

THE IMPACT OF EMOTIONAL INTELLIGENCE THEORY ON VISUALLY
IMPAIRED CHILDREN: A REVIEW OF THE LITERATURE

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I. Emotional Intelligence theory

Emotional Intelligence is a relatively new area of psychological research, and its definition is constantly changing. Although its roots can be traced as far back as the early work of Darwin, who stressed the importance of emotional expression for survival and adaptation, its modern day application was born in the twentieth century. The intelligence field began to recognise the importance of the non-cognitive domain, using the term “social intelligence” to describe the skill of understanding and managing people (Thorndike, 1920). By the 1980s, this shift in paradigm had gathered strength and support, resulting in the idea of multiple intelligences (Gardner, 1983). Gardner’s (ibid) *Frames of Mind: The Theory of Multiple Intelligences* introduced the notions of “Interpersonal intelligence” (the capacity to understand the intentions, motivations and desires of the Other) and “Intrapersonal intelligence” (the capacity to understand the feelings, fears and motivations of the Self). Researchers therefore began to recognise the role of emotions in performance outcomes, whilst becoming increasingly critical of traditional definitions of intelligence that emphasized cognitive aspects such as memory and problem-solving.

The turning point came in the 1990s, with the publication of several influential articles that attempted to define Emotional Intelligence (E.I). The concept began to appear with increasing frequency across a wide range of academic and popular interest articles (Gibbs, 1995), and as the idea progressed, its definition grew wider and indeed more confusing. This sparked various academic arguments with regards to both E.I terminology and its application, and several attempts were put forward to find an all-encompassing definition (Greenspan, 1989; Salovey & Mayer, 1990; Goleman 1995) culminating in three agreed main models of E.I:

- **Ability-based models**
- **Mixed models**
- **Trait model**

The ability-based model

The ability-based approach deems E.I as “*the ability to monitor one’s own and others’ feelings and emotions, to discriminate among them and to use this information to guide one’s thinking and actions*” (Salovey and Mayer, 1990:189). Emotions are seen as tools of information that enable individuals to make sense and navigate the social environment (Salovey and Grewal, 2005). However, individuals differ in their ability to process these emotions and to relate emotional processing to wider cognition, resulting in varying degrees of E.I. This is reflected in an individual’s behaviour in 4 main ability areas:

1. **Perception and expression of emotion** – the ability to identify and express emotions in the Self and in the Other.
2. **Assimilating emotion in thought** – the ability to use emotions to prioritize thought processes and to facilitate problem solving, judgement and memory.
3. **Understanding and analyzing emotion** – the ability to comprehend emotional language and to appreciate complex relationships, including the ability to understand shifts of emotion over time.
4. **Reflective regulation of emotion** – the ability to regulate emotions in both the Self and the Other, including the ability to reflectively monitor and regulate emotions to promote emotional and intellectual growth.

Measurement of the ability-based model

There are various instruments that purport to assess the construct of E.I based on the ability model, focusing on measuring an individual’s performance level on a given task. The Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT) is modelled on ability-based IQ tests and tests a person’s abilities on each of the four branches of E.I (Malovey & Salovey, 1997). Central to the four-branch model is the idea that E.I requires an understanding of social norms, therefore the MSCEIT is scored in a consensus fashion, with higher scores indicating higher overlap between an individual’s answers and those provided by a worldwide sample of

respondents. However, although promoted as an ability test, the MSCEIT is unlike other standard IQ tests in that its items do not have objectively correct responses. The scoring criterion means that it is impossible to create questions that only a minority of respondents can solve, because, by definition, responses are deemed emotionally “intelligent” only if the majority of the sample has endorsed them (Roberts, Zeidner & Matthews, 2001). This is particularly relevant when applying the E.I concept to different populations, as discussed in further sections of this paper.

Mixed models

In comparison to the ability-based approach, the mixed model concept treats both mental abilities and a variety of other characteristics such as motivation, states of consciousness, and social activity as a single entity. (Bar-On, 1997). Within the mixed model construct, there are 2 main branches:

The Emotional Competencies (Goleman) model

Goleman’s (1998) theory focuses on E.I as a wide array of competencies and skills that drive performance. He identified 4 main constructs:

1. **Self- awareness** – understanding the emotions of the Self and recognizing their impact on cognitive processes such as decision making.
2. **Self- management** – the ability to control the emotions of the Self, to manage impulses and adapt to changing circumstances.
3. **Social awareness** – sensing, understanding and reacting to the emotions of the Other and understanding social networks.
4. **Relationship management** – empathic awareness, being attuned to relationships with the Other and the ability to manage their emotions.

Goleman argued that individuals are born with a general emotional intelligence that determines their potential for learning emotional competencies (Boyatzis, Goleman & Rhee, 2000). He therefore stressed that these emotional competencies are not innate talents, but rather learned capabilities that must be worked on and developed.

Measurement of the Emotional Competencies model

Mixed models tend to use self-report tools, as in the case of Goleman's model, which uses the Emotional and Social Competency Inventory (ESCI) (Goleman, 1998) and the Emotional Intelligence Appraisal (Goleman, *ibid*). Whilst supporters of the mixed model standpoint highlight the usefulness of these self-report tools for gaining in-depth information (Bradberry & Greaves, 2005), others have criticised them for social desirability bias (Holtgraves, 2008).

The Bar-On model of Emotional-Social Intelligence

Bar-On (2006) developed one of the first measures of E.I that used the term "Emotion Quotient" and defined E.I as being concerned with effectively understanding oneself and others, relating well to people, and adapting to and coping with the immediate surroundings in order to be more successful in dealing with environmental demands (Bar-On, 1997). He therefore stressed the importance of the individual's environment and the ability to cope with what it presented.

Measurement of the ESI model

The Bar-On Emotion Quotient Inventory (EQ-i) is a self-report measure of E.I that was developed as a measure of emotionally and socially competent behaviour. It is not intended to measure personality traits or cognitive capacity, but rather the mental ability to be successful in dealing with environmental demands and pressures. (Bar-On, *ibid*.) However, it has been criticised in a similar way to the ESCI for social desirability bias, as highlighted by Matthews, Zeidner & Roberts (2001).

