has an effect on the relationship between the parents and the children, but the effects are to different degrees, because it depends on the characteristics of the motor disorder and the level and the complexity of the disability. None of the children with motor disorders is the same, so therefore it can affect their development in different ways. I think the degree of the disability is directly proportionate to the effect on the development. It's very unlikely that the motor disorder manifests itself only in the physical disability. It affects the child's cognitive ability and the speech and communication, behavioural and social and self-care development as well, so therefore the effect on the child can be very complex. It's impossible to say how much the motor disorder will affect the child's development because no child is growing up without any input or support. What we try to do here is to give support to the child as early as we can and then we can reduce the effect on the child's development and have a better future and a better outcome for the child and I think it's really important in the parent and child group to teach the parents because the continuity of the input is important. The parents spend the most time with their children, so if we teach the parents and they have the knowledge of what to do with their child and of their needs and difficulties; they can support the child in these areas through the day. The child then has a better chance of positive development.

W. What ways do you think the motor disorder has on the ways parents and children interact with each other? How are their relationships affected by motor disorders?

E. I think it depends on so many components. It depends on the characteristics of the disability for example if the disability is very mild and affects only the fine movements or not visible things, then I think the interactions can be, it's not sure, then I think the interaction can be easily established, but if the child has speech or behaviour difficulty, then the parents struggle to bring up the well-working and the two-way interaction with their children and it depends on how much support the parents get from professionals and the families'

knowledge about their children's needs and difficulties. Generally, I feel that all parents, to different degrees have problems to build up that well-working two-way interaction with their children and even some parents who come to us who feel that it's not a problem for them, but with professional eyes, we can see that it's not working in the way it should be.

W. And that can create problems then can't it? If people feel that they're alright and the relationship is ok, when we can see that the relationship isn't as well-established as it could be?

E. If they feel it's good, it might mean that they don't want help, and if they don't want help, it's very difficult to say, it could be better, but if they know it's not working well, they are happy to accept help, then it's much easier.

W. That depends on people's personalities as well.

E. Yes, the whole child development depends upon the parents' personalities and knowledge.

W. What do you think you can do to help to enhance and improve the interactions?

E. I think here in this early age you can do so much. We can help parents gain understanding and knowledge about their children's disability and their needs and build on that. We can help the parents set up reachable targets for their children-not too high because that has a negative effect on the interaction, and not too low because probably the interaction is good but the child won't improve as much as he is able to improve. We have to prove for the parents that achievement and success is possible. We have to encourage the parents to interact with their children as much as possible and we have to show the way they can interact through different activities, through self-care activities and through play. If we go through all of these and the parents can see, yes my child is improving, I can see what I can do to support my child, then the parents' confidence will build up so with better confidence they will feel more competent to deal with the disability. If someone is more confident, they will gain knowledge more quickly and will be able to use all the advice on a higher level. I think what lots of parents say, is to keep up the hope is a very important thing. Lots of parents get here, and because they did not get any support from other professionals, they feel like they have been left alone, it's hopeless and because they don't know what to do. Getting hope again, pointing in the right direction helps them a lot.

W. If you have helped a parent and child to develop their interactions, what effect do you think that improved or enhanced interactions can have on a child's development and learning?

E. Huge!! It sounds so obvious for professionals because if the

parents get all the support they need to improve their child's development and develop their interactions then they can work together as a team. If they can listen to each other more, then the child will be happy to please their parents and the parents will be happy to support their child and then if there is a two-way relationship, then the child can improve a lot and the child can reach his or her full potential.

W. Can you think of any examples of children who started at a certain level and you've enabled them to develop their interaction skills and then that's had a big impact on the child's learning and development?

E. I think one good example is of Jim and Freddie. When they came here Jim was very open and so quickly he improved the interaction between Freddie and himself. He knew what to do with Freddie to get him to do different activities happily together with him. Also when I think about it, can be child S and his mother. His mother was very shy at the beginning and she didn't have knowledge about S. She didn't know how to facilitate, how to help him, she didn't know how to help him. She had lost all hope and she was so shy that she didn't interact with her own child but with the other parents as well. When she gained confidence, then her relationship with S improved a lot. I think she was the only parent in the group who went to other children and parents to help when the child was crying.

