Grappling With the Effects of Attachment: A Gifted Model for Dual Exceptionality

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Gifted children have often been described as being "out-of-sync" with chronologically same-aged peers and societal expectations (Silverman, 1997, p. 39), and giftedness has been linked to particular characteristics, such as an ability to learn rapidly (Rogers & Silverman, 1997) and high IQ (Winner, 1998). High IQ has also been associated with secure attachment (Van Ijzendoorn & Van Vliet-Visser, 1988), and secure attachment is linked to good socio-emotional adjustment, and positive developmental outcomes (Prior & Glaser, 2006).

However, not all children with high IQ are securely attached (Karrass, & Braungart-Rieker, 2004; Van Ijzendoorn & Van Vliet-Visser, 1988). Although the consequences of insecure attachment may well have an impact on various aspects of their lives, including on their level of achievement, there is a dearth of research on the connection between giftedness and attachment. This may be explained by the long-held assumption that the problems of gifted children are a by-product of giftedness (Silverman, 1997; 1998). More recently, an article raised the possibility that these problems may instead stem from adverse early social and emotional environments, which can be assessed through attachment patterns (Wellisch, 2010).

In this chapter we present a brief review of available information, and argue that attachment may contribute to some gifted children being out-of-sync. Attachment-related cognitive and socio-emotional problems may also cause learning barriers. It will be argued here that although learning is affected, educational support and intervention may be inadequate in the case of attachment-related problems. Schools should therefore take a leadership role in the coordination of alternative interventions to ensure that children can be helped to overcome such learning barriers. Finally, a case will be made for the necessity of an inclusive model for gifted education that also addresses the needs of these gifted children. First, however, asynchrony will be examined, followed by a brief overview of attachment, and its possible impact on giftedness.

Asynchrony

The construct of asynchrony was conceived in response to a general shift away from the concept of giftedness to the more achievement-oriented and supposedly equitable development of "talent" (Morelock, 1992). Silverman (1997) argued that the poor

social fit of gifted children was due to a less mature but highly sensitive emotional system. She saw gifted children as cognitively complex and emotionally intense, functioning at various developmental ages — for example, with the mental age of a 14-year old, and a chronological age of an 8-year old.

According to Silverman (1998), the most asynchronous of all gifted children are gifted children with learning disabilities. Lovett and Lewandowski (2006) have suggested that a child with a learning disability (LD) who is also gifted can be identified if "ability [is]…substantially above average and…his or her achievement is substantially below average *when compared to peers of the same age"* (p. 524), recommending assessment "using IQ scores and absolute low achievement" (p. 525). The Diagnostic and Statistical Manual of Mental Disorders (DSM-IV) provides a similar definition and recommendation for assessment, adding that assessment and comparison with peers should be considered in conjunction with "age-appropriate education" (American Psychiatric Association, 2000, p. 39).

Various learning disabilities are thought to be due to particular executive function problems, such as working memory deficits (Alloway & Gathercole, 2006; Pickering, 2006; Swanson & Siegel, 2001), associated with the prefrontal cortex. Brain research has demonstrated the activation of the prefrontal cortex during IQ tests, and the magnitude of activation has been tied to intelligence (Chabris & Braver as cited in Shaw et al., 2005; Flynn, 2007).

Perry (2006), a neuropsychologist and psychiatrist, also described children who are characterised by uneven development in a number of areas, who have learning disabilities and developmental delays, and who are not usually associated with the gifted population. Most of these children develop an insecure attachment pattern (also referred to as attachment style), described later in the chapter. The outcomes of insecure attachment are remarkably similar to many of the characteristics associated with gifted and learning disabled children, including deficits in attention, and poor behaviour regulation (Perry, 2002). It is argued that there may be an overlap of these two populations, and the current research described later in this chapter was designed to test this hypothesis.