The Trait EI model

Petrides et al. (2000a, 2004, 2007) proposed a further distinction within the mixed model construct of E.I, defining their Trait model as “*a constellation of emotion-related self-perceptions located at the lower levels of personality.*” (Ibid: 2000a). This model is seen as an all-encompassing mixed model, subsuming both the Goleman and Bar-On ideas of E.I. From this perspective, E.I is considered within the realms of a personality framework, touching loosely on the idea of the Big 5 personality traits and simultaneously being highly critical of the ability-based model and the MSCEIT for being “psychometrically meaningless” (Petrides & Furnham, 2003).

Measurement of the Trait model

The Trait Emotional Intelligence Questionnaire (TEIQue) is an open-access measure that was specifically designed to measure the construct comprehensively, encompassing 15 subscales and focusing on E.I in terms of personality traits. Available in over 15 languages, it has been reported to be a reliable measurement tool by some (Mikolajczak et al., 2007), however it does not escape the general criticism of social desirability bias, as highlighted by Mesmer-Magnus (2006).

Criticisms of the theoretical foundation of E.I

The main argument against the soundness of the concept of E.I highlights its constantly changing and broadening definition. As Locke (2005) points out: “*What is the common or integrating element in a concept that includes: introspection about emotions, emotional expression, non-verbal communication with others, empathy, self-regulation, planning, creative thinking and the direction of attention? There is none.*” This lack of correlation is also criticised by Eysenck (2000), highlighting the “fundamental absurdity of the tendency to class almost any type of behaviour as an ‘intelligence’”. As Locke (ibid) continues to argue, critics of E.I theory

suggest that it should not be seen as an intelligence construct, but rather intelligence in its traditional form applied to a particular life domain: emotions.

As demonstrated, a diverse array of behaviours, abilities, personality traits and related concepts can be found under the umbrella of Emotional Intelligence. Within this diverse array are competing models, each with their own definitions and measurement tools, and each with their own limitations. As pointed out by various authors, one of the fundamental hurdles in the path of E.I research is the difficulty in defining exactly what it should encompass (Salovey & Grewal, 2005; Locke 2005; Landy 2005; Davies, Stankov & Roberts, 1998). However, one issue remains clear and undisputed: we are dealing with emotions. As pointed out by Steiner (2008), the E.I debates have initiated a culture-wide paradigm shift, opening up educational and psychological research to the idea of emotional awareness of the Self and Other. This awareness provides individuals with the capabilities and skills to facilitate both interpersonal and intrapersonal interaction, enabling individuals to become emotionally literate.

The impact of E.I theory on individual populations: theoretical standpoints

Although the theoretical underpinnings of Emotional Intelligence have been criticised for their lack of correlation and difficulty in actually defining the concept, they are useful when we consider how the theory as a whole can be applied to different populations. It is agreed that loosely, E.I. is a value-based concept concerned with all aspects of interpersonal and intrapersonal processes. Various authors have applied the concepts inherent in E.I to specific groups, with particular emphasis on young people, in order to achieve a fuller understanding and appreciation of their emotional and social development. In the field of disability research, this has included, for example, children with hearing or visual impairments, cerebral palsy, autism, and Asperger's syndrome. Such research has highlighted the emotional and social development of these particular groups of children, considering how they "make sense" of themselves and others in their environment.

II. Visual impairment in children

In the first section of this review we considered the theoretical foundations and accompanying methodologies of E.I theory. We also began to consider the impact of this theory on individual populations, which brings us to concentrate our discussion on the field of visual impairment in children.

Social and emotional development is vital to enable all children to communicate appropriately and have a well-developed sense of Self and Other. The study of visually impaired children allows us to consider how lack of vision affects their emotional development, and in turn building a body of knowledge that can be used in intervention programmes and services to offer visually impaired children a better quality of life. As acknowledged by Perez-Pereira (1999:2), the study of visually impaired children's development has been considered from different standpoints, with two main approaches highlighted. The first standpoint views visually impaired children's emotional development in terms of the development of typical development milestones achieved by other non-impaired children. Discrepancies between visually impaired children and sighted children are then attributed to visual impairment (ibid). This "visual impairment as deficit" model tends to locate the causes of delay within the child (Webster & Roe, 1998), and adopts a homogenous view of development, according to which all children follow a similar pattern.

In contrast, the second standpoint proposes the possibility that children may show different routes and styles of emotional development. Visually impaired children may therefore use different strategies and learning styles through which they can compensate for the absence of visual information by paying more attention to other sources of information. As Perez-Pereira (ibid) points out, this may result in visually impaired children following different routes in development. Furthermore, as Warren (1994) highlights, this consideration of differences is even more important if we take into account the heterogeneous nature of the visually impaired population. Indeed, visually impaired children vary in their aetiologies and causes of impairment, which produces important individual differences. As Perez-Pereira highlights (ibid:3), environmental variables, such as educational and parenting styles or availability of social

services, may vary greatly on a global scale, and the development of visually impaired children can be affected by these circumstances. As such, E.I research within the visual impairment sphere should always be aware of diversity and individual differences.

Visual impairment research

Visual impairment research has great potential value, however in spite of the usefulness of its application, it has suffered from a lack of methodological rigour (Perez-Pereira, *ibid*: 4). Considering the importance of individualism, it is important to point out that most studies have been carried out from a comparative, cross-sectional perspective, thus highlighting comparisons and hiding individual differences. Such studies therefore provide general information about a group, and offer little glimpses into possible patterns of change or development. As such, this position suggests that all children develop emotionally in the same way. However, if we take into account the differences observed in particular behaviours in visually impaired children, which is in accordance with the wide variation of the population of visually impaired children, it is difficult to make general statements from the data obtained by cross –sectional studies (*ibid*:5). It is therefore particularly difficult to ascertain whether a particular behaviour in visually impaired children is typical or atypical of visually impaired children’s behaviours. As a result of this limitation, many researchers have used in-depth, longitudinal studies of visually impaired children in an attempt to illicit information about changes across time, the course of emotional development and the impact of visual impairment at different stage of development. This approach enables the researcher to appreciate individual differences and observe patterns in emotional and social learning. However, such studies tend to be small scale and therefore difficult to generalize to the whole visually impaired population. A further lack of rigour concerns both cross-section and longitudinal studies. As pointed out by Perez-Pereira (*ibid*) it is not unusual to find studies where the authors have used tests and techniques that were designed for non-impaired children, despite such methodologies not being suitable for visually impaired children (Tobin, 1994).