W. It was lovely when she did that wasn't it? In a way it was how she had accepted S's disability... I think that's a big part of it at the beginning. When I've interviewed the parents, they've said at the beginning it was such a big shock when they found out their child had a disability. They have a period when they mourn or grieve for a child they would have had, so they start off with another child, so it depends on how they are helped during that time by professionals and family as to how they can accept that and how they can get on with accepting the child and if they can't accept it then I think that's when part of the issue starts, because they don't know how to interact with the child. Child O's Mum was interesting, because she said although she knew something was wrong, she didn't know what it was for a long time. She said she knew there was something wrong because O didn't need her like another baby would. They had a relationship and she loved him but he didn't need her. Once she found out how much brain damage O had, she was shocked. She knew O as he was, though, and she was already helping him to learn and develop. She said she was glad she didn't know that before. If she'd known it she would have had lower expectations of him. I think that's important, if you're told your child won't be able to do this and this, then that's what you expect isn't it?

E. Here we try to build up the parents confidence by showing it is possible to improve and together with the improvement, the better interaction always comes doesn't it? And when they go to different other professionals, like Jack went to the paediatrician and he said all these warnings about the learning, the vision, the hearing, he'll never be able to move, Mum came back, she lost hope and thought, what's the point to do this? She was on the border of giving up. If he won't be able to do all these things then why put so much effort and money and time into it?

W. Look at him now! He's talking, he's walking with sticks, his behaviour is better, he's more settled, he's eating better, he can see, he can hear, he can interact with adults and other children...

E. I think that's why I said, it's important to keep up the hope. We can't keep up the hope, everything will be alright. We have to prove there is a big possibility to improve. We have to show the steps, show the improvement, then the parents get the energy to carry on and work with their children.

W. Have you got anything else you would like to say?

E. Did I mention parents talking to each other?

W. No

E. If the parents talk to each other and share their difficulties that will help to improve their interaction between their own child and them, so if they see, like, when your baby was new-born and the interaction between you didn't work, what did you do? Where did you go? How did you manage to develop this great interaction now? They can give advice to each other. They listen, sometimes much more to each other because they are in the same situation, rather than getting information from professionals, who have experience, but maybe they think you don't know you don't have a child like me.

W. It's to do with empathy isn't it? When they think someone has been in exactly the same situation as them, but they've come out the other side. It's interesting on the questionnaires that in general people haven't said that they have learnt from other parents. The question was 'Do you think other parents have given you advice?' A lot of them have said no.

E. Probably that's because, when we're talking to each other, it's not advice, we're just talking to each other and if we have been talking, I don't think of it as advice, but later I will think about it and that will influence my behaviour, my reactions and I just build it in automatically.

W. So, probably the question wasn't phrased in the right way. Advice wasn't the right word. They don't feel it's advice.

E. They have these discussions after the session, they talk to each other.

W. You're right, it's a really powerful part of the process. They see other children developing and we compare children. We reassure parents, for example this week, the new child who came. We said, oh Freddie was just the same wasn't he Jim? Jim could re-assure this child's parents that after about six weeks Freddie did settle down and the evidence could be seen in the session. Then this dad started to feel less stressed, he started to calm down, he didn't feel so bad, he became calm so the child became calm and the whole situation improved. I think sometimes parents don't understand how much their children pick up their mood and feelings. If they are tense and worried, the child is worried as well.

E. Yes

W. I don't think they realise it.

E. No, not everybody, because if they feel it they will be able to change. What they also have to realise, is that to have different emotions is a human thing. Like when Abel's father said, they get angry and they give it up. You don't want them to feel guilty about it. Everyone can get angry. It's just, ok that's happened, next time just forget it.

W. And learn from it.

E. They feel that the behaviour coming from the child is due to the frustration, so they think that's ok because the child has a disability but what they have to think about is that child will grow up, and want to take part in a community and they have to control that frustration and if they won't start it right now, what will happen in the future?

W. It's giving them strategies so that they can manage their own frustration and behaviour.

E. I think if a child is frustrated and the interaction improves between him and his parents then the frustration will be sorted as well and then they set the right targets, the right expectation levels and then he will develop.

W. Thank you very much.