Attachment

The meaning of attachment in Bowlby's attachment theory (Bowlby, 1969) is different from everyday use of the term. According to Bowlby, attachment does not refer to a reciprocal love or affection relationship, but rather to a tie formed between a baby and its principal attachment figure (usually the mother), based on the baby's instinctual need for safety, security, and protection (Prior & Glaser, 2006). Bowlby noted that babies and young children displayed a strong need for seeking out their mothers when they felt threatened or uncomfortable. Such proximity-seeking behaviour was reciprocated by a response that, over time, develops into either a secure or an insecure attachment pattern. The pattern of attachment becomes the child's internal working model of self and others, based on the care he or she has experienced.

A review conducted by Prior and Glaser (2006) indicates that attachment patterns are relatively stable over the lifespan, although changes can follow therapy or traumatic events. The attachment pattern acquired through interaction with the mother is later applied to interactions with others, including friends, and romantic love relationships.

Attachment patterns

A tripartite classification of *secure*, *anxious* (also called ambivalent), and *avoidant* attachment was originally based on babies' reactions to stress-related experiences such as their mothers leaving, and to strangers entering the observation room in a laboratory setting (Ainsworth, Blehar, Waters, & Wall, 1978). These findings have stood the test of time through many replications of Ainsworth et al's research.

Mothers of secure-attachment children are thought to be consistently sensitive and responsive, and their babies have been found to be advanced, for example, in language skills (Van IJzendoorn, Dijkstra, & Buss, 1995). Conversely, insecure attachment, comprised of anxious and avoidant attachment, is associated with ongoing emotional and behavioural problems (Prior & Glaser, 2006). Prior and Glaser concluded after reviewing research on attachment that the "distribution of patterns is remarkably consistent across different cultures with the majority (approximately 65 per cent) being secure" (p. 36).

Attachment and giftedness

Experts from a variety of fields have speculated that intelligence may be a protective factor, for example in relation to maternal depression (Johnson and Flake, 2007), and that it may accelerate recovery from earlier poor care-taking (Perry & Szalavitz, 2006). Speculation has also included the notion that gifted children (sometimes referred to as intelligent children) actively co-create their environment (Perry & Szalavitz, 2006; Sternberg, 2005; Van Ijzendoorn, Dijkstra, & Bus, 1995; Winner, 2000). The vehicle through which they do this is their often very special relationships with significant others to satisfy their driving need for information (Cigman, 2006).

There is general agreement that excellent verbal ability is an identifying characteristic of many gifted children (Clark, 2008; Frasier & Passow, 1994; Liu, Hui, Lien, Kafka & Stein, 2005; Rogers & Silverman, 1997), similarly to the securely attached. However, there is little agreement on the social adjustment of gifted children, with some findings indicating that they are well balanced, while other findings conclude that they do have adjustment problems, for example, during the teenage years (Csikszentmihalyi et al., cited in Winner, 2000).

Silverman (2002) has described a subpopulation of gifted children with LD and Attention Deficit Hyperactivity Disorder (ADHD). She has also observed that they frequently have an IQ profile of a higher performance score in comparison to their verbal score. Perry (2001) reported similar observations, including the same IQ profile, in children who had been abused or had in other ways encountered trauma. This population was also frequently diagnosed with socio-emotional and learning related problems, such as ADHD (Perry, Pollard, Blakely, Baker, & Vigilante, 1995), and had an increased probability of being insecurely attached (Van Ijzendoorn et al. as cited in Prior & Glaser, 2006).

To sum up, there appears to be similarity between children who are abused and neglected and a particular portion of the gifted population who have socio-emotional problems, LD, and a particular IQ profile. There are many forms of giftedness, however, such as musical or artistic giftedness, and it may well be the case that certain forms of giftedness are more likely to be related to problems than others. For example, Jamison's and Ludwig's findings (as cited in Winner, 2000) indicate that bi-polar disorder is associated with creativity. Although there are many forms of giftedness, the research described later has chosen to focus on intellectual giftedness, which is relatively easy to assess and identify. Identification is generally made by using multiple sources of information (VanTassel-Baska, 2000). One of these sources, the IQ test, is considered a reliable predictor of school achievement (Deary, Strand, Smith, & Fernandes, 2007).