A second methodological issue in research concerns the comparability of the behaviours observed in visually impaired and sighted children. This is particularly significant

when applying the concept of E.I to visual impairment. As highlighted by various authors (Preisler, 1997; Urwin, 1984; Burlingham, 1964), a problem exists of narrowness of interpretation. It may be assumed that a behaviour has a similar emotional function by the single fact that it is outwardly identical to behaviours observed in sighted children. However, it is important to recognise that two apparently identical behaviours may serve different functions and may be the result of different underlying emotional processes. Equally, the reverse is applicable – two different behaviours may fulfil a similar function. This is particularly relevant when considering children with visual impairment and their emotional and social development. Furthermore, the problem of the meaning and function of a given behaviour is not restricted to the comparison of visually impaired and sighted children. Indeed, as explained by Perez-Pereira (ibid: 6), this problem has also arisen during comparisons of visually impaired children and those with other impairments. The most documented example is that of autism, which shall be examined in more depth in subsequent sections of this paper.

The existing research on visual impairment in children is not without its limitations, and these should be borne in mind when considering how E.I theory can impact on visual impairment research and findings. However, this is not to dismiss the value of the work that already exists, which serves as a very useful area of knowledge which can be analysed from an E.I perspective. Such an analysis may begin by considering how E.I impacts on what we already know about visually impaired children's emotional and social development, which is what we shall consider in the next section.

Emotional intelligence and theory of mind

The ability model of E.I concerns an individual's social and emotional abilities. Such concepts can be seen in the literature where writers specifically consider emotional and social development in relation to visual impairment in children. Peterson, Peterson and Webb (2000), consider this through an analysis of 'theory of mind' (ToM). ToM is the ability to attribute mental states – beliefs, intents, desires etc., to the Self and to the Other. It is the ability to understand that other people have beliefs, desires and intentions that are different from one's own, and having empathic feelings and understandings. ToM is also the ability to maintain, simultaneously, different representations of the world, and be capable of skilful social interaction and language use. This way of thinking can be traced back to the early work of Piaget, who argued that in early childhood egocentrism a child does not understand that the views and emotions of the Other are different from those of the Self. He placed importance on behaviour in early childhood that demonstrated emotional and social development, and thus the existence of ToM

As touched upon briefly in the previous sections, both interpersonal and intrapersonal development can be measured in children by examining several abilities. Such abilities can be found under the E.I umbrella of terms, and indeed are also listed as prerequisites for a ToM. It is evident from the literature that sighted children experience a significant development in their emotional and social learning in the first year of life, and that these advances are dependent on the young child's ability to use information. Undeniably, visual information plays an important role in this process (Perez-Pereira, *ibid*: 41), therefore this raises a number of questions concerning the visually impaired child's social-emotional development and how this can be seen from an E.I standpoint. Does being visually impaired have an impact on a child's development of prelinguistic communication? (e.g., the ability to identify and express emotion – Mayer & Salovey, 1997.) Can a visually impaired child develop an adequate sense of Self? (e.g., intrapersonal self awareness –Bar-On, 1997) Can they understand others as intentional agents? (e.g., the ability to perceive and understand emotions and subsequent actions in the Other – Mayer & Salovey, *ibid*.) Can they use gestures to communicate? (e.g., the ability to

assimilate emotion in thought and express the feeling through a given medium – *ibid.*) In the following sections these points will be addressed and related to E.I theory.

Evidence from the development of sighted children suggests that children develop a theory of mind, and thus emotionally intelligent feelings and abilities in a number of approximate stages (Pérez- Pereira, 1999: 49):

- 1) End of the first year of life: Development of intentional communication**
- 2) At 2-3 years: The development of desire/belief understanding & subsequent ability to pretend and engage in symbolic play**
- 3) At 4 years: The development of a full metarepresentational system capable of understanding false beliefs**

These stages will now be examined more carefully in terms of the available literature, considering each stage in terms of a.) sighted children, b.) children with autism, and c.) congenitally blind children. It is necessary to understand each stage firstly for sighted children to offer us an idea of what would be considered “normal” emotional development. However, as explained earlier in this paper, it is important to be aware of the methodological limitations of using sighted children as a yardstick by which to measure development in other populations. Indeed, alternative forms of development should always be considered.

It is also interesting to consider the four stages for children with autism. Some authors have discussed the possibility that the emotional and social characteristics of congenitally blind children include substantial numbers of “autistic-like” clinical features (Frith, 1989; Hobson, 1993a). From this literature, it would appear that blind children can have difficulties developing their E.I, through problems in their social and early communicative development, and therefore resembling children with autism. This hypothesis has been put to the test by numerous authors (Hobson et al., 1997) and is a theory that requires further discussion.

Finally, after considering these 3 stages in other populations, we can analyse the existing literature in order to consider comparisons with congenitally blind children, and to make tentative conclusions surrounding the emotional intelligence of visually impaired children.

1. Development of intentional communication: Social referencing and gaze monitoring

Sighted children

It has been said that the ability to predict and anticipate the behaviour of the Other is a necessary prerequisite for the young child's understanding of another person as an intentional agent capable of initiating and carrying out actions. In this inter-subjective process (Baldwin, 1995) the child becomes aware that attention on some external thing is shared with another. Although limited in capacity for the first 9-12 months of a child's life, after this stage the child's ability to predict and anticipate becomes more established and so thus their ability to perceive the intentions of others as distinctive to their own (Carpenter, Nagell & Tomasello, 1998). Children begin to co-ordinate their attentions to persons and objects and as such, the previously established dyadic, adult-child, interactive dyad becomes a triadic, adult-object-child, social interactive inter-subjective system (Durham & Moore, 1995). At this stage, the young child is able to share the same perspective with the adult. As Perez-Pereira explains (ibid: 40), the child will, for example, look at the same objects that the adult is looking at, perceive the adult's emotional reaction to the new object or person, attribute meaning to that reaction and behave accordingly. This process mirrors perfectly the abilities laid out by E.I theory under the ability model (Mayer and Salovey, 1997), and is also echoed in the mixed model approach. As explained by Perez-Pereira (ibid), such processes whereby emotional information about an object/person/event is conveyed from adult to child have been referred to as *social referencing* (Campos & Sternberg, 1981; Hornik, Risenhoover & Gunnar, 1987; Sorce, Campos & Klinnert, 1985). Social referencing has therefore been termed as the emotional response of the Other to determine the emotional response of the Self to a novel object or situation. It is the action of learning to recognise the Other as an intentional agent – and can be recognised in the ability model of E.I by Mayer & Salovey (1997) and in the mixed-model by Goleman.

Young children also engage in a process known as gaze-monitoring which is another example of being aware of the Self and the Other as intentional agents. In this process, the

child turns in the same direction as another person is looking and then shows gaze alternation – checking back and forth a few times as if to make sure that the other person and him/herself are both looking at the same thing thus establishing joint attention on the same object (Perez-Pereira, *ibid*: 40). At this time the child will also begin to use gestures such as pointing and reaching to solicit adult help in obtaining a desired object or activity (protoimperatives) or to direct adult attention to a particular object or activity of interest (protodeclaratives) (Baldwin, 1995; Bates; Camaioni & Volterra, 1975). This pointing combined with gaze monitoring is a useful example of prelinguistic children's understanding of the Other as an intentional being. This again is important when considering the level of ability of the child in terms of E.I theory.

In conclusion, these early behaviours seem to entail some level of understanding by the young child of the mental processes of other people. As argued by Grice (1957), it is the ability to perceive other people as intentional and contemplative beings. Therefore, this prelinguistic intentional communication can be seen as the beginnings of a ToM and emotional intelligence.

Children with autism

It has been documented that children with autism have problems with pre-linguistic communication (Dawson et al., 1990; Jones & Prior, 1985; Mundy et al., 1986). They also have difficulties in joint attention and gaze monitoring. As explained by Gómez, Sarriá & Tamarit (1993), children with autism do not appear to be able to coordinate gaze behaviour in order to share attention with another person on a third thing or object. It appears, therefore, that the impairment in children with autism is in joint attention itself. Furthermore, as documented by Baron-Cohen (1995), although children with autism can develop the ability to participate in "gesture games", that is, gestures that involve establishing contact with a person such as leading a person by the hand to a desired place or object, they do not develop joint attentional gestures such as protodeclarative pointing (Pérez-Pereira, *ibid*: 51). Such difficulties in children with autism therefore appear to be related mainly to social cognition, since other aspects of the cognition of autistic children have been reported as adequate in comparison to the "norm".

Congenitally blind children

As noted by Kaye (1982), towards the third month of life most sighted infants are able to show signs of emotional expression such as smiling at the sight of their caregiver's face. This reaction is dependent on the child being able to see the caregiver's face as well as hear their speech. In the case of the blind child, there are no visual clues to help engage in interactive behaviours, and therefore further interaction may be compromised or may not occur often enough (Als, Tronick & Brazelton, 1980). As a result, congenitally blind children may face difficulties during conventional cycles of interaction with their caregivers. Although there may be opportunities for non-visual anticipatory games (Perez-Pereira *ibid*: 42), there is often too much surprise and lack of control on the child's part which may make the child fearful of social encounters.

During the period of 6 to 9 months caregivers often introduce objects and toys to blind children; however, as noted by Urwin (1984), it is very difficult for the child to use gestures such as pointing with gaze alternation. In turn, this makes it very difficult for caregivers to know the preferences and interests of the blind child. Lack of vision also makes it difficult for the child to refer to external events or to engage in social referencing or gaze monitoring. As such, the blind child can give the impression that they are uninterested in their environment and this may in turn discourage caregivers from initiating activities involving such external stimuli (Perez-Pereira, *ibid*: 43). Therefore, as noted by Preisler (1997), it could be concluded that blind children do not appear to use protoimperative or protodeclarative gestures, suggesting that their lack of vision impedes them from easily sharing joint attention with their caregivers. In turn, it also appears to impede the child from understanding their caregivers as intentional agents until later in life when the child begins to use language (Bigelow, 1997).

However, despite the conclusions of these studies, other authors report more hopeful results. Iverson et al. (Iverson & Goldin-Meadow, 1997, 1998; Iverson, Tencer & Goldin-Meadow, 1998) found evidence suggesting that blind children do indeed use a variety of gestures. In their longitudinal study of congenitally blind children between 14 and 28 months of age they found that these children used gesture during the prelinguistic period despite the lack of visuo-gestural input (Perez-Pereira, *ibid*). Therefore, it could be argued from these findings that the emergence of communicative gestures does not appear to be determined by exposure

to visual information (ibid). This would suggest that blind children are indeed able to identify and express emotion and then assimilate that emotion into thought in a productive way (Mayer & Salovey, 1997). However, as Iverson's study only included children older than 14 months, it is not possible to confidently apply these conclusions to younger children, for whom gestures and joint attention is a main concern.

Blind children may well experience difficulties in their ability to participate in social gestures of showing, offering and pointing. They also may have problems in perceiving what others are attending to and their emotional reactions to novel objects and events. However, this does therefore necessarily mean that blind children are unable to engage in joint attentional moments with their caregivers (Perez-Pereira, ibid). Indeed, social referencing can occur through non-conventional means. As demonstrated by Preisler (1997), social referencing can take place between a child and the caregiver when the child is allowed to explore the caregiver's facial expression when confronted with novel objects or learn to interpret the caregiver's different tones of voice.

The literature therefore would suggest that although blind children can experience difficulties in the use of gestures and behaviours, it would be rather premature to conclude that lack of vision completely inhibits children's ability to express their desires and needs through social actions.

2. The development of desire/belief understanding & subsequent ability to pretend and engage in symbolic play: The active imagination

Sighted children

Another important ability that should be addressed when considering a child's interpersonal and intrapersonal development is that of symbolic play. Piaget (1959) conducted thorough research into this phenomenon in non-impaired children, and concluded that there was a relationship between symbolic play and the development of representation. Such an ability requires the child

to use an object, for example, as if it were another different object, or to pretend to be a different person. Bartsch & Wellman (1989) showed that there is a thin line between the understanding of desire and belief. At two years old, sighted children use desires as their main source of information on how to predict and explain behaviours. As Wellman and Woolley point out (1990), desires are conceived of as drives towards objects, and perceptions are at first understood as awareness of objects (Flavell, 1988). Although knowledge of representation is limited in 2 year olds, it is believed that the child has sufficient ability to separate objects, events, and desires in the world and their representations. Therefore, 2 year old children are considered able to engage in symbolic play at this stage. At 3 years old, although children have a developing desire-belief psychology, they continue to use desire as their main source of means to understand and explain behaviour (Wellman & Estes, 1986). Progress in emotional development comes at the third stage of ToM, where children's emotional abilities manifest themselves in a more complex way. This theory is reflected in E.I research, especially with regards to the ability to perceive desires and beliefs in the Self and the Other.