Review of the literature

Only two studies with opposing findings make up the available research on attachment and higher IQ. The first is an older Dutch study of 65 middle-class toddlers (Van Ijzendoorn & Van Vliet-Visser, 1988). The children's attachment patterns were first observed when they were toddlers, and by the time they reached Kindergarten age it was found that the securely attached had the highest IQ (*M*=116). As IQ scores of the anxiously attached were only slightly lower (*M*=112), the authors concluded that anxious attachment had not hampered cognitive development as much as they had hypothesised. Karrass and Braungart-Rieker (2004) carried out a more recent American study with a sample of 63 middle-class infants and found the opposite, namely that insecurely attached 3-year olds had the higher IQs (the mean was not provided).

There were many differences between the two studies. The IQ measure used by Van Ijzendoorn and Van Vliet-Visser, administered to school aged children (*M*=64 months), was the standardised Dutch Leiden Diagnostic Test, whereas Karrass and Braungart-Rieker administered the Stanford-Binet Fourth Edition (SB-IV) to 36-months olds, an age when IQ may still be unstable, with "the ideal age for testing…between 5 and 8½ years" (Silverman, 2010). Further, as Karrass and Braungart-Rieker combined anxious and avoidant attachment, a direct comparison cannot be made between the two findings. Since research on attachment and giftedness was scarce, the literature review was expanded to include areas such as brain research and maternal depression to help clarify the relationship between attachment patterns and gifted children who were 'out-of-sync'.

Attachment and the Current Gifted Model Used in Australia

As the gifted literature has not considered attachment as an essential factor in the development of intellectual giftedness (or any other form of giftedness), it is understandable that its role is not reflected in the current model used in Australia, the Differentiated Model of Giftedness and Talent (DMGT) (Gagné, 1985). It is outside the scope of this chapter to thoroughly review the DMTG, however, the model is

aimed at children who can achieve in the top 10% (Gagné, 2008), a clear disadvantage for children with attachment-related problems who are gifted, and underachieving.

In his debut article for the model, Gagné (1985) reviewed and critiqued Renzulli's redefinition of giftedness, which comprised a greater than average ability, creativity, and motivation. He pointed out a flaw, namely that gifted underachievers, who are often characterised by socio-emotional, and motivation problems (Commonwealth of Australia, 2000), would be unable to benefit from such a definition, as they lacked motivation. Gagné (1985) then made a point of differentiating his model from Renzulli's definition by including underachievers in his model, defining them as "gifted…without having manifested…giftedness in any academic talent" (p. 12).

Although Gagné continues to acknowledge the phenomenon of "academic underachievement" (Gagné, 2008, p. 6), he now states very clearly that the DMGT is "a talent-development model. It is NOT [author's capitals] a model representing a person's total personal development" (2008, p. 4). This view can be further detected in Gagné's (2010) latest article, yet to be published, where he distances himself from the frequent use of the term 'gifted', replacing it with his new term, 'talentee' (Gagné, 2009, p. 2). He now argues that "being bright is rarely sufficient to deserve the gifted label; students must also show high academic performance" (n.p.), adding that if a child has been identified for talent development and his or her pace slows, "teachers might reconsider a student's talentee status" (Gagné, 2010). This suggestion, together with his previous observation that giftedness should be demonstrated through performance, leaves little room for underachievers.

Additionally, the DMGT's only offering is through educative means, measures of progress, and the quality of effort and investment. This limited approach to some gifted children's needs leaves them without alternative intervention, and as their needs are not addressed in the DMGT, also without a legitimate claim for such intervention. A socio-emotional component for an inclusive gifted spectrum model is therefore proposed later in this chapter. It is argued that learning barriers are the business of educational institutions regardless of their underlying cause, although the causes should be identified so that appropriate intervention can be used. For example, if the learning barrier is caused by attachment problems, it must be addressed through appropriate evidence-based attachment-related interventions so that these gifted children can eventually be supported towards achievement.