Children with autism

Baron-Cohen (1987) found evidence to suggest that children with autism suffered from limitations in their ToM development. One of the most important elements was their severe impairment in symbolic play abilities. As explained by Pérez-Pereira (ibid: 50), these findings were interpreted as evidence of a connection between pretence and ToM via metarepresentation (Leslie, 1987). A deficit in metarepresentational abilities would affect symbolic play and a child's ability to understand other people's minds. Baron-Cohen (ibid) found that autistic children showed major deficits in both these E.I recognised abilities.

Congenitally blind children

Some authors have documented a delay in the use of symbolic play by blind children (Anderson et al., 1984; Bigelow, 1988, 1992; Frailberg & Adelson, 1973). Frailberg (1977) specifically argued that blind children are unable to produce this ability before 3 years of age, however

other authors (Webster & Roe, 1998; Pérez-Pereira & Castro, 1994; Peters, 1994; Parsons 1986a, 1986b, Urwin, 1984) have documented examples of such “pretend play”(such as cooking meals, talking on the telephone etc.) in blind children younger than 3 years, with some of those authors (Ferguson & Buultjens, 1995) reporting symbolic play in particularly young blind children. In other examples, such as that of Urwin (1984), importance was placed on the compensatory role that the environment can play in the emotional development of blind children, emphasizing the importance of language and conducive communicative surroundings. Language can play an important role in developing an understanding of Self and Other, and extending a child’s context beyond their range of touch. In turn, this helps them to use their imagination and participate in symbolic play activities. This issue, the “ecological self” and personal reference terms, will be discussed in subsequent sections.

Despite the actual ability to use symbolic play, it has been suggested that blind children do not engage in such activity with the same frequency as sighted children. As suggested by Pérez-Pereira (1999: 29), this may well in part be a result of inadequacy in play setting provisions for blind children, which has also been noted elsewhere in the literature (Webster & Roe, 1998). Furthermore, and as previously noted, it has been suggested that there is a link between the ability to use symbolic play and the ability to use language as a motor for emotional expression (Ferguson & Buultjens, *ibid*). Despite Frailberg’s (*ibid*) well-documented conclusions regarding young blind children’s difficulties in using symbolic play, the findings from latter studies suggest to the contrary. If blind children are indeed able to use symbolic play from situations about which they have not experienced, then this would be evidence of their emotional creativity (as suggested by Mayer & Salovey in their ability E.I model). It would also be evidence of their active imagination (as suggested by Petrides et al., 2007 in their trait mixed model with reference to one of the Big 5 personality traits – “openness”).

3. The development of a full metarepresentational system capable of understanding false beliefs

Sighted children

It is argued that when a sighted child is 4 years old, they will be able to fully understand about people's desires, beliefs and emotions. They will have reached a "mature" level of belief-desire psychology, within which they can coordinate belief and desire to explain and predict behaviour (Pérez-Pereira, *ibid*: 48). One of the most documented examples of this ability is from a study in 1983 by Wimmer and Perner and their "Sally-Anne task". In this task there are two dolls, Sally and Anne. Sally enters the scene and places a marble in her basket. She then leaves the scene and Anne moves the marble from the basket to a hidden box. When Sally returns, the researcher asks the "Belief Question": *Where will Sally look for the marble?* (Pérez-Pereira, *ibid*). If a child points to the previous location of the marble – in Sally's basket, then they pass the belief test as they can appreciate that Sally could not possibly know that Anne had moved the marble. Importantly – the child understands Sally's false belief. If, conversely, the child points to the current location of the marble – the hidden box, the child will therefore fail the test by not being able to take into account Sally's own beliefs. In this case, the child fails to understand that other people have beliefs, desires and intentions that are different from their own. As noted earlier, this is an essential prerequisite for ToM and noted by E.I theorists from both the ability and mixed model approaches. Interestingly, and as noted by Pérez-Pereira (*ibid*: 49) and Bartsch & Wellman (1989), 3 year olds are usually not so successful as 4 year olds in the Sally-Anne test. As explained in the previous section on symbolic play in sighted children, this is due to their reliance on desire to predict behaviour rather than an ability to understand false belief.

Related to the concept of understanding a situation from another person's perspective is the notion of empathy. This involves recognizing and understanding the states of mind, including beliefs, desires and emotions of the Other without being influenced by those of the

Self. This is clearly reflected in the literature on E.I theory which states that empathy is the ability to comprehend another's feelings and to re-experience them oneself. Rogers (1951) claimed that empathy is a "priceless gift" and a central characteristic of emotionally intelligent behaviour. However, and importantly in relation to this argument, empathy researchers have noted its dependence on subsidiary skills similar to the E.I ability model idea of "appraising and expressing emotion", namely: *To understand another's point of view* (Hogan, 1969); *to identify accurately another's emotions* (Buck, 1984); *to experience the same or other appropriate emotion in response to them* (Batson & Coke, 1983), and *to communicate and/or act on this internal experience* (Batson et al., 1983). These "subsidiary skills" echo the two earlier stages of the ToM prerequisites as discussed previously. Empathy is a well-documented notion in the E.I literature, and is discussed by both ability- and mixed model theorists: The ability model concept of *empathic accuracy* (Mayer & Salovey, 1997; Ickes, 1997); the ESI mixed model notion of empathy as one of the *interpersonal skills* (Bar-On, 1997); the Emotional Competencies mixed model concept of recognising emotion in others through *empathic awareness* (Goleman: 1995), and the Trait mixed model concept of compassion through *agreeableness* (Petrides et al. 2000a).

Children with autism

As with the symbolic play findings, the false-belief test was investigated by Baron-Cohen (1995) in relation to autistic children. The aim of the study was to establish if autistic children had a ToM, and therefore the emotional abilities and skills as described under E.I theory. They gave children with autism the false belief test involving Sally and Anne, and found that autistic children were unable to pass the test. These findings propelled Baron-Cohen and other researchers to suggest that the characteristics of autism are due to a problem with their emotional development, and specifically to the concept of ToM. The condition of autism was subsequently coined as "mindblindness" (Baron-Cohen, 1995) – the inability to see things from another person's perspective.

Congenitally blind children

The so called “acid-test” for emotional intelligence is the false-belief test, as described above. Therefore, it is interesting to see what previous researchers have found when applying this test to blind children. Hobson et al. (1997) have documented the results of their study of false belief with congenitally blind children. There were 21 blind children and 21 sighted control children of similar chronological and mental ages (5-9 and 6.10 years respectively). They asked children to feel a warm teapot and to guess what was inside. They were then shown that instead of containing a drink, it contained sand. The children were then asked two questions: 1.) *What did you first think was in the teapot?* 2.) *What would a friend, who hadn't seen the demonstration, think was in the teapot?* They found that 10% of the sighted children failed this false-belief test, despite the youngest child being 4.7 years old. The blind children had more difficulties, with only about half the children passing the test. As noted by Pérez-Pereira (ibid: 54), if Hobson et al. had concluded their study at that point, it would have been suggested that blind children had significant problems developing a ToM and being emotionally aware through false beliefs. However, Hobson et al. (ibid) continued with another test – this time more dependent on the sense of touch. They covered boxes with different materials to differentiate a rough covered box from a soft covered box. They asked the children to predict in which box a person would look for a pencil when the pencil was moved from one kind of box to another, without the person having witnessed the change. This time, all of the sighted children passed the test, and 80% of the blind children, therefore improving on their previous results of the teapot test (Pérez-Pereira, ibid).

As acknowledged by Hobson et al., such types of tests emphasize the problems faced by researchers when comparing the performance of blind and sighted children. The researchers themselves had to take great care when communicating with the blind children, making sure they interacted using language and touch. This is an important methodological consideration of such studies, since successful communication between the researcher and the children is imperative in order to produce reliable and valid results. As discussed previously, there are many methodological difficulties in interpreting test results as evidence of emotional intelligence

in blind children, and more research is required before conclusions can be accurately drawn. Pérez-Pereira seizes this point in their discussion (ibid), suggesting that because blind children do not have vision to provide them with cues, a third control group of blindfolded sighted children should be used as well. It is only under those testing conditions that researchers can attempt to understand the role that vision plays in the understanding of instructions, and in creating joint reference necessary for evaluating ToM abilities (Pérez-Pereira, ibid).

Blind children, therefore, do not appear to be like children with autism in that they do not seem to have a problem achieving the 3rd level of ToM. However, what is clear is that researchers need to consider how blind children adapt to their impairment and how they find alternative ways to develop emotionally. Although the literature has detailed a delay in ToM abilities in blind children, longitudinal studies have also shown that they do eventually achieve full metarepresentational abilities, which is not the case for children with autism, as pointed out by Chess & Thomas (1984).

Emotional intelligence and blind children – analysing the autism link

The link between autism and congenital blindness has therefore been suggested and contested throughout the literature, and remains a disputed area today. On one hand, authors such as Hobson (1990) argue that there may be a functional overlap in the developmental psychopathology of children with autism and blind children, basing this claim on the theory of interpersonal intelligence (Gardner, 1983). Hobson claimed that blind children, like children with autism, are faced with obstacles when trying to perceive and understand other people's attitudes. From an E.I perspective therefore, Hobson argued that blind children have difficulties in their abilities to perceive emotions in others and to understand this in relation to themselves. Others, such as Pérez-Pereira (1999), argue that in the case of blind children, the problem is peripheral – lack of vision leads to lack of social-emotional experiences such as visually experiencing caregiver's emotional reactions to particular stimuli. In the case of autism, there

are more central mechanisms that are impaired, thus for a child with autism, the problem is a cognitive one as opposed to a physical deficit.

Perez-Pereira et al. (ibid) considered the prevalence of autism in the general population (approximately 0.1%) in comparison to the reported incidence in congenitally blind children (approximately 3% as a minimum). This 3% is considerably higher than the figure in the general population, but Perez-Pereira et al. were reluctant to simply conclude that the prevalence of autism is higher in congenitally blind children due to their lack of vision (ibid: 56). They analysed other populations - deaf children, deaf-blind children and severely mentally retarded children – to see what levels of autism they displayed. They found an increased level of autism in all these populations, suggesting, as they point out (ibid), that autistic-like behaviours can be found through various routes. For example, Jure, Rakin and Tuchman (1991) found that 46 out of 1150 deaf children (4%) met the DSM-III criteria for autism – echoing earlier findings by Jan (1977) with blind children (3%). Despite these findings, the authors then highlighted the importance of another finding, emphasizing the importance of another variable – cognitive ability. The authors found that the severity of the autistic behaviours found in the deaf children was related to the severity of the mental deficit of the deaf children in their sample. They found that less than one-fifth of the deaf children with autism had near-typical non-verbal cognition. This finding is therefore used to demonstrate the suggestion that cognitive abilities may well play a role in the presence or absence of autism in deafness, and this may also be applicable in other populations as well. As such, they considered the findings of a study by Baldwin (1993) where it was found that 10% of deaf-blind children were also considered to exhibit the syndrome of autism as defined by the DSM-III-R. (No information on cognitive abilities was available from that study.) They then examined the findings of a study by Nordin & Gillberg (1996) which found the prevalence of (DSM-II-R) autism in between 8.9-11.7% of mentally retarded children. These findings once again suggest that cognitive abilities may well play an important role in the presence of autism in populations with sensory impairments (Perez-Pereira, ibid: 56).