Possible New Treatments

As attachment-related problems have not previously been considered in relation to gifted children's socio-emotional needs, teachers and parents have had to find their own way through an array of possible diagnoses and treatments, each claiming to address learning disabilities or socio-emotional problems, although none may specifically address issues arising from insecure attachment.

Helpful therapies do exist. For example, there are promising new programs being developed for children with attachment problems that aim to address early damage,

including massage, music, and other therapies (Perry, 2006). Evidence-based programs and therapies include Triple-P Parenting for parents of gifted children (Morawska & Sanders, 2009), Trauma-Focused Cognitive Behavior Therapy (Cohen, Mannarino, Berliner, & Deblinger, 2000), and Eye Movement Desensitisation and Reprocessing (EMDR) (Bisson & Andrew, 2007). Findings also indicate that children's diagnoses and symptoms can be reduced when their mothers received medication for maternal depression (Foster, et al., 2008; Weissman, et al., 2006). These interventions may lead to greater self-confidence, and increased motivation to achieve in insecurely attached gifted children who have attachment-related disorders.

The Current Study

The first hypothesis was that cognitive development, socio-emotional adjustment and LD are all related to attachment patterns in gifted children. The second hypothesis was that gifted children would be more likely to be securely attached, bearing in mind the notion that intelligence may be a protective factor. The third hypothesis was that the particular IQ profile of higher Perceptual Reasoning scores compared with Verbal Comprehension scores will correlate with LDs and socio-emotional problems, as reported by Silverman, as well as with anxious or avoidant attachment, similarly to Perry's population.

Participants

Recruitment was targeted at 7-10 year-old children (N=49) who had already completed a WISC-IV IQ assessment within the previous 18 months, and whose full scale IQ (FSIQ) was $\geq$ 80. These children and their parents were recruited from three sources catering for mainly middle-class families: the Indigo Assessment & Counselling organisation in New Zealand, a clinic specialising in gifted children; the Macquarie University Rod Power Psychology Clinic, a clinic open to the general public; and the NSW Association for Gifted and Talented Children, whose members are mainly parents and teachers of gifted children. As recruitment is ongoing, only current findings are reported here.

Materials

Background questionnaire

A general background questionnaire for both mothers and fathers included perception of ease of attachment to their child, whether they or their child had any learning disabilities, and questions about socio-economic status, for example, highest qualification, job title, and family income. Maternal depression is a factor in insecure attachment, and mothers were therefore also asked whether they had been diagnosed with maternal depression after the birth of their child.

As 15 fathers did not participate in the research, mothers' data were used for analysis presented here. Current data indicate that 74% of the mothers had at least a Bachelor degree qualification, confirming that the population was middle-class. This was further supported by family income, where there was a choice of six levels, ranging from 1 (low) to 6 (high), with 82% reporting earnings in the two highest income brackets (levels 5 and 6). As mentioned above, data on LD were collected in the general background questionnaire. Parents were asked "does your child have a

diagnosed learning disability", and if affirmative, to circle one or more of the following: speech, spelling, reading, mathematics and handwriting.

Cognitive ability and intellectual giftedness

A Wechsler Intelligence Scale for Children (4th ed.) (WISC-IV) (Wechsler, 2003) was used by the children's psychologists to assess cognitive ability. For research purposes an IQ of ≥120 was adopted as a gifted score, based on Gagné's (2004; 2005) metric system of gifted levels, which listed mild giftedness as a FSIQ of 120. Other studies also often use an IQ of ≥120 as a measure of high IQ (Antshel, et al., 2007; Antshel, et al., 2008), and Antshel et al. (2007) operationalised both giftedness and high IQ at ≥120. Both subtest index scores and full scale scores of ≥120 were used as measures of giftedness, as full scale scores alone may not reflect the frequently discrepant scores of many gifted children (Munro, 2002; Silverman, 2002). This strategy would also ensure the inclusion of "those academically talented students whose relative weakness in one domain reduces their composite score below the established cutoff for admission" (Lohman, Gambrell, & Lakin, 2008, p. 270). Additionally, it has long been standard practice to interpret IQ scores at both levels (Kaufman, 1979).