Following these studies and comparisons, it may be possible to conclude that the link between congenitally blind children and autism is not so clear. Future research needs to consider the further role of cognitive abilities and other variables in this relationship (ibid: 57). As

speculated by Perez-Pereira et al., it would seem that there needs to be an additional impairment in blind children in order to produce autistic-like characteristics that impede their emotional development. This impairment may well be in a cognitive form, as suggested above. It may also be in an ecological sense with regards to severe impoverishment of environmental provision resulting in no alternative routes for communication. This “stimulus deprivation” has been noted elsewhere in the literature and was given further impetus by reports of successful intervention in cases where obvious stimulus deprivation seemed to produce a picture equivalent to that due to cognitive damage (Freeman et al., 1989; Frailberg, 1977). Another explanation may well simply be coincidental psychopathology of autism. Therefore, it may be possible to argue that “autistic-like” behaviours reported in blind children may not reflect the same underlying mechanisms as those observed in children with autism. This reflects the previous argument made concerning methodological issues and as noted in the literature (Preisler, 1997; Urwin, 1984; Burlingham, 1964). Furthermore, and as emphasized earlier in this section, improvement over time in autism is minimal, whereas the autistic-like emotional and social behaviours in blind children often improve with age, experience and subjection to social stimulus (Chess & Thomas 1984).

Another point to consider is that “autistic-like” behaviours in blind children may in fact serve as an adaptive tool, and therefore have different functions to such behaviours in sighted children. For example, repeated head turning or rocking back and forth may in fact provide blind children with feedback about the position of their bodies in space. This has been noted in a similar way by Blass, Freedman and Steingart (1974) with relation to blind adults and repeating hand stroking, where such behaviour facilitated verbal fluency and the ability to recall certain lexical forms (Perez-Pereira, *ibid*). Such adaptive tools would in fact serve as a demonstration of blind children’s emotional intelligence, especially from the ability-model standpoint which highlights the ability to be flexible and adaptable to the environment and others during social interaction (Malovey & Salovey, 1997). Adaptation and flexibility will be discussed later on in this paper.

A final point to consider, and as raised in the literature (Perez-Pereira, *ibid*; Webster & Roe, 1998; Freeman et al., 1989) is the fact that the population of blind children is very heterogeneous. With this in mind, it is essential that researchers describe in detail the characteristics of the sample populations in their studies in order to consider all the possible variables. It would seem from a review of the available literature that cognitive impairment is most certainly one explanation for autistic behaviours in blind children. It therefore follows suit that studies including blind children with poor cognitive abilities are much more likely to be find “autistic-like” behaviours in their sample than studies with blind children with better cognitive abilities.

We can now move forward to consider certain elements of E.I theory, namely, particular abilities and states of mind, in relation to congenitally blind children. Firstly, as acknowledged at various points in this section, we will consider the use of language and personal reference terms, reflecting on the fact that under E.I theory, language helps us understand different representations of the world, and be capable of skilful social interaction.

Language and personal reference terms

Language can play an important role in developing an understanding of Self and Other, and extending a child’s context beyond their range of touch. In turn, this helps them to use their imagination and participate in the symbolic play activities discussed in the previous section, which are considered to be necessary in order to develop a full theory of mind and thus being emotionally intelligent.

Using language, and particularly being able to use personal reference terms such as person pronouns like “I” and “you”, are considered to be one of the most important features of blind children’s language. As noted by Pérez-Pereira (*ibid*: 103), several researchers have noted that this group of children often make reversal errors – such as using “you” instead of “I” (Clark, 1978), however this argument has been contested as will be explained. Firstly, however,

it is important to consider what the literature reveals about sighted children's emotional development in terms of language use in order to have a reference for comparison.

Sighted children and language

It has been proposed that sighted children start to use a few first person (*I*) and second person (*you*) singular pronoun forms between the ages of 18 and 25 months (Hernández-Pina, 1984; Chiat, 1986). Shortly after, they attempt to use third-person singular forms (*he, she, it*), and throughout the entire learning process they inject attempts to use plural forms with no apparent order of learning. However, it is not agreed as to how children actually acquire this ability, and as such various theories have developed (Clark, 1978; Charney, 1980; Chiat, 1983).

Despite disagreeing on more specific areas of pronoun use, all theorists appear to agree that pronoun reversing (confusing *you* with *I*, for example) is common in early language development, and is part of their emotional development and perception of Self and Other. This difficulty appears to disappear with the onset of full "mature" ToM, and children use language to help them develop their E.I abilities.

Congenitally blind children and language

The majority of studies explored in the literature suggest that blind children have many problems acquiring person reference terms (Anderson et al., 1984; Dunlea, 1989; Farrell et al., 1990; Frailberg & Adelson, 1973) and two main theories exist to support this claim.

The first view is linked with the theory on the link with autism, as discussed in the previous section. Supporters of this view argue that blind children show the same problems with person reference terms, as well as other symptoms, as children with autism (Lord & Paul, 1997; Tager-Flusberg, 1994; Happé, 1994). Blind children therefore produce a high percentage of pronoun reversals, as well as using personal reference terms late in comparison with sighted children. Hobson et al. (1997) suggested that problems with pronouns are caused by deficits in emotional knowledge of the Self and the Other. As explained by Pérez-Pereira (ibid: 107), this theory suggests that lack of vision deprives blind children of information concerning the

expression of emotions and other's attitudes. This in turn affects the development of psychological perspective-taking and the concept of self, which is a vital component for the development of a theory of mind and emotionally intelligent abilities (Brown et al., 1997).

The second perspective compares blind children with sighted children and argues that lack of vision negatively affects conceptual development, which in turn affects the acquisition of personal reference terms (Pérez-Pereira, *ibid*). Frailberg & Adelson (1977) proposed that blind children experience many difficulties in developing a body image due to lack of visual information, and that in turn hinders the development of their own self-awareness and self-representation. This deficient representation of self in turn affects language use and use of pronouns. A similar view is echoed by Loveland (1984), who argued that correct use of *I/you* pronouns is related to the understanding of different points of view in sighted children, and that there is a "*clear link between the child's growing understanding of the visual/spatial relations among persons and the child's emerging ability to refer to persons*" (*ibid*: 555). These findings would suggest that blind children have more problems in language use than sighted children due to either their cognitive development, or their spatial awareness, which in turn hinders a sense of Self. This view, referring to the child's "ecological self", has been noted elsewhere in the literature (Neisser, 1993), emphasizing how visual information and feedback are extremely important for the development of the ecological self, especially with regard to spatial understanding. However, both camps can be criticised for their methodology, which has been noted (Pérez-Pereira, *ibid*: 108) as being anecdotal and flawed due to lack of qualitative and quantitative analysis, and for basing conclusions on few examples. Therefore, although the majority of authors appear to adhere to the belief that pronoun reversals and late acquisition of personal reference terms are typical of blind children, it is important to note the methodological limitations of such studies. Indeed, other studies have not found any delay in the time of emergence of certain language forms in blind children (Pérez-Pereira, 1999). These newer findings therefore challenge former claims about blind children's problems with language and subsequent interpersonal and intrapersonal abilities.