The verbal and performance scores are no longer available in the latest WISC-IV. They have been replaced by the new Verbal Comprehension and Perceptual Reasoning indices with some changes, for example, Perceptual Reasoning relies less on speed and has greater incorporation of fluid reasoning (Niolon, 2005). The higher Perceptual Reasoning combined with a lower Verbal Comprehension IQ profile was tested by using only profiles where Perceptual Reasoning scores were ≥10 points higher than Verbal Comprehension scores.

Ten WISC-IV subtests are required to be administered to assess general cognitive abilities through the following four indexes: the Verbal Comprehension Index, designed to measure verbal reasoning and concept formation; the Perceptual Reasoning Index, designed to measure fluid reasoning in the perceptual domain with tasks that assess nonverbal concept formation, visual perception and organisation, simultaneous processing, visual-motor coordination, learning, and the ability to separate figure and ground in visual stimuli; the Working Memory Index, designed to measure attention, concentration, mental control; and Processing Speed, designed to measure speed in processing simple or routine visual material without making errors.

Higher Perceptual Reasoning/lower Verbal Comprehension profile

Much **c**ontroversy has surrounded the practice of examining specific subtest clusters of tests in order to identify underlying disorders, a practice also known as profile analysis, for example the higher performance combined with lower verbal IQ profile noted earlier by Silverman, and Perry. The controversy has arisen due to divergent findings, causing Lovett and Lewandowski (2006) to call for a stop to profile analysis of gifted children until there is evidence that it can be used reliably. The inclusion of the IQ profile in the current research aims to address this research need.

Child's attachment measure

Children's attachment to their parents is eventually superseded by ties to peers and romantic relationships. Whereas there are a number of attachment assessment tools

for younger children, there was a gap in an assessment tool for school-aged children until Finzi, Har-Even, Weizman, Tyano and Shnit (1996) published an adaptation of Hazan and Shaver's (1987) Hebrew adult questionnaire, based on Aisworth et al's (1978) patterns of attachment. This questionnaire, the Attachment Style Classification Questionnaire for Latency Age Children (ASCQ), was later translated to English. The 15-item Likert-type ASCQ questionnaire was used for its brevity, its design for use with the target age group, and for its reported reliability, although an adjustment was made in the language of a few items to make the items simpler (items 3, 9, and 14). For example, item 3 was changed from "It is easy for me to depend on others, if they are good friends of mine" to "It is easy for me to depend on my good friends".

Child's emotional and behavioural measure (CBCL)
The socio-emotional adjustment of children was measured with Pages 3 and 4 of the Child Behavior Checklist for Ages 6-18 (CBCL) (Achenbach & Rescorla, 2001) completed by children's parents. The CBCL is designed to obtain data on children's behavioural and emotional problems and competencies. Pages 3 and 4 contain a 113-item Likert-style questionnaire with responses ranging from "Not true" (=0) to "Often true"(=2). An example of an item is "Would rather be alone than with others".

Procedure
New Zealand parents were invited to join the research when they made an appointment with Indigo Assessment & Counselling clinic for their child to be assessed. Those who chose to take up the offer were handed questionnaires, their child was administered the ASCQ during the assessment, and all data were posted to the researcher. In Australia, the Rod Power Psychology Clinic provided the IQ and CBCL data to the researcher, who administered the ASCQ to each child. Questionnaires were posted to participants recruited through the NSW Association for Gifted and Talented Children. The ASCQ was administered to each child when these questionnaires were collected, and children's individual psychologists provided the WISC-IV data by post.

Preliminary Results

As mentioned, Prior and Glaser's review found that approximately 65% of the population was securely attached. This was borne out by the current study, with 33 child participants (66%) securely attached. However, of children who had at least one $\geq$120 IQ (n=25), more than 82% were securely attached, and only one child was classified as avoidant.

Maternal depression, which has been associated with insecure attachment, may have been underreported, as only 8% of the mother participants reported such a diagnosis, a figure that does not reflect the Australian data of 16% for postnatal depression (Buist & Bliszta, 2006). It may well be that depressed mothers had not been formally diagnosed, and that option was not included as a question. In all cases where mothers had reported postnatal depression, their children had a secure pattern, regardless of IQ.

Although there was a spread of FSIQs, the deliberate recruitment of gifted child participants was reflected in the large population (28%) of participants with a FSIQ ≥120, compared with 9% in the average population. In this study, Perceptual Reasoning scores were higher than Verbal Comprehension scores in 76% of the participants. Of these, 72% had at least one score of 120 or above.

A total of 14% of mothers reported that their children had learning disabilities, compared to a recent NSW study involving 14,500 primary and high school children, which found that between 17.9% and 19.1% children had specific learning difficulties (McLeod & McKinnon, 2007). No recent New Zealand data was found. As with maternal depression, this item may also have been underreported for similar reasons as above.

IQ, LD and Attachment

The first hypothesis, that cognitive development, socio-emotional adjustment, and LD are all related to attachment patterns in gifted children is only partially supported by the findings. Cognitive development was found to be associated with attachment, discussed below, although no correlations were found between attachment, socio-emotional adjustment, and LD. However, 8 of the 17 participants who scored at least 3 points higher in Perceptual Reasoning than in Verbal Comprehension, and who also had at least one IQ score of ≥120, had internalising and externalising problems in the clinical range.

The second hypothesis, that gifted children would be more likely to be securely attached, appears to be supported. An independent groups t-test indicated that children whose full-scale IQ was ≥ 120 had significantly higher secure attachment scores at the < .05 level (3.8 compared to 3.4; t=2.3, p=.03), and significantly lower avoidant attachment scores (2.0 compared to 2.5; t=2.5, p=.04) than those with IQ scores < 120. The two IQ groups did not differ with regard to anxious attachment scores.

A different look at all IQ scores showed that secure attachment was positively correlated with all indices and FSIQ scores, while avoidant scores were negatively correlated, and significantly so (at the .05 level), with Perceptual Reasoning, Working Memory and FSIQ (see Table 1).

Table 1. Correlations Between Secure, Anxious, and Avoidant Attachment and IQ Scores

	Attachment Patterns		
IQ Scores	Secure (n=48)	Anxious (n=49)	Avoidant (n=48)
Verbal Comprehension	.13	-.05	-.18
Perceptual Reasoning	.16	-.06	-.32*
Working Memory	.14	.03	-.30*
Processing Speed	.18	-.06	-.11
Full Scale IQ	.19	-.04	-.28*

*p < .05

IQ profile, LD, socio-emotional adjustment, and attachment

The third hypothesis was that the IQ profile of higher Perceptual Reasoning scores compared with Verbal Comprehension scores would correlate with LDs and socio-emotional problems, and this hypothesis was only partly supported. As mentioned, no correlation was found between LD, socio-emotional problems, and attachment, nor did any of these correlate with the ≥10 points higher Perceptual Reasoning than Verbal Comprehension score IQ profile. However, although children with at least one index score of 120IQ were less likely to have LD (21%) compared with other children (52%), a crosstabs analysis showed that children with ≥10 points higher Perceptual Reasoning than their Verbal Comprehension scores were more likely to have at least one LD than other children, particularly in spelling (see Table 2). No significant differences were found for speech, reading, mathematics and handwriting, however, there was a trend in the same direction.