It is therefore clear that emotional expression through language is an incredibly important way for blind children to communicate and develop a sense of Self and Other.

However, it has been noted that blind children may well have problems in achieving this sense, as evidenced in misuse of pronouns and a delay in personal reference terms. This may be due to cognitive impairments, as in children with autism, or it may be due to difficulties in their “ecological self” and their spatial awareness. Neither explanation is a clear cut argument however, with other authors challenging these claims and criticising the methodology of earlier studies. What does remain clear, however, is that blind children do use emotional expression through language, and do develop interpersonal and intrapersonal skills, but the routes for doing so may be somewhat different to those of sighted children.

III. Conclusion: Improving Emotional Intelligence

The review of the literature has suggested that vision is not essential for successful social interaction exchanges in children. Nor does lack of vision prevent children from successfully developing a theory of mind, and therefore recognising themselves and others as intentional agents. It has also been suggested that despite some documented difficulties, visual impairment does not completely prevent blind children from participating in symbolic play, and seeing a situation from the standpoint of the Other, hence developing a sense of false belief and the ability to use empathy. Whilst some authors have argued that blind children are similar to children with autism in their emotional abilities, this view has been contested elsewhere in the literature with the argument that “autistic-like” behaviours reported in blind children may not reflect the same underlying mechanisms as those observed in children with autism. The literature has therefore given us an overview of how visually impaired children are able to develop as emotionally intelligent individuals by perception, assimilation, understanding, reflective regulation and adaptability. This final concept – adaptability, is a crucial notion when considering how society as a whole can help visually impaired children develop emotionally. It is not only the child that needs to adapt, but the Other too (Als et al., 1980). Caregivers, for example, have to learn to interpret the reaction of quietness and stillness in their blind children not as a sign of lack of interest or attention, but as a way of indicating more concentration and attention (Pérez-Pereira, 1999: 44). They also need to establish alternative modes of developing routines and cycles of interaction that do not require visual support. In this way, caregivers can provide alternate support for blind children so that they can understand and predict forthcoming events, which is important for communicative development. As emphasised by Preisler (1997), caregivers can play an enormously important compensatory role for blind children (Peters, 1994), with caregiver-child language enabling the child to express and share emotion. As explained in the first part of this paper, this is an integral part of E.I theory.

A key issue, therefore, in how blind children achieve emotional intelligence, is adult sensitivity to the child’s standpoint, and how this shapes the quality of the adult’s interventions. Such interventions are known as “scaffolding”, which occur through social interactions and act to guide the young child through their emotional development. The most significant part of this

scaffolding comes through the co-operative use of language as a “bridge” (Freeman et al: *ibid*: 117) to overcome the most limiting aspects of visual impairment.

Let us return one final time to Emotional Intelligence and its distinctions: E.I theory, be it from an ability model or mixed model standpoint, emphasises the importance of perceiving and expressing emotion in the Self and the Other. As Mayer & Salovey (1997) point out, these skills are *emotionally* intelligent because they require the processing of emotional information from within the individual, and they require a certain level of competence at these skills for successful social functioning. A blind child, as demonstrated in the literature, is able to process emotion in the self which in turn determines how they express that emotion to the Other. As pointed out in the previous sections of this paper, this expression of emotion may well be different to that of the sighted child (e.g., stillness instead of moving when listening to a caregiver’s voice or using joint attention and social referencing through tactile stimuli instead of gaze alternation) and this should be recognised, especially in terms of methodology and research design. Using a sighted child as a yardstick to measure emotional capabilities in blind children has been criticised in the literature, and is something that needs to be considered further in future research.

In conclusion, and in relation to the questions asked in introduction to this paper, several statements can be made from assessing visually impaired children from an E. I standpoint:

- Being visually impaired has an impact on a child’s development of prelinguistic communication. This is clear from the literature, and as such it can be argued that it also has an impact on their ability to identify and express emotion (Mayer & Salovey, 1997.) However, this does not mean a visually impaired child cannot develop alternative forms of communicating – as seen in the discussions of social referencing. Indeed, such ways of adapting are demonstrations of a child’s adaptability and hence further evidence of their E.I abilities.
- A visually impaired child can also develop an adequate sense of Self. This is through the development of intrapersonal self awareness, (Bar-On, 1997) as demonstrated in the extensive discussion of theory of mind. Visually impaired children can also understand others as intentional agents - therefore, they have the ability to perceive and understand

emotions and subsequent actions in the Other (Mayer & Salovey, *ibid.*) This is detailed in the literature with relation to the false belief test and the ability to use empathy.

- A visually impaired child can also use gestures to communicate, as explained in the literature, and has the ability to assimilate emotion in thought and express the feeling through a given medium (*ibid.*) – as demonstrated in the discussion of symbolic play and language.

Visually impaired children can benefit substantially from the impact of Emotional Intelligence theory and research with regards to their social and emotional development. As evidenced in this review, E. I is an ability that can be developed, therefore from this standpoint the visually impaired child should be encouraged and should receive help from caregivers in the form of “scaffolding”. However, as they develop, it is essential that visually impaired children are a.) not measured in terms of sighted children, and b.) acknowledged as a heterogeneous group. This is especially important since it is evident that they use different strategies and learning styles through which they can compensate for the absence of visual information by paying more attention to other sources of information.

The notion of Emotional Intelligence and its impact on disability is in its infancy, although as the review of the literature reveals, the actual concept of emotional and social ability and visual impairment in children has been discussed at length throughout the last century. What is now needed is more empirical research that actually examines how E. I theory supports education and development in the young visually impaired population. As highlighted by Goleman (1995), there is a great need to raise awareness of strategies that help develop emotional intelligences in children. However, we will go further and suggest that this awareness should be extended to disability research, and specifically the visually impaired population.

“In receiving instruction in a system of knowledge, the child learns of things that are not before his eyes...”

Vygotsky (1978)

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