Table 2. Perceptual Reasoning-Verbal Comprehension Discrepancy and Learning Disabilities (LD)

	Learning Disabilities	
Discrepancy Category	One or more LD (*n*=18)	Spelling LD (*n*=13)
Perceptual Reasoning 10 points higher than Verbal Comprehension (n=13)	53.8%	46.2%
Perceptual Reasoning NOT higher than Verbal Comprehension (n=36)	30.6%	13.9%

Note: LD = Learning Disability

Discussion

Overall, attachment appears to be associated with IQ, although there were no effects for anxious attachment. Secure attachment increased with IQ, supporting Van Ijzendoorn and Van Vliet-Visser's (1988) earlier finding, and avoidant attachment was significantly associated with decrease in Perceptual Reasoning, Working Memory and FSIQ scores. This finding is further underscored by the relative absence of children who were both gifted and avoidant, with only one avoidant child in a population of 25 participants who had at least one score of ≥120 IQ. As mentioned, child participants were drawn from a clinical population, making this finding even more remarkable. The finding can also be interpreted as showing that avoidant attachment significantly reduced the likelihood of higher IQ in this middle-class population. The findings appear to support the aforementioned speculation of experts from a variety of fields that intelligence may be protective, although more in-depth exploration is required, for example, through parent interviews.

Another noteworthy finding was that children with at least one score of ≥120 IQ were much more likely to have an IQ profile with a higher Perceptual Reasoning score in

comparison with their Verbal Comprehension score. This IQ profile was also associated with more LDs, and externalising and internalising problems, supporting Silverman's (2002) observation that children seen in her clinic who are gifted may have a tendency towards this particular IQ profile, which was also associated with LDs, and other problems.

Caution should be applied to the interpretation of the current data due to the low number of participants. However, if the assumption is made that intelligence is a protective factor, it is then also possible that although gifted children who experience early trauma can more easily become securely attached, they may nevertheless have residual problems associated with these early experiences. First, they would be more likely, like Perry's population, to develop the higher Perceptual Reasoning combined with a lower Verbal Comprehension IQ profile, and in this study 72% of the participants with this IQ profile had at least one ≥120 IQ. Second, they would be more likely to develop socio-emotional problems, like Perry's abused and neglected children, and 47% of the participants with the same IQ profile had problems in the clinical range. It is therefore possible that gifted children who have experienced early trauma, perhaps as a result of maternal depression, are more likely to be securely attached with this particular IQ profile, however, further research is required to investigate these associations.

Limitations of the Study

Inherited intelligence is a potential confounding factor in the finding on the association between attachment and IQ. A limitation of this study is that parents' IQs were not collected, as was also the case for the two previous studies on IQ and attachment. Future studies need to ensure the collection of IQ data for both parents and children in order to settle the question about the true association between attachment and IQ.

Implications

Psychologists should be aware of possible LD in gifted children where a WISC-IV Perceptual Reasoning score is at least 10 points higher compared with their Verbal Comprehension score. The same IQ profile should also give rise to consideration of giftedness where there is at least one index score of ≥120 IQ.

Another implication is the need for an inclusive model, as the DMGT does not offer provision for the needs of those gifted children who may have attachment issues that in turn can prevent achievement.

An enabling component in a gifted model

A model of giftedness needs a component for children who are gifted but have learning barriers and lack motivation. These problems may arise as a result of insecure attachment or due to a loss in interest through boredom with the

curriculum, as may be the case for some non-identified gifted child. The importance of an alternative to educational strategies represented by a component in an education model has already been suggested by Adelman and Taylor (2000), who named it an "enabling component" (p. 17). Interestingly, they also identified some children with learning barriers as "avoidant" (p. 19).

The addition of such an enabling component in a gifted model would ensure that gifted children with learning barriers are included in gifted programs once they are identified, regardless of achievement. This option is currently unavailable under the DMGT.

The gifted identification process as practised by schools is the ideal time to simultaneously assess whether children also have learning barriers, and identification should be seen as a priority, due to the possible requirement for early intervention. In this process, children who are near the top of the class can be seen as 'ready learners'. They may be gifted children who are also characterised by an "exceptional desire to achieve" (Cigman, 2006, p. 207). Ready learners can therefore move directly to the education/training component of a model such as the DMGT, and be provided with strategies as suggested by Gagné (2010). Learners with barriers, however, require appropriate and early socio-emotional and other interventions. Allowance should be made for the child to move between appropriate socio-emotional and educational provisions as long as this is needed (see Figure 1).

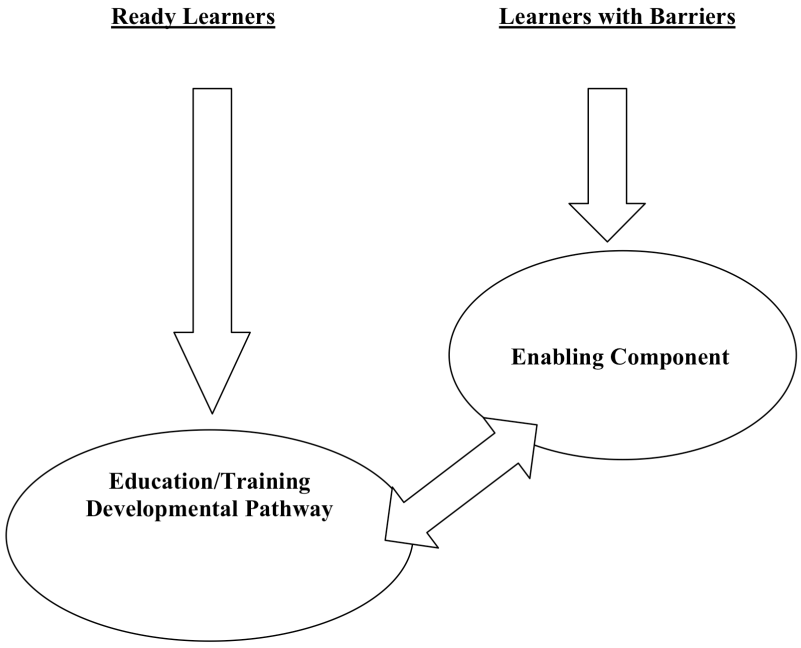

Figure 1. Education/talent development pathway via the gifted enabling component.

Cigman (2006) suggests that children with problems, here known as *learners with barriers*, may be identified as children whose IQ places them in the top 90+ percentiles or who appear to be unusually precocious, yet are not high achievers or may have learning and socio-emotional difficulties. There are "two 'loose' criteria or indicators" (p. 207) of children who may have potential for exceptional performance: children who may have "flashes of extraordinary insight...though…concentration and

output are poor. This sort of profile — occasional brilliance, unsteady concentration or performance — points to a worrying discrepancy between potential and actual ability which could have a social or emotional source" (p. 207). The other group of potentially gifted children, according to Cigman (2006), "are education-junkies, preferring to spend their free time at museums or with their heads in books than playing with their friends...without the ability to achieve highly" (p. 207), or whose achievements are erratic, depending on their interest or level of boredom with the set work at school.

These underachieving children may also need both educational and socio-emotional intervention through the enabling component, which, according to Adelman and Taylor (2000) should be seen as part of the school's coordinating role. As already mentioned, *learners with barriers* can be supported through a variety of evidence-based interventions that can successfully address insecure attachment.

Summary and Conclusion

The preliminary findings of this study indicate that although a higher IQ appears to be a protective factor, a sizable proportion of the gifted children were insecurely attached. Findings also show that the more secure the attachment the higher the IQ, and that avoidant attachment is negatively associated with IQ scores. Additionally, a WISC-IV IQ profile of high Perceptual Reasoning in comparison with the Verbal Comprehension score may be a more frequent occurrence in children who are gifted, and this profile is more likely to be associated with at least one LD, reducing the probability of high achievement. An enabling component to address the learning barriers of gifted children therefore clearly needs to be part of any educational model for gifted children if we are serious about our aim to ensure that all children are supported in reaching their potential.

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